

JANUARY
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4285 Kc.	7011.75 Kc.	7053.5 Kc.	7145 Kc.	10.515 Mc.
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5050 Kc.	7016 Kc.	7064 Kc.	7156 Kc.	10.530 Mc.
5300 Kc.	7018 Kc.	7068 Kc.	7162.5 Kc.	10.5465 Mc.
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5456 Kc.	7021.5 Kc.	7073.5 Kc.	7174 Kc.	12.803 Mc.
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TECHNICAL EDITOR:

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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



DEMOCRACY AT ITS BEST

On the 22nd February, 1857, in London was born a man whose name was destined to become famous both in the military sphere and in every remote part of the globe where mankind lived and flourished. His name was Robert Stephenson Smyth Baden-Powell, better known perhaps under his several nicknames of Ste. (a contraction of his second Christian name, Stephenson, and used mostly by his family); dear old Bathing Towel to his school pals; He of the Big Hat to the Ashanti campaigners; the Wolf that Never Sleeps to his African enemies, the Matabele; and to the world at large as plain but familiar "B-P".

Lord Baden-Powell, as he afterwards became, was a man with outstanding courage, vision and tenacity of purpose. History records details of his Defence of Mafeking during the Boer War in 1899-1900 as one of the outstanding military achievements of all time, yet he was to go on to far greater achievement in completing one of the masterpieces of International organisation—the Boy Scout Movement—a Movement to which he initially gave his spare time and later in life all his time.

Today, despite bitter wars between Nations, the Boy Scout Movement has continued to flourish and expand, carrying on his great teaching—"To train our future men to be level headed, to give fair play to all, to be unselfish, manly and responsible beings". In those few simple words lies a challenge to youth which has been taken up and perpetuated through four generations and will no doubt continue unto eternity.

"Be prepared," he said, and these words became the Scout's Motto. "Train your Scouts as individuals and then harness that individuality for the good of the whole" was his great democratic aim, and to this end he gave his all until his passing on the 8th January, 1941.

In our modern scientific age signalling from the simplest form with lamps or flags to the more complex telegraphic and telephonic systems is one of the primary interests and pursuits of the Boy Scouts. In many countries various Boy Scout Branches have Amateur Radio Transmitting Stations as part of the Scout training in signals. This not only brings the Boy Scout Movement to the forefront in signalling facilities, but proves a worthwhile training ground for those who ultimately choose the radio and electronic field with its wide ramifications as their profession in life. This country will want more and more young people to become interested in the science of radio transmission and reception in its many forms as the population increases and the requirements for technical services in this sphere become greater and greater.

To this end the Wireless Institute of Australia has installed a complete Amateur transmitting and receiving station at the site of the Pan-Pacific Jamboree being held at Clifford Park, Victoria, from 28th December, 1955, to 9th January, 1956, where 16,000 Boy Scouts from the Commonwealth and overseas countries are encamped for one of the greatest Jamborees of all time—a tribute to the great founder of the Movement who lived to see it grow from its inauguration

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Pi Network Tank Circuit

BY K. M. SAXON,* VK7AI

UNTIL recently, the pi network has had little use in Amateur built transmitters, probably because of the difficulties associated with its use in triode amplifiers. But with the trend towards single ended tetrode amplifiers, due in no small measure to the advent of television with its associate t.v.i. of the harmonic variety, the pi network has much to offer from a harmonic reduction point of view, besides affording a simple method of band changing which makes a completely shielded enclosure a relatively simple matter, as access doors do not have to be provided for coil changing. Thus the operator runs no risk of self elimination if he forgets to turn off the high voltage when changing bands.

The main purpose of this article is to describe the writer's final amplifier which uses a pi network. But before doing so, a discussion of the theory of the pi network is desirable.

THEORY OF THE PI NETWORK

The pi network is by no means a new idea. Its main use has been in aerial coupling devices, with some use as a tank circuit in pre-war Amateur portable equipment, etc. It was used in at least one pre-war 5 kw. broadcast transmitter, where its harmonic attenuating abilities were stressed.

At first sight, a circuit diagram using a pi network may appear complex, but it is by no means mysterious to understand.

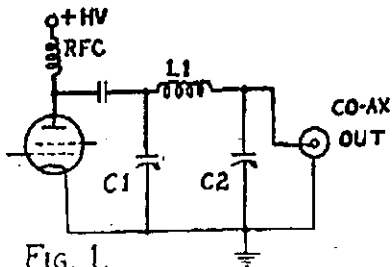


FIG. 1.

The circuit of Fig. 1 shows the network as used as a tank circuit.

C1 and L1 form the tuned circuit elements in much the same way as in a parallel tuned circuit, with the load appearing as a pure resistance across C2.

The loading on the tube is determined by L1 and C2, C1 being used to maintain the circuit at resonance when either of the other two elements is varied. Ideally, both L1 and C2 should be continuously variable as this permits adjusting the load on the tube while maintaining a desired value of Q. For a given Q, C1 would have the same value as in a conventional tank circuit and its value may be determined in the usual way.

If the load connected to the output in Fig. 1 is a pure resistance of known value, a fixed value for either L1 or C2 can be predetermined and the d.c. tube input then adjusted to the desired figure

by varying only one of these two circuit elements. C1 must be variable, of course, to maintain resonance.

If L1 is variable and C2 fixed, the optimum capacity of C2 is such that its reactance is equal to the resistance of the load connected to the output. It happens that when the load resistance is low, of an order of 50-70 ohms as normally used with co-axial cables, this value of capacity at C2 is just about right for maintaining the circuit Q within a reasonable range with most transmitting tubes, particularly those having an estimated plate load impedance of 5,000 ohms.

In actual amplifiers, where the Q may be higher, or with large tubes operated at reduced plate voltage, or two small tubes in parallel, with consequent lowered tube load impedance, the reactance at C2 may be considerably less than the nominal load impedance. Also, if the load is not a pure resistance, C2 has to be adjusted to cancel out the reactance. This may occur with a co-ax link at an aerial coupler unless the coupler correctly matches the link to the aerial.

Sometimes L1 is switched, by means of tappings, to each band and C2 is a continuously variable loading adjustment. This varies the Q of the circuit but is not objectionable, provided the tuning range is the same as is the case with the Amateur bands.

The value of C2 which will provide a given degree of loading on the amplifier depends on several factors. The lower the co-ax output impedance, or the higher the Q of the circuit, the greater

the capacitance required. Also, the higher the load impedance of the tube (given roughly by $500 \frac{E_b}{I_{bma}}$), the smaller the capacitance needed. Typical values of all elements for different bands and tube impedance are given in the accompanying tables. For example, a single 807 with a plate voltage of 600v. at a current of 100 Ma., would have an estimated load impedance of 3,000 ohms. At 7 Mc. C1 = 90 pF., L1 = 6.2 uH., and C2 = 700 pF. For 72 ohm output C2 would be slightly lower.

As in any amplifier to be operated at the higher frequencies, every effort must be made to reduce stray capacitances to a minimum, particularly those in parallel with C1.

Tube output and stray capacitances, plus the variable condenser's own minimum capacitance, add up to a considerable total, making it difficult to keep the circuit Q below 20 or more on 28 Mc. This will reduce the efficiency of the circuit due to heating of the coil, even though the actual tube efficiency may be as high as on the lower frequencies.

Whilst a pi network has very good harmonic attenuation, it will pass frequencies lower than the fundamental with greater ease than a conventional tank. Therefore, the p.a. should not be run as a doubler, nor should it be driven by a doubler unless link coupling is used with two tuned circuits. Also, an aerial coupler is desirable.

One major difficulty is the r.f. choke needed for parallel feed. This must present high impedance on all bands,

TYPICAL OPERATING CONDITIONS AND COMPONENTS FOR PI COUPLED AMPLIFIERS

	Band	Par. 807s	Single 807	813	2E26	
Estimated Plate Load (Ohms)		1,500	2,500	3,000	3,200	4,000
Plate Voltage		600	500	600	800	400
Plate Ma.		200	100	100	125	50
C1 in pF.	3.5	360	210	180	160	135
includes strays	7.0	180	105	90	50	70
(Q = 12)	14.0	90	52	45	40	35
	21.0	60	35	31	28	24
	28.0	45	28	23	20	18
L in uH.	3.5	6.5	10.5	12.5	14.0	15.0
	7.0	3.3	5.3	6.3	7.0	7.8
	14.0	1.5	2.6	3.1	3.5	4.0
	21.0	1.0	1.8	2.0	2.4	2.7
	28.0	0.8	1.3	1.5	1.7	2.0
C2 in pF.	3.5	2,100	1,500	1,400	1,250	1,100
for 50 Ohm Output	7.0	1,050	750	700	630	580
	14.0	540	380	350	310	280
	21.0	350	250	230	210	190
	28.0	270	190	175	160	140

All values approximate.

$$\text{Estimated plate load impedance in ohms} = 500 \times \frac{\text{Plate Voltage}}{\text{Plate Current in Ma.}}$$

* C/o. Clifton Private Bag, Somerset, Tasmania.

without any series resonances near the bands. A suitable choke is described in the components' list of the transmitter and also in "QST" of May, 1954.

CIRCUIT OF THE TRANSMITTER

The grid circuit employs a multi-band tuner similar to that described in "A.R." for October, 1953. This was found to work as well as a switched or plug-in coil system. The drive is reasonably constant on all bands, being lowest on 14 Mc. where the circuit Q is highest. An 807 operated with about 450v. on its plate can easily supply the required grid drive, even when operated as a doubler. The coupling link should be as short as possible to avoid resonance effects in the link coils which produce heating of the link windings and co-axial cable. As tuning is fairly critical, a vernier dial is recommended.

The tube used is a type 828, though an 813 could easily be substituted, being slightly different physically and requiring no suppressor voltage. Often, an 813 is stable in this circuit, but if necessary, can be easily neutralised as shown by dotted lines in Fig. 2 and described in the A.R.R.L. Handbook.

Neutralisation should not be necessary with an 828, but if it is, proceed as for the 813.

The main tank coil L5 is wound on a 2 1/2" diameter Eddystone ceramic former and is tapped for the various bands. A separate small coil, L4, is used for 28 Mc. This is desirable as it is more readily adjusted to obtain the inductance required for tuning to 30 Mc. with C12 at minimum capacitance. Also, it avoids placing the input capacitance of L5 across C12. (This is even more important when a rotary inductance such as those used in the Command series of transmitters, or the aerial inductance from a BC375 is used for L5.) In addition, L4 can be wound with heavy wire or tubing, which is advantageous considering the higher Q which is unavoidable on 28 Mc.

The coupling condenser C10, and also C11, are 0.0004 uF. units from a BC375 tuning unit (two condensers in each unit). The value of these condensers should not be more than 0.0005-0.001 uF. if the amplifier is to be modulated.

C14 is a standard three section ceramic insulated A.W.A. tuning gang with all sections connected in parallel. C13 is only needed on 3.5 Mc., but should be able to carry considerable current. Four 250 pF. mica condensers in parallel should be satisfactory, or a suitable condenser found in disposals, such as the one rated at 5 amperes at 3 Mc. used in this transmitter.

S1 is a large, ceramic job, also from a tuning unit. A standard Oak switch should be satisfactory if both sections are wired in parallel and it is not rotated when the high voltage is turned on.

C12 presents a problem. One section of a Calstan 120 pF. split-stator condenser was used, but it is rather bulky. The p.a. tuning condenser from a TU8 tuning unit should do as its capacitance is 116 pF.

LAYOUT

The amplifier is built on a standard 12" x 17" x 3" chassis with a 12" panel. The grid circuit is enclosed in an 8" x 5" x 3 1/2" aluminium box on the right of the chassis, with M1 above it.

The p.a. tuning condenser, C12, is mounted centrally, directly below the plate meter M2. C14 is mounted at the left, its control dial balancing with that of C1, C2, and S1 is mounted so that it will balance as nearly as possible with the grid meter.

The tube is mounted between the grid enclosure and C12. The 828 needs a cylindrical metal shield about 2" high around its base. Modern practice is to mount the tube socket about an inch above the chassis by means of small pillars. The various by-pass condensers are then connected between the socket pins and lugs mounted on the top of the chassis, with practically zero length leads. This reduces lead inductance to a minimum and keeps all r.f. currents within the plate tank enclosure.

L5 is mounted vertically between C12 and C14, with L4 spanning the gap between C12 and L5. The plate choke, RFC2, is mounted behind C12 and should be kept from metal surfaces in all directions. Keep all earth leads short and r.f. leads as short and heavy as possible. Copper strip 1/4" wide is preferable.

Shielded wire is used for d.c. and heater leads, a piece of co-ax being used for the high voltage. T1 can be mounted under the chassis if it is three inches or less in one direction, otherwise it can be placed at the rear of the chassis where it will require a perforated shield around it. V2 is placed to the rear of the grid compartment, in such a position that it does not obstruct J1.

RFC4 is included as a precautionary measure, to prevent the high voltage appearing on the output circuit in the event of the failure of C10.

TUNING

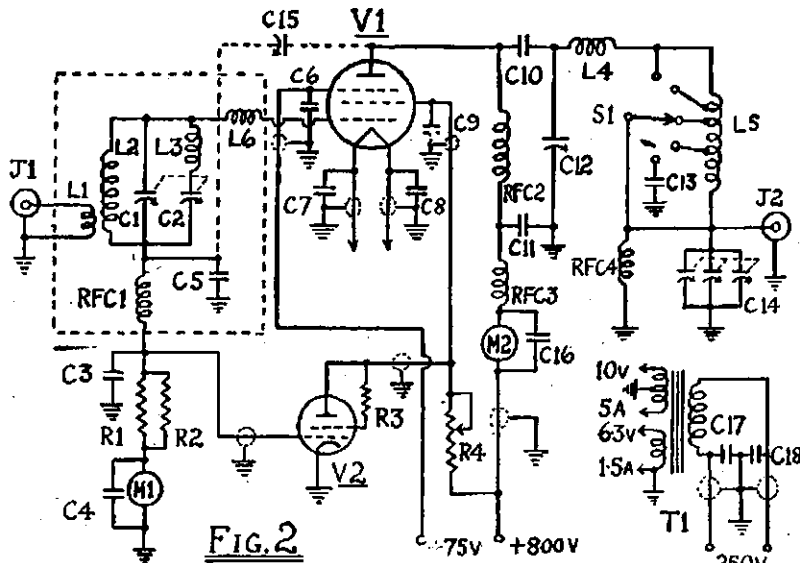
Initial tuning should be done with reduced voltage. First, tune the grid circuit to obtain about 10 Ma. grid current. It is desirable to check the tuning with a wavemeter and mark each band, but it is practically impossible to tune the wrong band. Next, with C14 at maximum capacitance, C12 is tuned to the resonance dip. If a co-axial line to the aerial is used, C14 is then decreased in capacitance until the desired d.c. input is obtained, maintaining resonance with C12.

If a short co-ax line is used to the aerial coupler, commence as above, and when C12 is resonated, tune the coupler to resonance as indicated by the feeder current or by a rise in the plate current, then adjust the loading by means of C14 as before, checking the coupler tuning a couple of times and keeping C12 resonated.

When a long co-ax line is used to the coupler, it should be accurately matched as per A.R.R.L. Handbook.

Tuning the aerial coupler through resonance should cause the p.a. plate current to rise to a peak then drop away on the other side. If it does not, or if the current should rise when the coupler is detuned, it means that the co-ax line is not matched and adjustment of the number of turns on the link (or its position if a variable link),

(Continued on Page 5)

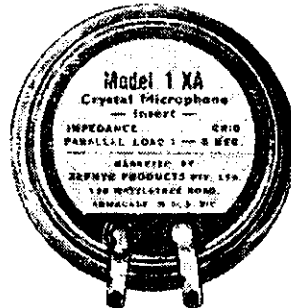
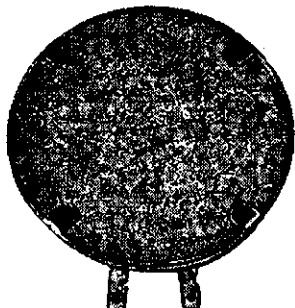


- C1, C2—140 pF. microdeners (ganged).
- C3, C6, C7, C8—0.01 uF. mica.
- C4, C16—0.002 uF. mica.
- C5—500 pF. (or 0.01 uF. if C15 not used).
- C8—0.001 uF. 1,000 volt mica.
- C10, C11—0.0005 uF. 2,500 volt mica.
- C12—150 pF. 3,000 volts (see text).
- C13—0.001 uF. mica (see text).
- C14—3 section A.W.A. ceramic tuning gang.
- C15—2-10 pF. neutralising condenser, 5,000 volt.
- C17, C18—0.005 uF. mica.
- M1, R2—30,000 ohms 2 watt.
- R3—47 ohms 1 watt.
- R4—30,000 ohms 50 watt, adjust. wire wound.
- RFC1, RFC4—2.5 mH. r.f. chokes.
- RFC2—115 turns No. 26 gauge enamelled wire, 3/4 inches long wound on 1 inch diam. polystyrene rod 6 inches long (see Ref. No. 5).
- RFC3—1.25 mH. 250 Ma. r.f. choke.
- M1—0-50 Ma.
- M2—0-250 Ma.
- T1—Filament transformer, 10v. at 5 amp.; 6.3v. at 1.5 amp.
- S1—1 pole 5 position ceramic rotary (from BC375 tuning unit).
- L1—3 turns wound over cold end of L2.
- L2—15 turns No. 20, 1 inch long, 1 1/4 inch diam.
- L3—2 turns No. 16, 1 inch long, 1 1/4 inch diam.
- Note.—L2 and L3 are mounted at right angles to each other.
- L4—5 turns No. 10, 1 1/4 inch diam., 1 1/2 inch long.
- L5—24 turns No. 14, 2 1/2 inch diam. wound 7/8 turns per inch on Eddystone ceramic former. Tapped at two, four and eleven turns from plate end.
- L6—12 turns 5/16 inch diam., 1 inch long.
- V1—828 (or 813).
- V2—6L6 (or 6Y6G).

MODEL "1XA" CRYSTAL MICROPHONE INSERT



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- Will not blast from close speaking.
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- 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 "Zephyrfl" 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 "Zephyrfl" 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), ⅜" 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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A Transmitter With Low Harmonic Output

PART FOUR

BY HANS RUCKERT,* VK2AOU

POWER SUPPLIES

Fig. 5: After passing a shielded mains filter with four button-type 2,000 pF. feed through ceramic capacitors and a pair of single layer chokes, the mains voltage reaches four different power supplies. Immediately after switching on the power supplies shown in Fig. 5, the regulated bias voltage is present due to the selenium rectifier used here.

Since the regulator Stabilovolt 40 Ma. \times 70v. keeps the current constant, there was a handy way to get the supply for the stand-by relay (RX-TX relay). The other power supply switches all the filaments on, including those of the high voltage rectifier valves. We see again a voltage regulator for 80 Ma. and 4 \times 70v.

Note the two current regulators EW and H. They are made of iron wire in a hydrogen atmosphere. One regulates the v.f.o. filament current of 0.7 amp. within 8-24 volts, and the other one keeps the current to the STV280V/80 Ma. constant over a voltage range of 85-225v.

Parallel to the electrolytic capacitors, which are in series, we have to place resistors which have a higher current going through than the leakage current through the capacitors, or we would overload the better one of the two and soon both would blow up.

Figure 6: Two further power supplies are shown on this drawing. We see again fuses on the primary as well as on the secondary side of each power supply, because these are cheaper than replacing burnt out transformers and rectifiers.

The same high voltage power supply is used for the p.a. and modulator final. The 2 \times 800v. transformer is capable of 250 Ma. at 800v. d.c. if the mains voltage is not too far down. This is just enough to modulate the 100 watt input carrier to 95% on speech peaks. Running the final with more input would cause negative modulation because the power supply can't stand so much load.

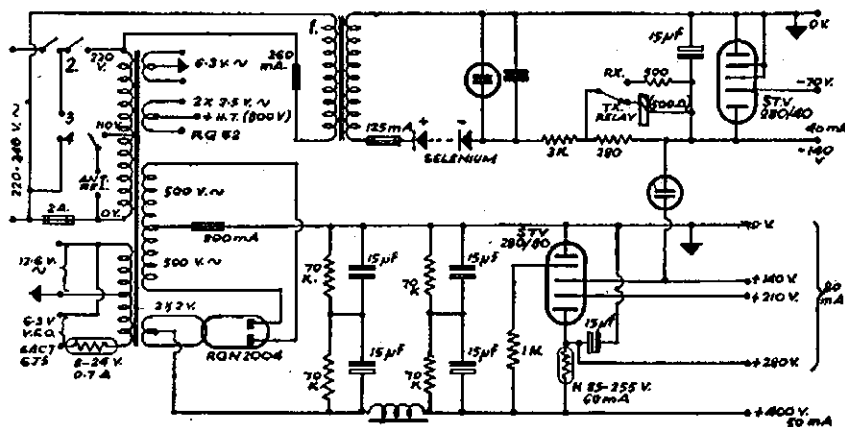


Fig. 5.

The swinging choke was home-made out of an old vibrator transformer by widening the gap at the lamination and rewinding. The output voltage does not vary more than 5% with a load change of 120 to 250 Ma.

The hum filter uses two very small chokes which are tuned with 2 μ F. capacitors to the 100 c.p.s. hum frequency.

GENERAL COMMENTS

Re-building of the transmitter last year took two weeks of my holidays to do the mechanical work and many more week-ends for wiring and aligning, plus even more time for special tests of interest.

In spite of poor DX conditions, 350 DX contacts have been enough to work 60 DX countries. The CQ to QSO ratio improved quite a lot, paying off for the effort.

With the receiver in the back yard and reduced sensitivity, the ratio between the fundamental on 14 Mc. and harmonics on 28 and 42 Mc. is as good as 100,000 to 1, and this without the mains and antenna low-pass filter. The old transmitter was not better than 100 or 1,000 to 1.

This description and construction is by no means the only way to solve

t.v.i. problems at the transmitter, but it includes many points which seem to be the logical answers and the writer followed often the methods outlined in "QST" and other publications. Not a penny was spent to re-build the transmitter, all the components were already in the old transmitter or could be found among the bits and pieces one collects after being an Amateur for 25 years.

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

PI NETWORK TANK CIRCUIT

(Continued from Page 3)

will probably put matters right. When properly adjusted, it is possible to disconnect the co-ax at J2 without detuning C12 by more than a degree of rotation. The loading can be varied by C14 over a reasonable range without materially affecting the setting of C12, when working into a purely resistive load, after the manner of a variable link in a conventional tank circuit.

The efficiency of the pi network does not suffer by using a tapped or variable inductance (unless the unused portion is self resonant at the operating frequency). No heating of the coil when wound with 18 gauge wire was apparent, even with 100w. input, except a little on 28 Mc. where the Q is higher. Even here it was no greater than when previously using plug-in coils.

I have endeavoured to cover the subject as simply and fully as necessary to ensure a reasonable working knowledge of the circuit. Any queries which may arise, I would be glad to answer, within my capabilities, and I hope that greater interest may be aroused in Australia in a circuit which has become extremely popular overseas.

REFERENCES

- (1) "Practical Applications of Pi Network Tank Circuits." Grammer, "QST," Jan., 1952.
- (2) "Pi Network Design Curves." Grammer, "QST," April, 1952.
- (3) "Pi Network Tank Circuits for High Power." Grammer, "QST," Oct., 1952.
- (4) "High Power Pi Network Amplifier with Parallel Tetrodes." Bridges, "QST," May, 1954.
- (5) "R.F. Chokes for High Power Parallel Feed." Chambers, "QST," May, 1954.

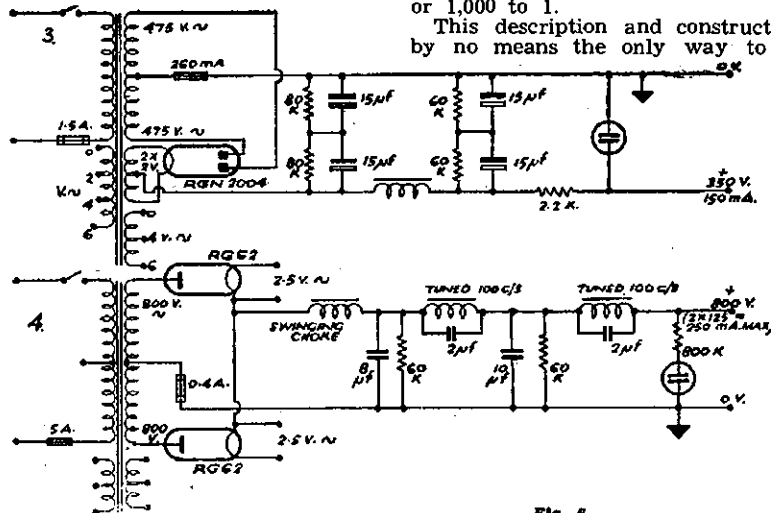


Fig. 6.

High-Level Clipping and Filtering*

New Light on Clipper-Filter Behaviour

BY WARREN B. BRUENE, W0TTK

HIGH-LEVEL filtering and "splatter filters" came into use several years ago for the purpose of preventing the radiation of spurious high-frequency sidebands. The high-frequency sidebands generated by over-modulating a plate-modulated amplifier were particularly bad, and the splatter filter^{1,2,3} resulted from the effort to attain a high modulation level without transmitting the splatter so well known in Amateur circles.

However, the explanations given for the operation of these circuits never quite satisfied the writer. While checking the function of the series-diode negative-peak limiter in the "splatter filter," W0JET found that the transmitted bandwidth was less in his transmitter with the diode removed, and he advanced a theory for the reason why. The writer investigated this theory and studied the general problem of high-level clipping and filtering. It is hoped that the following discussion will clear up much of the misunderstanding regarding the operation of splatter filters⁴ and indicate better methods of attaining the desired results.

• This discussion spotlights an inherent defect in the series-diode type of high-level clipper-filter system. The peculiar oscilloscope patterns obtained under certain conditions of modulation are readily explained by the author's analysis, and a better approach to high-level clipping and filtering is described.

cathode and that it appears as an open circuit if its plate gets negative with respect to the cathode. This means that when the voltage at the top end of the modulation transformer secondary, terminal P, swings higher, the diode V1 conducts and the voltage across R (the Class C final) and C will follow the voltage at terminal P. It will actually be just a few volts less due to drop across V1, but this is not significant.

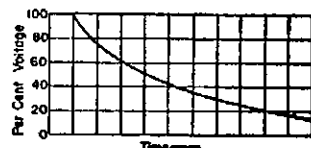
Now, for the purpose of analysis, let the voltage at P swing down to zero instantly. Diode V1 looks like an open circuit because the charge on capacitor C keeps some positive voltage on the cathode of V1 although its plate is at zero potential. Capacitor C discharges through R and the voltage across R (the plate voltage on the Class C final) decays in the usual exponential manner as shown in Fig. 3A. The envelope of the r.f. output for this example is shown in Fig. 3B. If the capacitance of C is increased or the resistance of R increased, the voltage will drop down at a slower rate. The product RC is known as the time constant of the circuit and this defines the rate of voltage decay.

FREQUENCY EFFECTS

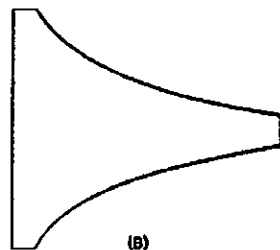
With this background let's see what happens with sine-wave audio modulation. When the audio frequency is very low, the voltage across R follows the voltage at point P over the entire cycle, because the downward voltage swing is so slow that C can discharge fast enough to keep from affecting the voltage across R. As the audio frequency is increased, a frequency is reached where the slope of the downward audio swing is steeper than the slope of the first part of the exponential curve shown in Fig. 3A. This shows up as diagonal clipping on the negative peaks, and it can be observed on an oscilloscope displaying the

r.f. envelope. As the audio frequency is increased, the voltage at terminal P and the voltage on the Class C final changes as shown in Fig. 4 at A, B and C for three different audio frequencies. The corresponding 'scope patterns are shown in Fig. 4 at D, E and F.

By examining the diagrams in Fig. 4 we can explain a couple of other things that happen with high audio frequency modulation. In Fig. 4B, for example, it is noted that the average plate voltage is higher than the power-supply voltage. Higher average voltage means higher plate current to the Class C final, and this partly explains why the plate current kicks up with modulation when a splatter filter is used. When a steady sine wave is applied as in Fig. 4B, the actual carrier power is increased by



(A)



(B)

Fig. 3.—(A) Behaviour of d.c. plate voltage on Class C amplifier when the plate-supply voltage is suddenly reduced to zero. (B) Corresponding oscilloscope pattern of r.f. envelope.

the square of the increase in average plate voltage. Fig. 4B is repeated in Fig. 5 with the dashed line showing the average d.c. plate voltage on the final for this condition of operation. This increased average plate voltage and corresponding carrier power is called "positive carrier shift." The extra carrier power comes from the Class B modulator and is rectified by the diode V1.

Another thing to notice is that the percentage modulation goes down with increasing audio frequency even though the audio signal on the modulator grids is maintained at the same level giving 100 per cent. modulation if diode V1 were shorted out. (It should be noted that we have been discussing conditions where the audio input level would normally give 100 per cent. modulation.) With lower audio signal levels the above results become less pronounced. This circuit thus acts somewhat as a filter in that the high audio frequencies are "attenuated" but this attenuation depends upon amplitude and is less with lower-amplitude audio tones.

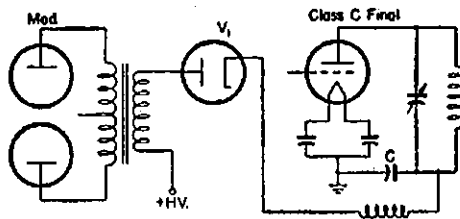


Fig. 1.—Series-diode negative peak limiter or "splatter preventer."

Now let's get to the heart of our subject and examine Fig. 1. This shows a plate-modulated Class C final with a diode in series with the high-voltage supply to the Class C plate circuit. This is the conventional splatter filter circuit with the filter left out. The Class C final tube looks like a pure resistive load to any positive plate voltage. With V1 in the circuit the modulated plate voltage cannot swing the plate voltage negative, so for our analysis we can replace the Class C final amplifier with a resistance as shown in Fig. 2. The other important element of the circuit is the capacitance of the Class C final plate feed to ground. Most of this capacitance is contributed by the plate tank-to-ground by-pass condenser.

Now we can inspect Fig. 2 and see how it performs. First let us note that the diode V1 conducts only when its plate is positive with respect to the

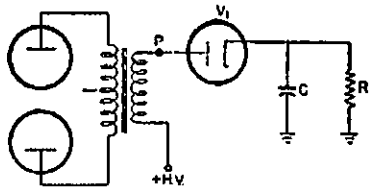


Fig. 2.—Equivalent circuit of Fig. 1, with resistor R replacing the modulating impedance of the Class C amplifier.

* Reprinted from "QST," November, 1961.

1—W. W. Smith, "An Effective Splatter Suppressor," "Radio," October, 1940.

2—Thordarson Splatter Chokes and operating instructions.

3—Chicago Transformer Splatter Chokes and operating instructions.

4—Howard W. Johnson, "Self-Filtered Peak Clipping," "QST," April, 1948.

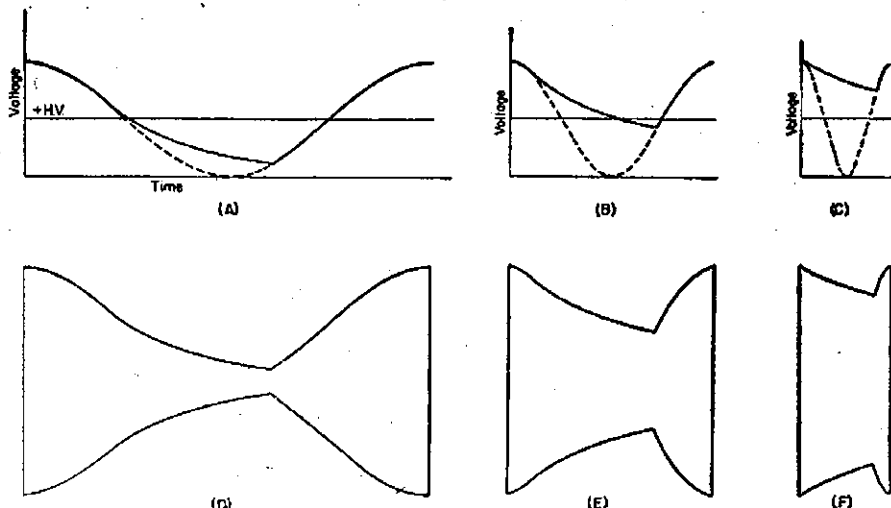


Fig. 4.—Instantaneous voltage, shown by solid curves in A, B, and C, at the plate of the Class C amplifier at various modulation frequencies when the series diode is used. A—moderately low frequency; B—moderately high frequency; C—very high frequency. The corresponding oscilloscope patterns of the r.f. envelope are shown at D, E, and F.

Fig. 6 shows this carrier shift due to rectification and the "attenuation" in the form of reduced modulation in an actual test case. The carrier shift and percent modulation drop will start at correspondingly higher audio frequencies if the 0.007 uF. capacitor is reduced in value or if the Class C load resistance is reduced.

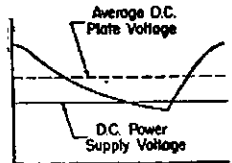


Fig. 5.—Showing how the condition of Fig. 4B results in a change in the average value of d.c. plate voltage, resulting in upward carrier shift.

Incidentally, the writer very carefully checked to see if it made any difference when the diode VI was placed on the bottom side of the modulation transformer between the Class C final power supply and the modulation transformer secondary.⁴ The difference was always less than 1/2 db. and did not favor either way consistently.

The other thing to notice is that the modulation is no longer a sine wave and takes on more of a saw-tooth shape. This waveshape contains harmonics of

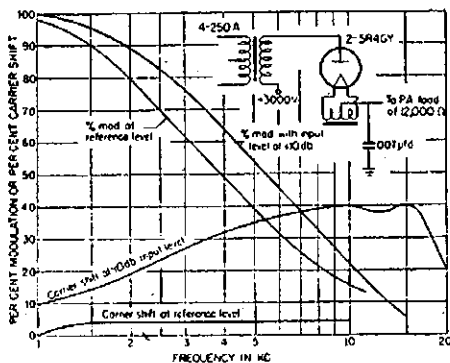


Fig. 6.—Carrier shift and modulation percentage versus modulating frequency in a representative set-up. The curves are referred to the signal-input level, at the grids of the Class B modulators, that gives 100% modulation at 1,000 c.p.s. without the series diode.

the fundamental audio tone so that the actual bandwidth of the r.f. signal is much greater. The extra sidebands generated might be called splatter, although they will not be found to extend across the band as far as the ordinary splatter does. But even though the higher audio frequencies are "attenuated," high-order harmonics are generated which spread out the signal.

WHERE TO CLIP

In Fig. 7 we have added the low-pass filter to give us the regular splatter filter circuit. Instead of just the simple capacitor C we have the whole low-pass filter. Figuring the time constant—or more correctly, the transient characteristics—of the filter with the load R becomes more complex, but the same type of patterns are observed on the scope as those shown in Fig. 4. The "time constant" of the filter varies with the value of m used in the filter design. The writer didn't go very deeply into determining the best value of m, but a few tests indicated that some value around 0.8 was best.

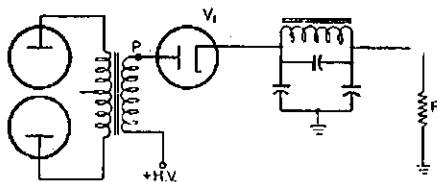


Fig. 7.—Complete splatter filter with series diode and low-pass filter. Resistor R is the modulating impedance of the Class C amplifier.

Now let's try to evaluate the performance of the splatter filter of Fig. 7 compared with the simple high-level filter shown in Fig. 8, which is the same except that the diode is omitted. The splatter filter does reduce splatter to a substantial degree compared with no filter at all, which is attested by its popularity. The writer found in a lab. set-up that using the diode did substantially reduce splatter if the modulators were capable of heavy over-modulation. If their power output cap-

ability was only enough to over-modulate the Class C final slightly, it made no difference whether the diode was used or not.

High-powered modulators, when using a splatter filter, will deliver more sideband power but this extra-heavy modulation is principally effective on the lower voice frequencies, which produce most of the audio power. However, the original research on speech clipping showed that much of the intelligibility contained in speech is in the consonant sounds, which are the higher audio frequencies, and that the vowels or lower voice frequencies can be reduced in amplitude several times without impairing intelligibility. Thus, it is better to use a modulator just capable of 100 per cent modulation, along with some form of good speech clipping.

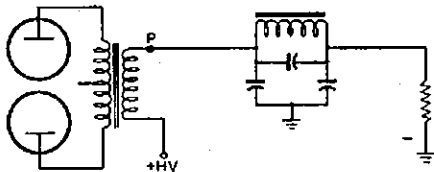


Fig. 8.—Low-pass filter for removing high-frequency components of Class B modulator output and thus preventing splatter. As described in the text, this type of circuit is highly effective when following a Class B modulator adjusted to clip both sides of the wave at or just below the 100% modulation level.

When using the splatter filter the high frequencies, starting from around the cut-off frequency of the filter and going higher, are rectified and cause part of the kicking up of the final plate current meter. However, most of the kicking up is from the heavy modulation of the low frequency positive peaks, which also cause the average d.c. plate voltage to increase on the final. It may be a thrill to see the modulators blush and the meters kick up, but the value in "getting out" better than a good speech clipper is very doubtful. To "get out" better some form of good speech clipping with modulation limited to just under 100 per cent. is a better solution.

One good place to do speech clipping is right in the plates of the Class B modulators.⁵ This can be done by raising the plate-to-plate load impedance on the Class B modulators until they are not quite capable of 100 per cent modulation. This can be readily accomplished if a multitap modulation transformer⁶ is used. Another way is to lower the d.c. plate voltage on the Class B modulators (but not the Class C final) until they are just not quite capable of modulating the final 100 per cent. no matter how loudly you yell into the microphone. (Of course, the modulator bias should be reduced also to keep the proper modulator static plate current.) This adjustment should be made with the final loaded in the usual manner or slightly on the light side, because the clipping or plate-overloading level will increase a little in most modulators when the final is loaded more lightly.

Clipping right in the modulator stage reduces the problem of avoiding phase shift of the clipped waves because there

5—Woodrow Smith, "Simplified Speech Clipping," "CQ," May, 1948.

6—Adjustable impedance modulation transformers such as the Multi-match, Varimatch, Poly-Pedance modulation transformers.

is nothing left to shift phase except the modulation transformer and the high-level filter.⁷ To avoid unnecessary "tipping" of the top of the clipped wave a modulation transformer with good low-frequency response, along with only one section of filter, is recommended. The filter section should be designed with an m of 0.8 or, perhaps better yet, may be a constant-k or simple pi-section filter shown in Fig. 8 doesn't cut off as sharply as the m-section type, but it gives better attenuation farther out, which is more important.

Incidentally, a heavily-clipped wave approaches a square wave in shape and a modulator capable of 100 watts sine-wave output will deliver nearly 200 watts of square-wave output. This helps explain why a transmitter with good speech clipping carries the punch that it does. This isn't hard on the modulator tubes either because their plate efficiency is much higher when passing a clipped wave, so the plate dissipation is nearly the same with either sine-wave or square-wave modulation.

It will be hard on the modulator tubes to run frequency-response tests at 100 per cent. sine-wave modulation up beyond the cut-off frequency of the filter because above cut-off they see essen-

⁷—It is hoped that the effect of phase shift on clipper-filter performance can be discussed in detail in a subsequent article.

tially just the input capacity of the filter, but with voice modulation they can take it. If you want to make life easier for the modulator tubes, put a low-pass filter⁸ up in the front end of the speech amplifier and choose the cut-off frequency of the high-level filter to be a little higher than that of the filter in the front end.

The writer made many tests in the laboratory using all sorts of equipment to test out this theory of high-level clipping and filtering. Also, on-the-air tests at W0JET and W0TTK confirm the theory. Many interesting things were discovered during the tests, but space will only allow the basic discussion which has been presented.

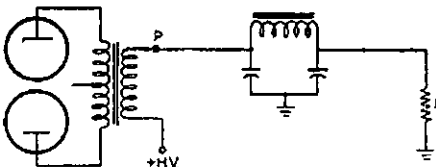


Fig. 9.—Similar to Fig. 8, except that a constant-k filter section replaces the m-derived section of Fig. 8. Formulae for designing both types of sections may be found in The Radio Amateur's Handbook.

In conclusion, the writer wishes to point out again that some good form of speech clipping that clips both the positive and negative audio peaks, followed by a single-section high-level filter, will give about all that can be practically obtained in the way of heavy modulation without splatter.

⁸—Chicago Transformer LFP-1, for example.

Careful choice or adjustment of the modulator plate load impedance to limit the modulator power output is well worth while. For example, when using Class B 810s in a 1-kw. transmitter with 2250 to 2500 volts on them, the plate-to-plate impedance should be about 18,000 ohms instead of 12,000 ohms, to limit the sine-wave output to 500 watts. In addition to better performance, this system is more economical since the cost of several parts is saved and the high voltage peaks on the Class C tank circuit are kept down to normal.

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BRIGHT STAR RADIO

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Integral Crystal Calibrator for Superhet. Receivers

BY S. J. LLOYD,* VK3AST

A BUILT-IN Crystal Calibrator is a useful addition to any communication receiver, but the use of an extra tube for this purpose alone is not always economically possible. In a superhet. receiver, however, the beat frequency oscillator, if suitably modified, can be made to provide calibration points by feeding its harmonics back into the mixer stage.

The average receiver b.f.o. is not suitable as it stands, for two reasons: Firstly, the frequency is usually variable over a small range, and even if not deliberately adjustable, is unlikely to be sufficiently accurate for frequency reference; secondly, its nominal frequency is generally inconvenient for calibration purposes, e.g. 455 or 1600 Kc.

The first defect can be remedied by converting the b.f.o. to a crystal oscillator; a fixed beat frequency is no great disadvantage, and the actual note can be set to any desired pitch during alignment. It can still be varied over a small range, within the i.f. passband, by the receiver tuning. The second disadvantage can be overcome by altering the intermediate frequency, and therefore the beat frequency, to the nearest round figure suitable for calibration purposes. In a receiver with a crystal filter, however, new filter crystals would be required, and it would be better to choose the b.f.o. crystal to suit the i.f., accepting the inconvenience of oddly spaced check points.

monic of a 500 Kc. b.f.o. taken for the beat frequency; in this case a 1500 Kc. crystal could be used in the b.f.o., but the harmonics would be too far apart for accurate calibration.

A double superhet with a second intermediate frequency of the order of 100 Kc. can have a 100 Kc. sub-standard crystal in the b.f.o., giving accurate check points every 100 Kc.

It would also be possible to use such a crystal in receivers with a higher i.f., using the appropriate harmonic (fifth or fifteenth) for the beat frequency; this method has not, however, been tried out, and careful screening would be needed to suppress spurious beats.

I.f. break-through on the altered intermediate frequencies should not be troublesome if a series wavetraps is used, and the screening is adequate.

B.F.O. CIRCUIT

The beat frequency oscillator circuit must be chosen to suit the tube to be used and the activity of the crystal, and should be capable of producing high order harmonics. If the fundamental frequency of the crystal is used for the beat frequency, a tuned circuit is not required; the circuit shown in Fig. 2 has been found suitable for a 500 Kc. crystal and an EF50.

OSCILLATOR INJECTION

The method of coupling the harmonics of the b.f.o. into the mixer stage of the

ably insufficient to cover the altered frequency, and some modification is needed. 455 Kc. transformers can be changed to 500 Kc. by removing turns from the windings, whereas 1600 Kc. transformers will need added parallel capacity to lower them to 1500 Kc. A grid-dip oscillator covering the required range simplifies the conversion.

ADJUSTMENT

With the b.f.o. crystal oscillating, its exact frequency is checked against a standard frequency transmission or reliable frequency meter. If it is not exactly on its nominal frequency, some adjustment is possible by such means as adding extra capacity in parallel, or "loading" the crystal. If it is close to the nominal figure, however, it is simpler to calculate a correction factor to be applied when particular accuracy is required.

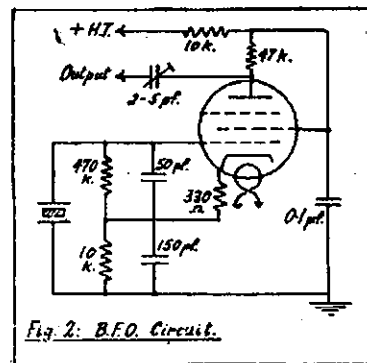


Fig. 2: B.F.O. Circuit.

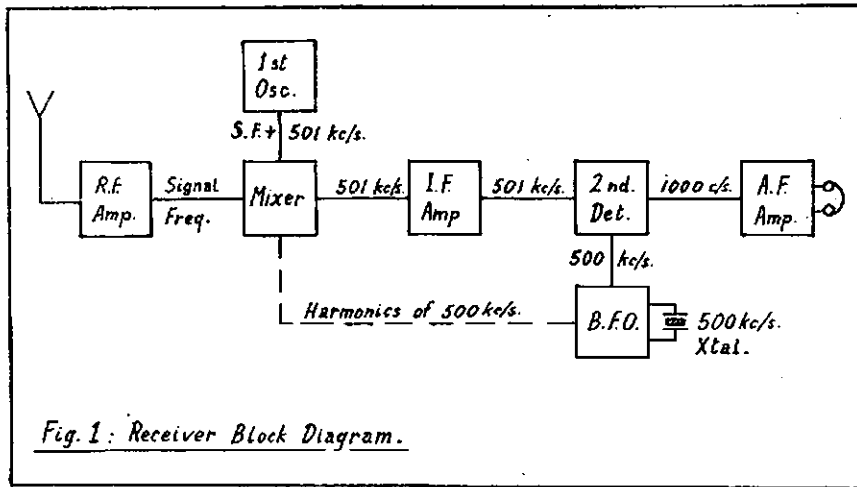


Fig. 1: Receiver Block Diagram.

CHOICE OF I.F.

A receiver intermediate frequency of 455 Kc. can conveniently be altered to 500 Kc. plus or minus the desired audio beat frequency, and an easily obtained 500 Kc. crystal used in the b.f.o.

The crystal fundamental provides the beat note, and the harmonics supply calibration points at intervals of 500 Kc. throughout the tuning range of the receiver.

Similarly, an i.f. of 1600 Kc. can be modified to 1500 Kc., and the third har-

monics of a 500 Kc. b.f.o. taken for the beat frequency; in this case a 1500 Kc. crystal could be used in the b.f.o., but the harmonics would be too far apart for accurate calibration.

I.F. TRANSFORMERS

The range of adjustment provided in the receiver i.f. transformers is prob-

ably insufficient to cover the altered frequency, and some modification is needed. 455 Kc. transformers can be changed to 500 Kc. by removing turns from the windings, whereas 1600 Kc. transformers will need added parallel capacity to lower them to 1500 Kc. A grid-dip oscillator covering the required range simplifies the conversion.

The coupling between the b.f.o. and the mixer is adjusted to give just enough signal strength on calibration points at the h.f. end of the receiver tuning range.

PERFORMANCE

The arrangement here described has been used for some years in a home-built superhet., using a 500 Kc. crystal in the b.f.o. and an i.f. of 501 Kc. No trouble was experienced with i.f. break-through or spurious beats, and useful calibration points were obtained every 500 Kc. throughout the range from 3.5 to 14 Mc.

An incidental advantage of the system is that the receiver first oscillator can be used to provide a calibrated test signal, as its frequency is always exactly 500 Kc. above the reading of the tuning dial.

THE SLOT BEAM*

BY B. SYKES, G2HCG

Recent developments in Band III. television aeriels have led to the combination of the Yagi and skeleton slot aeriels. The result has the advantages of both types without the disadvantages of either.

The fundamental problem with the Yagi is the great reduction in feed point impedance when parasitic elements are added to the simple dipole. This means that when tuning up such an array, it is necessary to adjust the matching at the same time as the elements are tuned to length and the spacing altered. This almost always results in a Yagi with the spacing adjusted for optimum matching rather than optimum gain. Further complications arise when attempts are made to stack Yagis and it is frequently found that two perfectly good four element Yagis giving, say, 8.5 db gain each, flatly refuse to give a further 3.5 db when stacked. The problem again is that of impedance matching. A suitable matching system is of necessity somewhat complicated, both electrically and mechanically.

The search for simplicity and wide bandwidth led to further investigations into the operation of the skeleton slot aerial. The results indicated that parasitic reflector and director elements could be used with the skeleton slot aerial. In addition, the bandwidth was greatly increased by the use of a non-frequency sensitive delta-matching system.

Further examination of the operation of the skeleton slot indicates that the centre portions of the vertical sections

* Reprinted from R.S.G.B. Bulletin, Aug., 1955.

are simply transmission lines feeding two bent dipoles consisting of the horizontal sections and the ends of the vertical sections. The important point to note is that the dipole can "choose" its own length to suit the operating frequency; in other words, the point at which the vertical sides of the skeleton slot cease to be transmission lines and become the ends of a bent dipole is governed by the frequency and not by the size of the aerial. There is, of course, a limit, but the bandwidth can be very wide indeed.

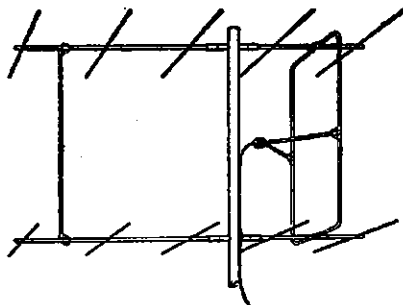


Fig. 1.—A typical six-over-six slot beam. The gain is 13 db over a dipole, the back to front ratio 40 db, and the horizontal beam width 20°.

The skeleton slot, therefore, consists of two stacked end-fed dipoles. The addition of parasitic elements to an end-fed dipole does not alter the feed impedance, but the tuning, i.e., the length of the dipole does alter. Since the dipoles in a skeleton slot array can "choose" their own lengths, it follows

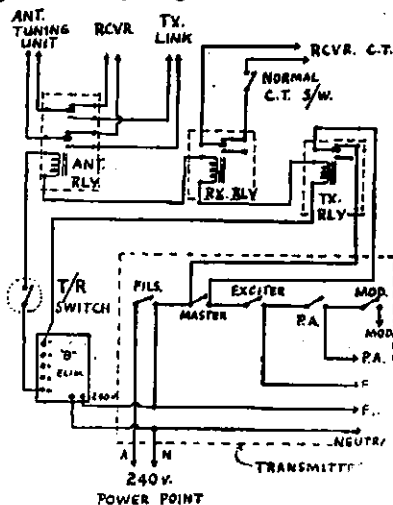
that a skeleton slot can be converted into a stacked Yagi with no matching complications. This is confirmed in practice where such an array may be set-up giving a standing wave ratio of 1.2/1 and reflectors and directors added and tuned for maximum field strength, increasing the forward gain by about 10 db. It is then found that the standing wave ratio has not altered. The age-old problem of matching Yagis and stacked Yagis is therefore solved and all elements can be tuned for maximum radiation with no fear of feed-point impedance changes.

Single Switch Control

BY H. G. WOHLERS,† VK3YV

Making The Old "B" Eliminator Extremely Useful

Many Amateurs today have in their junk pile an old "B" battery eliminator and also several disposals relays of the 24-28 volt high resistance type. These relays can be operated satisfactorily by connecting them in series in banks of 1, 2, 3 or 4 across the output of an old "B" eliminator (tapped type preferable). Sure, it is realised that the regulation of these eliminators is lousy and because of that they are not much good for anything else.



NOTE:—
TO "NET" WITHOUT ANT.
TURN "P.A." S/W OFF.
TURN "MASTER" S/W ON

The following is a set-up which has been in use in my shack for at least seven years and has never failed yet. It has given every satisfaction and can be varied in a 100 different ways to suit any Amateur's requirements. After hours of use neither the relays nor the eliminator show any signs of warming up and the original rectifier valve is still in use.

Don't worry about voltages and currents as I have used all sorts and types of relays (except low resistance types) with excellent results. In any case, for those who are interested, it is one good way of making use of disposals relays and old eliminators to operate your station with single switch control.

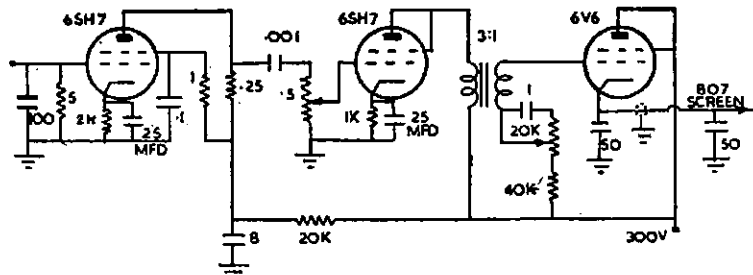
† 107 Templeton Street, Wangaratta, Vic.

GATED SCREEN MODULATION

BY S. C. BURTON,‡ VK2AYB

Having experimented with clamper and transformer screen modulation, it was found that adjustments were critical, especially when changing bands. With the gated screen, these troubles disappeared. The writer is at present using this method to screen modulate a pair of 807s in parallel and obtaining very pleasing reports.

The voltage on the final screen is adjusted to 150 volts by the 20,000 ohm potentiometer at the bias end of the transformer secondary. The transformer is an old 3 to 1 interstage job. Audio gain is controlled by the 0.5 meg. potentiometer in the grid of the 6SH7 triode. The circuit diagram and remarks should give a fair indication of opera-



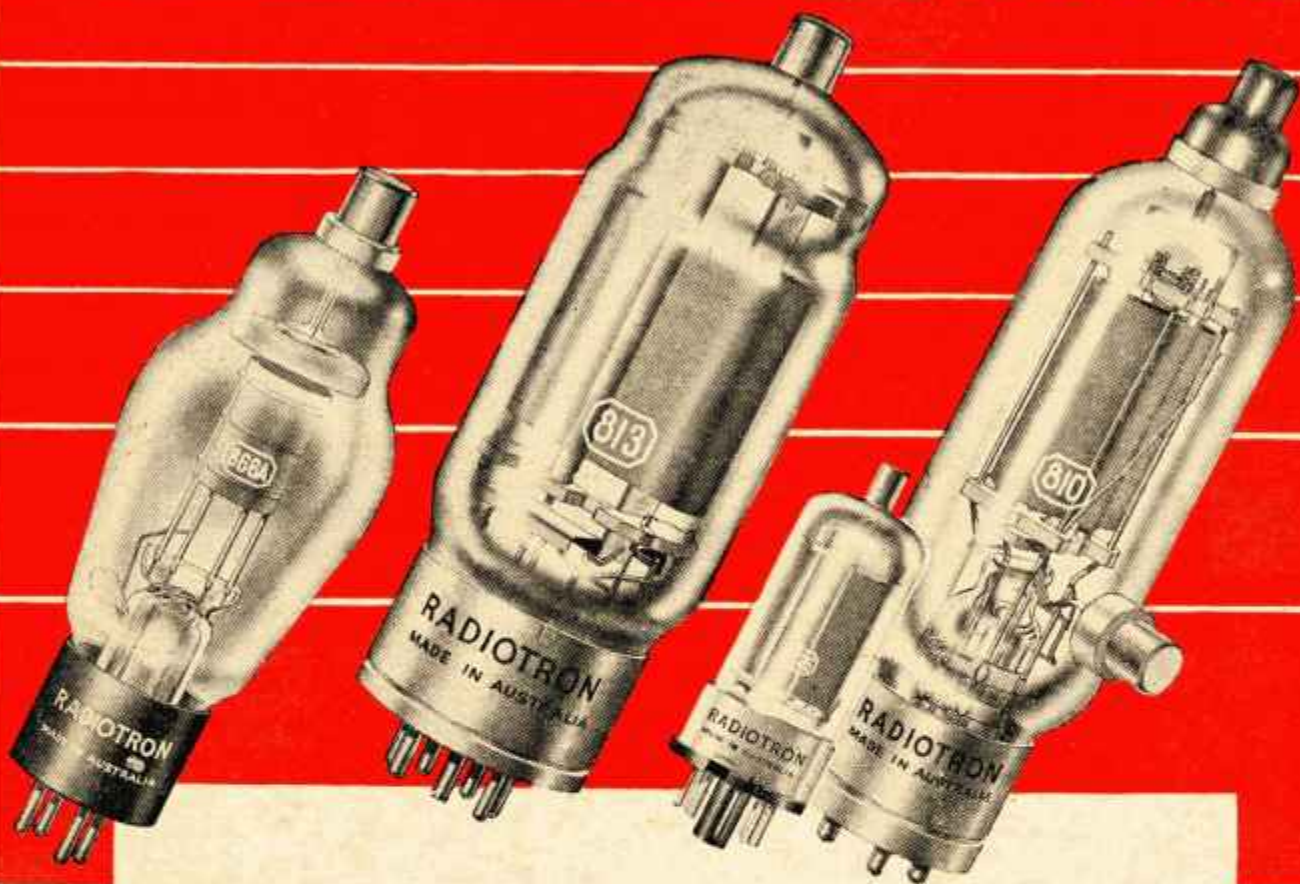
The circuit is simple and sure-fire. The only adjustment is that the loading to the final should be increased to give a small upward kick on the plate meter under modulation. This will necessitate, in most cases, heavy coupling to the antenna coupler.

‡ 52 Arcadia Street, Penshurst, N.S.W.

tion. Suffice to say it will modulate a pair of 807s 80% to 100% at all times.

The loading adjustment seems the most critical adjustment, but once set for any band, should not require altering. Grid drive has some effect on output, but is set at 5 Ma. at this station for 60 watts input.

RADIOTRON POWER VALVES



Today's high standards of radio performance are dependant upon the use of first quality components.

Radiotron valves are manufactured to exacting standards which ensure you of the ultimate in performance at all times.

Be sure of the quality and consistency of your signals by using Radiotron Power Valves.

Important: When ordering valves, be sure to mention "Amateur Radio" so that priority can be given to your order.



RADIOTRON

AMALGAMATED WIRELESS VALVE CO. PTY. LTD.

W.I.A. COUNTRIES LIST

Official List for VK DX Contest and the VK DXCC Award

AC3—Sikkim	(22)	HC8—Galapagos Is.	(10)	PK6—Celebes and Molucca		VR1—Gilbert and Ellis Is. &	
AC4—Tibet	(23)	HE—Liechtenstein	(14)	Is.	(28)	Ocean Is.	(31)
AP—Pakistan	(21, 22)	HH—Haiti	(8)	PX—Andorra	(14)	VR2—Fiji Is.	(32)
BV (C3)—Formosa	(24)	HI—Domin. Republic	(8)	PY—Brazil	(11)	VR3—Fanning Is. Group	(31)
C (unofficial)—China (23, 24)		HK—Colombia	(9)	PZ1—Nether. Guiana ..	(9)	VR4—Solomon Is.	(28)
C3—See BV.		HK0—Archipelago of San		SM—Sweden	(14)	VR5—Tonga (Friendly)	
C9—Manchuria	(24)	Andres and Providencia		SP—Poland	(15)	Is.	(32)
CE—Chile	(12)	HL—Korea	(25)	ST—Anglo-Egyptian		VR6—Pitcairn Is.	(32)
CE7Z, LU, VK1, VP8—		HP—Panama	(7)	Sudan	(34)	VS1—Singapore Is.	(28)
Antarctica (13, 29, 30)		HR—Honduras	(7)	SU—Egypt	(34)	VS2—Malaya	(28)
CE0—Easter Island	(12)	HS—Siam	(26)	SV—Greece	(20)	VS4—Sarawak	(28)
CM, CO—Cuba	(8)	HV—Vatican City	(15)	SV—Crete	(20)	VS5—Brunei	(28)
CN2, KT1—Tangier Zone	(33)	HZ—Saudi Arabia	(21)	SV—Dodecanese	(20)	VS6—Hong Kong	(24)
CN8—French Morocco	(33)	I1—Italy	(15)	TA—Turkey	(20)	VS9—Aden & Socotra ..	(21)
CP—Bolivia	(10)	I2—Trieste	(15)	TF—Iceland	(40)	VS9—Maldiva Is.	(22)
CR4—Cape Verde Is.	(35)	I5, MS4—Italian Somali-		TG—Guatemala	(7)	VS9—Sultan. of Oman	(21)
CR5—Port. Guinea	(35)	land	(37)	TI—Costa Rica	(7)	VU2—India	(22)
CR5—Principe, Sao		IS1—Sardinia	(15)	TI9—Cocos Is.	(7)	VU4—Laccadive Is.	(22)
Thome	(36)	JA, KA—Japan	(25)	UA1, 3, 4, 6—European		VU5—Andaman and Nico-	
CR6—Angola	(36)	JY, ZC7—Jordan	(20)	R.S.F.S.R.	(15, 16, 17)	bar Is.	(26)
CR7—Mozambique	(37)	JZ0—Netherlands New		UA9, 0—Asiatic R.S.F.S.R.		XE—Mexico	(6)
CR8—Goa (Port. India)	(22)	Guinea	(28)	(17, 18, 19, 25)		XZ—Burma	(26)
CR9—Macau	(24)	K, W—United States of		UB5—Ukraine	(16)	YA—Afghanistan	(21)
CR10—Port. Timor	(28)	America	(3, 4, 5)	UC2—White Rus. S.S.R.	(16)	YI—Iraq	(21)
CT1—Portugal	(14)	KA—See JA.		UD6—Azerbaijan	(21)	YJ—See FU8.	
CT2—Azores Is.	(14)	KA0—Bonin and Volcano		UF6—Georgia	(21)	YK—Syria	(20)
CT3—Madeira Is.	(33)	Is.	(27)	UG6—Armenia	(21)	YN—Nicaragua	(7)
CX—Uruguay	(13)	KB6—Baker, Howland and		UH6—Turkoman	(17)	YO—Roumania	(20)
DJ, DL, DM—Germany		Amer. Phoenix Is. (31)		UI8—Uzbek	(17)	YS—Salvador	(7)
(14, 15)		KC4—Navassa Is.	(8)	UJ8—Tadzhik	(17)	YU—Yugoslavia	(15)
DU—Philippine Is.	(27)	KC6—East. Caroline Is.	(27)	UL7—Kazakh	(17)	YV—Venezuela	(9)
EA—Spain	(14)	KC6—West. Caroline Is.	(27)	UM8—Kirghiz	(17)	ZA—Albania	(15)
EA6—Balearic Is.	(14)	KG4—Guantanamo Bay	(8)	UN1—Karelo-Finnish Re-		ZB1—Malta	(15)
EA8—Canary Is.	(33)	KG6—Mariana Is.	(27)	public	(16)	ZB2—Gibraltar	(14)
EA9—Ifni	(33)	KH6—Hawaiian Is.	(31)	UO5—Moldavia	(16)	ZC2—See VK1.	
EA9—Rio de Oro	(33)	KJ6—Johnston Is.	(31)	UP2—Lithuania	(15)	ZC3—Christmas Is.	(29)
EA9—Span. Morocco	(33)	KL7—Alaska	(1)	UR2—Latvia	(15)	ZC4—Cyprus	(20)
EA0—Span. Guinea	(35)	KM6—Midway Is.	(31)	UR2—Estonia	(15)	ZC5—Br. North Borneo	(28)
EI—Eire	(14)	KP4—Puerto Rico	(8)	VE, VO—Canada (2, 3, 4, 5)		ZC6—Palestine	(20)
EL—Liberia	(35)	KP6—Palmyra Group, Jar-		VK—Australia	(29, 30)	ZC7—See JY.	
EQ—Iran	(21)	vis Is.	(31)	VK1—See CE7Z, LU-Z, VP8.		ZD1—Sierra Leone	(35)
ET2—Eritrea	(37)	KR6—Ryukyu Is.	(25)	VK1, ZC2—Cocos Is.	(29)	ZD2—Nigeria	(35, 36)
ET3—Ethiopia	(37)	KS4—Swan Is.	(7)	VK1—Heard Is.	(39)	ZD3—Gambia	(35)
F—France	(14)	KS6—Amer. Samoa	(32)	VK1—Macquarie Is.	(30)	ZD4—Gold Coast, Br. Togo-	
FA—Algeria	(33)	KT1—See CN2.		VK9—Norfolk Is.	(32)	Land	(35)
FB8—Amsterdam and St.		KV4—Virgin Is.	(8)	VK9—Papua Territory	(28)	ZD6—Nyasaland	(37)
Paul Is.	(39)	KW6—Wake Is.	(31)	VK9—Territory of New		ZD7—St. Helena	(36)
FB8—Kerguelen Is.	(39)	KX6—Marshall Is.	(31)	Guinea	(28)	ZD8—Ascension Is.	(36)
FB8—Madagascar	(39)	KZ5—Canal Zone	(7)	VO—See VE.		ZD9—Tristan da Cunha and	
FC—Corsica	(15)	LA, LB—Jan Mayen	(40)	VP1—Br. Honduras	(7)	Gough Is.	(38)
FD—Fren. Togoland	(35)	LA, LB—Norway	(14)	VP2—Leeward Is.	(8)	ZE—South. Rhodesia	(38)
FE8—Fr. Cameroons	(36)	LA, LB—Svalbard	(40)	VP2—Windward Is.	(8, 9)	ZK1—Cook Is.	(32)
FF8—Fr. West Africa	(35)	LU—Argentina	(13)	VP3—Brit. Guiana	(9)	ZK2—Niue	(32)
FG—Guadeloupe	(8)	LU-Z—See CE7Z, VK1, VP8.		VP4—Trinidad and To-		ZL—New Zealand	(32)
FIB8—Fr. Indo China	(26)	LX—Luxembourg	(14)	bago	(9)	ZM6—British Samoa	(32)
FK8—New Caledonia	(32)	LZ—Bulgaria	(20)	VP5—Cayman Is.	(8)	ZM7—Tokelau (Union)	
FL8—Fr. Somaliland	(37)	M1—San Marino	(15)	VP5—Jamaica	(8)	Is.	(31)
FM—Martinique	(8)	MB9—See OE.		VP5—Turks and Caicos		ZP—Paraguay	(11)
FO8—Clipperton Is.	(7)	MP4—Bahrein Is.	(21)	Is.	(8)	ZS1, 2, 4, 5, 6—Union of	
FO8—Fr. Oceania	(32)	MP4—Kuwait	(21)	VP6—Barbados	(8)	South Africa	(38)
FP8—St. Pierre & Miquelon		MP4—Qatar	(21)	VP7—Bahama Is.	(8)	ZS2—Marion Is.	(38)
Is.	(5)	MP4—Trucial Oman	(21)	VP8—See CE7Z, VK1, LU-Z.		ZS3—Sth. West Africa	(38)
FQ8—Fren. Equatorial		MS4—See 15.		VP8—Falkland Is.	(13)	ZS7—Swaziland	(38)
Africa	(36)	OA—Peru	(10)	VP8—South Georgia	(13)	ZS8—Basutoland	(38)
FR7—Reunion Is.	(39)	OD5—Lebanon	(20)	VP8, LU-Z—South Orkney		ZS9—Bechuanaland	(38)
FUB, YJ—New Hebrides	(32)	OE, MB9—Austria	(15)	Is.	(13)	3A—Monaco	(14)
FW8—Wallis and Futuna		OH—Finland	(15)	VP8—Sth. Sandwich Is. (13)		3V8—Tunisia	(33)
Is.	(32)	OK—Czechoslovakia	(15)	VP8, LU-Z—South Shetland		4S7—Ceylon	(22)
FY7—Fr. Guiana and		ON4—Belgium	(14)	Is.	(13)	4W1—Yemen	(21)
Inini	(9)	OQ5, 0—Belgian Congo	(36)	VP9—Bermuda Is.	(5)	4X4—Israel	(20)
G—England	(14)	OX—Greenland	(40)	VQ1—Zanzibar	(37)	5A—Libya	(34)
GC—Chanel Is.	(14)	OY—Faeroes	(14)	VQ2—Nth. Rhodesia	(36)	9S4—Saar	(15)
GD—Isle of Man	(14)	OZ—Denmark	(14)	VQ3—Tanganyika Terr.	(37)	—Aldabra Is.	(39)
GI—Northern Ireland	(14)	PA0—Netherlands	(14)	VQ4—Kenya	(37)	—Bhutan	(22)
GM—Scotland	(14)	PJ2—Neth. West Indies	(8)	VQ5—Uganda	(37)	—Comoro Is.	(39)
GW—Wales	(14)	PK1, 2, 3—Java	(28)	VQ6—Br. Somaliland	(37)	—Fridtjof Nansen L. (40)	
HA—Hungary	(15)	PK4—Sumatra	(28)	VQ8—Chagos Is.	(39)	—Kermadec Is.	(32)
HBI, 9—Switzerland	(14)	PK5—Nether. Borneo	(28)	VQ8—Mauritius	(39)	—Mongolia	(23)
HC—Ecuador	(10)			VQ9—Seychelles	(39)	—Nepal	(22)
						—Wrangel Is.	(19)

AMATEUR CALL SIGNS

FOR MONTH OF SEPTEMBER, 1955

NEW CALL SIGNS

- VK— New South Wales
 2MV—C. Welsh, C/o. Miss Linsely, 96 Staples St., Kingsgrove.
 2AMN—R. D. Martin, 172 Lane St., Broken Hill.
 2AOK—L. J. King, 24 Anderson St., Chatswood.
 2ZBP—J. G. Pratt, "Inglewood." R.M.B. 23, Ilabo.
 2ZBT—D. T. Adams, 14 Early St., Queanbeyan, Victoria.
 3FP—D. Burkitt, Main Rd., Doncaster.
 3ADZ—G. E. Delahoy, Eden Park Rd., Whittlesea.
 3OLU—L. E. Lloyd, Murray Valley Highway, Nyah South.
 3ZAO—R. A. Balley, 15 Riverside Rd., Ivanhoe, Queensland.
 4FF—J. C. Fairweather, Broad St., Labrador, South Australia.
 5BF—D. G. Goode, Yankalilla, Western Australia.
 6JJ—B. Bellringer, 97 Grosvenor Road, Mt. Lawley.

CHANGES OF ADDRESS

- VK— New South Wales
 2EJ—A. T. Noon, Postal: 29 Oakleigh Rd., Glenhuntingly, S.E.9, Victoria.
 2EZ—W. G. Spencer, Station: 27 Kardinia Rd., Clifton Gardens; Postal: 17a Stanley Ave., Mosman.
 2LI—M. P. Moore, 10 Milford St., Randwick.
 2QI—C. Bowler, Station: S.S. "Baroota"; Postal Address: 25 Castle St., Randwick.
 2AJY—J. K. Fullagar (Dr.), 420 Orange Grove Rd., Booker Bay, via Woy Woy.
 2ANH—N. E. Hicks, 1 Kitchener St., Oatley.
 2AQB—R. B. Digby, 60 Queens Pde., Newport.
 2APZ—R. L. Kerdel, 336 Mica St., Broken Hill.
 2AQQ—R. E. Gunnourie, 251 New South Head Rd., Edgecliff.
 2AQP—H. F. Powell, 11 Bridge Rd., North Ryde.
 2AQS—N. C. Scott, 56 Seventh St., New Lambton, Newcastle.
 2ASM—W. C. Clarke, 9 Beacon Ave., Brookvale.
 2AWE—R. M. Weston, 127 Anzac Pde., Kensington.
 2AXB—E. Curruthers, Station: Flat 16, Hedingly, The Esplanade, Elizabeth Bay, Sydney; Postal: Box 1189, G.P.O., Sydney.
 2AXS—R. R. Smith, 28 Prospect St., Carlton.
 2ZAS—S. D. Russell, 310 Unwins Bridge Rd., Tempe, Victoria.
 3DC—D. G. Caldwell, Lot 49, Montgomery Ave., Syndal.
 3FI—H. R. Fitzsimmons, 13 Leithen St., Shepparton.
 3RL—K. E. Olsson, 6 Kalonga Rd., Nth. Balwyn.
 3ARO—R. C. Pulford, St. Helena Rd., Greensborough.
 3ASH—R. R. Elkin, 496 Moorabool St., South Geelong.
 3ZBH—R. J. Harrison, Railway Pde., Glenroy, Queensland.
 4BL—W. A. Easterling, 18 St. Peters St., St. Peters.
 4BX—G. J. Walker, 23 Hughes St., Hermit Park.
 4OA—D. B. Owen, 24 Anzac Ave., Toowoomba.
 4SE—S. E. Molen, C/o. Radio Station 4LG, Cramsie, Longreach.
 4TF—R. C. Tow, 5 Hooper St., Boonah, South Australia.
 5GE—R. G. Pitts, Flying Doctor Base, Vincent St., Port Augusta.
 5SG—S. G. Tonkin, 76 Ways Rd., Hampstead Gardens, Adelaide.

- Western Australia
 6LJ—J. Mead, 68 Alexander St., Wembley.
 6WI—Wireless Institute of Australia (W.A. Div.), Station: 110 Edenborough St., Mt. Hawthorn; Postal: Box N1002, G.P.O., Perth.
 Tasmania
 7FC—F. C. Harland, Station: 12 Wellesley St., South Hobart; Postal: 42 Wellesley St., South Hobart.
 7WG—W. G. Gough, 111 Pottery Rd., Lenah Valley, Territories.
 9AS—J. A. Whittaker, Station: A.P.C. Oil Exploration Station, Upper Bamu River; Postal: Seismic Five, C/o. A.C.C., Port Moresby.

CANCELLED CALL SIGNS

- VK— New South Wales
 2DM—D. W. McDonald.
 2XI—C. P. Pickup.
 2AGP—G. T. Raiph.
 2AIF—J. C. Fairweather. Now VK4FF.
 2APN—D. G. Littlejohn, Victoria.
 3YA—A. R. Young.
 3ACW—C. Welsh. Now VK2MV.
 3AGO—E. C. Sloss.
 3AOF—F. P. O'Dwyer, South Australia.
 5TM—R. D. Martin. Now VK2AMN, Territories.
 1DY—G. E. Delahoy. Now VK3ADZ.
 9OK—L. J. King. Now VK2AOK.
 9PF—P. T. Filmer.

FOR MONTH OF OCTOBER, 1955

NEW CALL SIGNS

- VK— New South Wales
 2SD—L. W. N. Squires, Portable, C/o. 27 Fletcher St., Bondi.
 2AGE—G. A. Dowse, 6 Bangalow Rd., Ballina.
 2AJN—A. J. Myers, 515 Pennant Hills Rd., West Pennant Hills.
 2AQA—18 L.A.A. Regt. R.A.A., Chandler St., Kogarah.
 2AYA—G. A. Ahlstrom, 21 Melville St., Strathfeld.
 2ZBB—G. F. Pearson, 17 Esher St., Burwood.
 2ZBD—J. I. Cumming, 8 Sortie Port, Castlcrag.
 2ZBF—B. C. Fleck, 20 Yoolooma St., Griffith 5S, Victoria.
 3JK—J. K. Herd, Portable, C/o. Reid St., Wangaratta.
 3PD—W. R. Moffatt, 1 Rothsay Ave., Box Hill South.
 3AJX—A. R. Jarman, 8 Edward St., Horsham.
 3AKI—M. J. Doolan, 32 Skene St., Colac.
 3AWV—K. J. Love, 27 Bishop St., Oakleigh.
 3AZB—A. W. M. Buesst, 5 Torresdale Rd., Toorak.
 3ZBA—W. A. Ferres, 28 Jeffers St., Noble Park, Queensland.
 4BB—S. K. Howard, Portable, C/o. 40 Branyan St., Bundaberg.
 4IH—I. H. Mullins, Tulley St., Thursday Island.
 4ND—N. G. Dangerfield, 23 Graham St., Ayr.
 4OC—E. B. Connor, Cassowary St., Longreach.
 4XD—K. W. Nutt, Station: Mulgrave Rd., Earlville via Cairns; Postal: C/o. Broadcasting Station 4CA, Cairns, South Australia.
 5ZAP—G. R. Pope, 18 Seaview Gr., Blair Athol, Western Australia.
 6JH—J. W. Hughes, 373 Marine Drive, Geraldton.
 6MM—G. Miles, 31 The Avenue, Nedlands.
 6RB—E. F. Robins, 148 McDonald St., Joon-danna Heights.
 6ZAF—T. C. Berg, 72 Fourth Ave., Mt. Lawley, Territories.

- Territories
 9AB—A. B. Bunting, Station: 3 Mile, Rouna Rd., Port Moresby; Postal: P.O. Box 38, Port Moresby.
 9SD—S. D. Sutherland, Station: Cr. Yarra Ave. and Tavua St., Rabaul; Postal: C/o. P.O. Box 55, Rabaul.

CHANGES OF ADDRESS

- VK— New South Wales
 2EX—A. H. Outtrim, 30 Boomerang Rd., Springwood.
 2TY—T. H. Cabill, C/o. Milparinka P.O.
 2KU—I. W. Archibald, 52 Vista St., Sans Souci.
 2TJ—J. W. Thompson, 11 Temple St., Stanmore.
 2ACK—C. Jeffery, 34 Waitara Pde., Hurstville.
 2ALD—R. F. Smith, 47 Denman St., Cronulla.
 2AQJ—K. B. Pounsett, Flat 22, Seiffert Centre, Lowe St., Queanbeyan.
 2ARI—R. H. H. Roach, 49 Henley Rd., Flemington.
 2AWO—W. H. Field, Postal: 10 William St., Double Bay.
 2AXD—E. A. Druitt, 43 Canal St., Griffith.
 2ZAH—W. H. Harder, 148 Bismuth St., Broken Hill, Victoria.
 3FO—C. R. Gibson, High St., Maldon.
 3ABA—J. O. Bail, 20 Relowe Cres., Box Hill North.
 3APK—P. C. Perkins, 29 Richmond St., Geelong East.
 3AQK—R. J. Hildebrand, 101 Tambet St., East Bentleigh.
 3AVS—M. Strohfeldt, 18 Alexandra Ave., Elsternwick.
 3AZC—L. Cunningham, 133 Gordon St., Traralgon, Queensland.
 4KW—H. S. Dearness, 16 Harvison St., Mackay.
 4RI—R. H. Cordon, Cr. Mark and Gleason Sts., Hermit Park, Townsville, South Australia.
 5FF—R. F. Farmer, C/o. Mr. C. W. Farmer, 7 Kirkcaldy Rd., Grange.
 5KS—R. A. Sedunary, 138 Wellington Rd., Payneham.
 5NC—R. G. Clayton, 27 Harbrow Gr., Seacombe Gardens.
 5RN—D. S. Robertson, Station: Maroonika, Mt. Lofy; Postal: C/o. Physics Dept., Box 4 Canberra, A.C.T., Western Australia.
 6UF—F. H. Turner, 15 James St., East Cannington.
 6ZX—E. E. Grey, Commonwealth Bank of Aus., Leederville, Tasmania.
 7CF—C. J. Frisby, Flinders St., Brooklyn, Burnie.
 7RL—R. V. Bulman, 2 Bond St., Kings Meadows, Launceston, Territories.
 9WL—J. Widdup, C/o. R.T.C., Sohana, Bougainville.
 9DS—D. B. Schroder, C/o. D.C.A., Madang.

CANCELLED CALL SIGNS

- VK— New South Wales
 2HJ—J. R. Hamilton (Miss).
 2ADM—L. E. Radclyffe.
 2ATC—Sydney Technical College, Victoria.
 3AWM—W. R. Moffatt. Now VK3PD, Queensland.
 4IB—D. N. Bismire.
 4JS—H. W. Glocher, Tasmania.
 7XD—K. W. Nutt. Now VK4XD, Territories.
 1TF—T. F. Firmstone.

1955 USHERS IN THE T.V. ERA BRINGING WITH IT MANY PROBLEMS

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FIFTY MEGACYCLES AND ABOVE

FREQUENCY CHANGE FOR FIFTY MEGACYCLES BAND

Reminder: 50-54 Mc. Band closes on 31st January, 1956.

See you on 56-60 Mc. Band (now open).

NEW SOUTH WALES

An interesting lecture was given at the November meeting of the V.h.f. Group by Mr. Vanderly on co-axial resonators. Visitors present were ZASA, 2EI, 2ADS and 2PL. Discussion took place on the new rules applying this year to the Ross Hull Contest. The Group strongly objected to these rules and a letter was sent to all Divisions, F.E. and the Federal Contest Committee asking that the rules be withdrawn.

The Fox Hunt held on Sunday, 20th, was won by Bob 30A with Perc 2APQ as navigator. Dave 2AWZ was second and 2LG was about half a mile away when the location was announced. The fox, John 2AZO and 2ATO, proved to be a very allusive one. 2ANF and 2AWZ were very close to him when he cut the transmission at lunch time in the Richmond area. However, he eluded them and made his final location in the bush, well hidden, near the Yellow Bock Lookout. Harry 2AJZ had had luck with rx trouble and withdrew after lunch.

3ZAY/P made a surprise visit to VK2 with a big signal into Sydney from Wentworth Falls. Dave made quite a lot of contacts with the Sydney stations from this location, which is about 50 miles from Sydney and about 3,000 feet high.

50 Mc. has shown increased activity with the summer coming on. There were a couple of openings during the month to VK3 and VK4. The opening of the Ross Hull Contest should bring a lot of activity to this band.—2LG.

VICTORIA

A well attended v.h.f. meeting heard an interesting talk by Barry 2ZAG on v.h.f. components at present available in Australia. During his trips Interstate, Barry has collected a considerable number of miniature capacitors, trimmers, resistors, etc., which although available, are not widely known to Amateurs. Barry 3APB came along to the meeting to say goodbye; he is going back to VK2 to take a position with a radio firm. He says it was an opportunity he just couldn't miss and feels it will give him more spare time to spend at Amateur Radio. Barry and his XYL, Heather, were very popular here in VK3 at fox hunts and tx hunts and we're all sorry you are leaving us, but we hope to contact you at your new QTH at Cronulla. Bill 3ZAC has been transferred to the Air Force station at Singapore. We'll miss you, too, Bill.

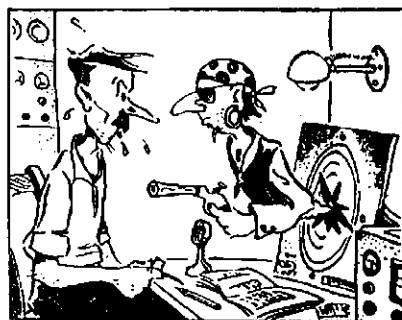
The fox hunt, as usual, provided participants with a very enjoyable night out with a lot of amusing incidents. At the first stop in a lane at the rear of 3JD's home in Middle Park, the only hound to make a catch was Eric 3ADU. The second stop was in tall-light alley in Elwood. This appeared to cause much confusion among the usual frequenters of that particular spot, which was added to as the hounds arrived on the site. All the hounds made several catches during the evening, the most unique catch though, was when the fox circled the control station's home and on passing slowly by the front gate, Bob 30J ran down the path to meet him. This is the first time that a control station has caught the fox on the run. 3ALZ and 3ZAJ helped Bob with cross bearings during the evening. The final location was at the home of Bob 3WY, in Burwood, and fox hunters enjoyed meeting Bob and his family and seeing his shack. Some made the most of the opportunity by getting a QSL card from him. We are grateful to Bob and Mrs. Anderson for making their home available to the Group and thank them most sincerely.

The first field day of the summer season was a very popular one. Those who went portable were 3GM at Mt. Bunanayong, 3ZBU at the Camel's Hump, Mt. Macedon, 3AHL at Kinglake, 3ADU at Yuroke, 3IE at Mt. Dandenong, 3LN at Mt. Macedon and 3ZAD Mt. Dandenong. Home stations played their part and came on the band in full force, giving portables a never-ceasing string of contacts. During the day there were probably about 50 stations operating; this was very encouraging although we would like to hear more stations from portable locations on the next field day, the date of which will be broadcast over 3WI.

The following are the rules governing field days for this season: Scoring will be rated at one point per air line mile in each contact. One contact per band, per field day. The mileage must be agreed to by both parties and will form part of the QSO. QSO will not be complete and points cannot be claimed unless the mileage has been arrived at and agreed to by both parties. Make sure to take an adequate map and compass with you. The bands that may be operated are 144 Mc. and above. The time duration of the field day will be the 24 hours of the Sunday. 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 will not be awarded points. Logs to be forwarded to the Secretary of the V.h.f. Group, Bob Stevens, VK30J, 17 Jervys Street, Burwood, within fourteen days of the date of the field day. An attractive certificate is to be awarded to the winner of each field day for this season.

Evan 3AAP has a new daughter, his first harmonic, 8½ lbs. too; congratulations, OM. 3BQ's son, John, and 3ANK's brother, Don, have both passed their A.O.L.C.P. exam and are awaiting a "Z" call.—Phyl Moncur.

Gippsland stations active during November were 3ZAB, 3QZ, 3TH, 3DI, 3VL, 3ZD and 3TY (Sale). Good conditions on night of 27th November gave 3TY his first Melbourne contact with 3RK, who is the most regular and consistently strong signal heard in Gippsland from the Melbourne area. 3TY uses a 522 and six el. array with screen reflector and is building a new converter. 3ZAB, 3TH and 3ZD are gradually acquiring bits and pieces for new beams and 3VL has been relatively inactive due to arrival of new junior op. 3QZ at Traralgon generally on Sunday nights using about 3w. 3TO, from Yallourn, will not be back on 2 mx until after Xmas.—3ZD.



Strike! There must be Pirates on the Band!

WESTERN AUSTRALIA

Most important event of the month was the trip of Bob 6BE and Wally 6ZAA to Albany. 6ZAA's tx and rx for 2 mx were taken and Bob and Wally 6WG provided the 40 and 80 mx links. The week-end was a real hamfest with Wally 6WG, Bernie 6KJ, Norm 6LT, Harry 6WZ, and Ross 6RD all participating.

The gear was set up at Wally's 6WG shack and the antenna used was Wally's 12 el. phased array. Input was 60w. on c.w. Signals on Saturday were 559 from Albany. The signal was heard by Rolo 6BO, Don 6HK, Ralph 6ZAD and Don 6ZAV. No signals were heard from Perth. On Saturday evening signals again were put into Perth over the 240 mile path, but again Rolo could not be heard. On Sunday morning a concerted effort was made to establish two-way contact, but despite reception of 6BE/P signals at 449 in Perth, no Perth station was heard. Whilst two-way contact was not made,

the trip did give all concerned a thrill as it was the most distant check made in W.A. apart from Rolo's efforts to Adelaide.

The thanks of the v.h.f. gang in Perth go to the Albany people for their help, and personally I thank Wally, Bernie and Norm for sparing no effort to facilitate our operation. Thanks!

Also promising well for country DX was a phone call to your scribe from Tom Talbot who has applied for his Z call. Tom is in Brunswick, 100 miles from Perth, and hopes to operate on 2 mx. The V.h.f. Group will organise an expedition to meet Tom and test the path between Brunswick and Perth. Jack 6EL in Bencubbin has also mentioned an interest in 2 mx, but nothing definite is promised.

Don 0DW, Bruce Rock, made a trip across to Merredin to visit Mal 6MU. Don took a converter and listened for Perth signals. Don has had his 8012 in the final succumb and has been on low power since.

In Perth Ron 6ZAR has a strong signal from his 829. Drive troubles prevent him running much more than 30w. Tom 6ZAE is still having trouble with the tx, but has talked his landlord into joining in the V.h.f. Group's tx hunt. Ralph 6ZAD is happier now with his motor driven beam. He almost went astray with a vertical J, inspired by Roger 6RK. Roger suggested vertical polarisation to ease cross town contacts. Warren 6WJ and Ralph did try it temporarily, but gave the idea away—fortunately! Try halos or turnstiles next time!

288 Mc.: All is quiet here but rumour has it that the W.A. 288 Mc. record will be broken shortly.

Finally, a reminder of real DX. 6 mx operators in the West and some of the Z licensees monitoring 50 Mc. will be turning it on when 6 mx is open in January. With the improving conditions, the world record of 1,400 miles could be in jeopardy. Who operates on 144 Mc. about 100 miles east of Adelaide?—6ZAA.

AUSTRALIAN V.H.F. RECORDS

Band Mc.	Stations	Date	Miles	World Rec'd
50	VK5KL-W7ACS/KH6	28/8/47	5355	10500
	VK6HK-VR2CG	3/1/55	3928	
	VK6WG-VR2CG	3/1/55	3816	
	VK9DB-ZL3GS	26/12/53	2804	
	VK3IM-VR2CB	30/12/63	2405	
	VK7BQ-VK9DB	—	2211	
	VK7LZ-VK9DB	—	2211	
144	VK5GL-VK6BO	31/12/51	1328	1400
	VK5QR-VK6BO	9/2/52	1328	
	VK3GM/3-VK7LZ/PF	9/3/52	317	
288	VK5MT/5-VK5RO/5	13/4/52	108	
	VK3AFJ/3-VK3AAF/3	21/3/54	83.8	
	VK6BO-VK6DW/6	1949	25	
576	VK3ANW-VK3AKE	11/12/49	81.6	
2300	VK3ANW-VK3KA	18/2/50	9.1	150

The above contacts are best known to date, but what of VKs 2, 4, and 7 contacts? Please send FULL details of your best contacts through your Division to F.E., giving particulars of both stations' locations at the time of contact so that your record may be listed above.

EDITORIAL

(Continued from Page 1)

in 1908 to a Movement comprising Boy Scouts, Wolf Cubs, Sea Scouts, Rover Scouts, Queen Scouts, Girl Guides and Brownies. The station is operating under the official Federal call sign of the Wireless Institute of Australia—VK3WIA.

During his early military career in Africa, Baden-Powell observed the native warriors who, because they were the bravest of the brave, held spears in their right hands whilst they shook hands with their left hands. From this grew the traditional left-hand handshake of the Boy Scout. It is therefore with the greatest of pleasure that the Wireless Institute of Australia, as an international democratic representative of the Amateur Transmitting Movement, shakes hands with the International Boy Scouts Association in promoting goodwill amongst Nations.

FEDERAL EXECUTIVE.

DX ACTIVITY BY VK3AHH†

PROPAGATION REPORT

3.5 Mc.: The seasonal increase in noise level naturally affects communications with overseas places. However, conditions to North America and the Pacific Islands continued to be consistent and reasonably reliable, between 0800z and 1100z.

7 Mc.: Again, no unusual conditions were observed. Times of band openings were: Europe around 0800z and between 1900z and 2100z; the American Continents and the Far East: 0600-1400z.

14 Mc.: General conditions during the month of November were fair to good. Long path break-throughs to Europe have been observed between 2200 and 0200z. African conditions peaked around 1530-1730z, while the American Continents were well represented between 1200 and 1800z and again around 1830-2230z.

21 Mc.: This band provided good conditions to all continents, African conditions were likely to exist between 0500z and 1200z, with Europe around 0800-2400z. South America was workable between 0600z and 0800z, while North America showed up around 2100-0400z.

27/28 Mc.: Good break-throughs to five continents have been reported. Times were for Europe between 0800 and 1300z, and 2130 to 0200z for the American continents.

NEWS AND NOTES

As usual for this time of the year, Australian Antarctic Expeditions are in the headlines! A number of Amateurs will again participate in 1956. Our "bon voyage" to the Macquarie Island and Mawson teams is accompanied by welcome-back-home greetings to VKs IDC, IHH and IZM, who represented Macquarie Island for the last twelve months. The new team will take over around Christmas time. VK1DA and VK1IJ (ex-7IJ, 3IJ) will be the new call signs.

With apologies to my v.h.f. colleagues, I cannot resist the temptation to mention that "VK4DP is believed to have been heard by two JA stations (one of which was JA1AA) on 50 Mc. at S9" (thanks 4SE). The ball is in the v.h.f. corner now!

Amsterdam Island is represented by FB3ZZ on 14026 Kc. (from W6YY).

14 Mc. phone operation seems to be predominant with CR7AU, CR7CO, and CR7DI (from W6YY).

LUIZY is expected to be active from South Sandwich Islands, beginning late in December or early in January (from BERS195).

Nicobar Islands—VU5—is another one to look forward to (from 5WO).

The Gough Island expedition (ZD9AD) had been delayed by bad weather, but has now reached its destination and is active on 14 Mc. c.w. and phone (from 5WO and W6YY).

FD4DB is on 14 Mc. c.w. (from 5WO).

ZLs 2GX and 2CU will soon make their trip to Kermadec Islands (from W6YY).

QTHs OF INTEREST

CS3AC—C/o. A.P.O. 406, New York, U.S.A.
CE2CO—P.O. Box 24, Llaylly, Chile.
VQ2SK—Monze Station, Northern Rhodesia.

ACTIVITIES

3.6 Mc.: S.w.l. Dave Jenkin heads this month's list with DU7SY, WSDWT, W6BJU, W7AJS, and W8HOX. 3AHH also heard a number of Ws.

7 Mc.: Laurie RAMB worked XW8AB, VQ4DW* and heard VU2BO, YU2AC, VSIGX, EA5FI, Syd. 4SE reports CTIDJ. Dave Jenkin heard JA8AA and KG6AGT.

14 Mc. c.w.: Lyell 8GW: AC5PN*, CE3DZ*, CE4AD*, CN8MM*, CR7CN*, CR9AI*, EA1CP*, EA4CS*, EA5FC*, EA6AF*, EA8BK*, EA8CA*, ET3AH*, FA8AN*, FA8BG*, FA8DA*, FA8IH*,

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

* Call signs and prefixes worked.
z—zero time—G.M.T.

FA8R*, FB8BR*, FB8BS*, FY7YE*, HPIEH*, HZ1HZ*, IT1TAI*, KT1EXO*, KZ5WZ*, LU1DCQ*, LU2DAW*, LU2GB*, LU3FO*, LU3HR*, LU3ZK*, LU8FA*, MP4QAL*, MP4TAA* (?), PYZBAU*, SU1DD*, TA3US*, VK1AW*, VK1RA*, VP2V/P*, VP9BM*, VP9CI*, VQ6LQ*, VQ8CB*, VS4BA*, VR9*, XW8AB*, YA1AM*, ZB1HK*, ZC4CK*, ZC4P*, ZD6DCP*, ZD6BX*, ZS5BF*, ZS7J*, ZS8KA*, ZS8AKH*, ZS61X*, 3V8AN*, 4X4CK*, 4Y4GS*, Laurie 2AMB: CR1DS*, CR7IZ*, LU8QA*, XW8AB*, ET2LE*, H9B*, VU2CM*, ZS2X*, MP4QAL*, CF3CA*, 3W8AA*, and FB8BU, G3KLLK/MP4, ZSSGF, ZS6R1X, TI2RI, ZC4IP, 4X4DH, VU2JK, KE1MB, KE1RX, KE1NQ, DU1CV, CR7CO, OD5AU, ZB1HK, LA4KD, E19Y, CE3DZ, H9B, ZD2WAF, VK1RA, Bud 2AQJ: KV4, XW8AB*, JA*, KR6*, KP4YT*, Jack 3JA: PJ2AJ, VN1PM*, T1ZMAR*, MP4QAL*, LUIVV*, LU4HU*, Ken 8BK: II*, JA*, VQ4DW*, KA*, KG6*, YU*, H9B*, Fred 3YS: FK8*, YU1DI*, VS4BA*, VP9BM*, and HZ1AB, ZC5CT, VQ8CB, YA1AM, Bob 4RW: VQ2W*, ON4*, EA5AF*, VQ3CF*, VQ4DT*, CR7CI*, YV1AD*, KZ5IF*, AC5PN*, VQ8LQ*, ZD6BX*, Syd. 4SE: ZE4FF*, V86LQ*, JA/KA*, CP5EK*, VS8AE*, H1SVR*, KG6*, VS4BA*, BV1US*, LU2GB*, LU4HW*, KR6*, G*, ZS6*, ZS5*, ZS1*, VS1BJ*, KV4*, YV4AX*, CR9AI*, G4RY*, ON4*, PA0*, SM*, HB9RZ*, LA5IC*, VU2SX* and OH, ZC5CT, LU4DMG, LU8EN, FA8AN, ET2MZ, HZ2AEI, FQ8AX, AC5PN, SM, GM, GW, MDSUK, CR6AY, ZD6RD, CM2PX, Ray 5RK: JA/KA*, KR6*, VR2*, G*, VU2BK*, KG6*, VE1AE*, Austin 5WO: ZD2WAF*, VQ4DT*, FB8BE*, ZE2JZ*, VP9BM*, CO2BL*, KV4BB*, KP4ZW*, Eric BERS195: AP2Q, BV1US, CE7JZ, CN8EJ, CR7IZ, CS3AC, CE4AD, CTIDJ, CO7AH, DU3DD, EA8AP, ET2AG, FA8CR, FK8, FO8AB, G, GM, GW, HZ1AB, HZ2AEH, KC6CG, KG4AV, KG6, KR6, KP4KD, LUIZV, LU2ZV, LUTXP, OA4AU, MDSUK, L3JD, PY2CK, MP4QAL, SA2TZ/MP4, ST2AC, ST2NG, TI2PZ, YA1AM, ZP5AY, VK1EM, VK1RA, Dave Jenkin: XW8AB, JA/KA, 4S7PT, KV4, VS1BJ, LU8EN, VU2MA, CE3DZ, YV1AD, YV5BJ, 3AHH: VS4BA*, EA2CR*.

14 Mc. Phone: 2AQJ: T1ZCHV*, 3JA: LU8CN*, LU8MU*, XZ2SS*, FM7WF*, FM7WQ*, VV5AO*, OA2A*, LU4DMG*, KP4ABD*, 4RW: ZS6RT*, CE3RN*, LU7FBF*, 5WO: HH1W*, H3PFL*, VE*, HK3PC*, HPIEH*, HH1HB*, CS3AC*, GM*, H16EC*, LU3MZ*, OA2A*, CE2CO*, VK1AWI*, VV5BS*, HPIED*, FM7WF*, VV5EU*, CX3AF*, LU8MU*, VQ6EK*, ST2DB*, ET2MZ*, ZSSQT*, ZS6AJH*, ZS9G*, CN8MM*, VQ4EO*, VQ2SK*, VQ2DA*, FB8BV*, ZS6HO*, ZS8AE*, FA8AY*, HK3FV*, CO2BL*, EA8AH*, CP8AK*, John W1A-L3018: SV0WS, OA2A, HR1CB, YS1A, MP4BBL, VE, VS6CG, KV4, ZC4RX, BERS195: HK3FV, KP4ABD, KR6, OA2A, VQ4AQ, VK1ZM, XZ2KN, 4S7WM, Dave Jenkin: Gs.

21 Mc.: Neville 2APL: JAs*, KG8*, 3JA: Z84F*, ZS4GN*, 4S7SN*, VR2*, G*, GD*, CE2RH*, ZS4CV*, ZS6WS*, ZS6JW*, ZS4GR*, ZS5PM*, LU3DD*, CE3DZ*, ZC4RX*, HC1FS*, OHINK*, F3DA*, DL F3MS*, OH2JC*, ON4* DB*, OH5PX*, SM7BVO, 4RW, GM3DDI*, 4SE, JA/KA*, VS8*, DL/DJ*, PA0FAB*, G*, ON4*, FJ*, SM7AVA*, and VQ3FN, FO8AD, 4WO: ZS6JW*, CE3QJ, KG6*, ZS6FN*, G3HFD*, G2PU*, DL1IV*, SM5CO*, DL1SD*, HC1FS*, Dave 3ZAQ (W1A-L3003): KR6FI, JA, VS2DB, Dave Jenkin: KH6s, VS2DE, CE3DY, VS8AE, KR6R, KR6CR, CE3QJ, VV5AB.

27/28 Mc.: Les 4XJ worked W0*, W5*, W6*, W7*, W8*, VE4RO*, VE5CT*, VE7EL*, VE7AFA*, VE7VZ*, KH6*, HC1ES*, HC1FS*, HC1KV*, DL1S*, DL8ZM*, DL3IR*, KE1FU*, JA1ANG*, CG9JW*, BV1US* and heard T1SIA and YN4CB. John EH1 adds VE1ALC, JA1ANG*, G2I*, KH6*, VS2DB*, W*, VS6CZ*, G3W3O*, KA2NY*, PA0XD*, 5WO spoke to G5SD* and G8TA*. 3ZAQ heard GDSGMI, OVANC, DL4. Norman BERS11494 listened to YN4CB, W3, W4, W5, W6, W7, KH6, OH, G.

Rare QRls were received by: 4XJ: HC1KV, 5WO: CX3AF, CE2CO, VP9AK, HPIEH, BERS105: PJ2AE, PYZAHW, VP8AZ, VSIGX, XE1UU, YV1AD, 4S7GE, 4X4GW, SA2TZ, SM4AWC/MM.

This is the list of last month's contributors: PJ2AJ, ZL1CI, the Northern California DX Club, and VKs 2ID, 2QL, 2AF, 2AM, 2APL, 3HE, 3HL, 3IY, 3JA, 3JE, 3KR, 3PA, 3PG, 3TE, 3VM, 3WQ, 3XO, 3YS, 3ZJ, 3ZP, 3ZU, 3ACN, 3AHC, 3AHH, 3ALD, 4HD, 4RW, 4SE, 5BY, 5H1, 5WO, 3ZAT, 3ZBO, and a.w.'s: BERS195, WIA-L3018, Dave Jenkin (VK3), and Rod de Balfour (VK7).

This month, I say thank you to W6YY, and VKs 2CW, 2AMB, 2AL, 2AQJ, 3JA, 3KR, 3YS, 4RW, 4SE, 4XJ, 5H1, 5RK, 5WO, 3ZAQ, and WIA-L3018, BERS195, BERS11494 (VK2), and Dave Jenkin (VK3).

To all readers: Compliments of the Season with best DX wishes for 1956!

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	21 181	VK3ATN	28 163
VK3BZ	3 178	VK4KS	9 152
VK4HR	12 178	VK6KW	4 150
VK6RU	2 170	VK3LN	11 141
VK3EE	10 163	VK4RW	23 141
VK3JD	1 153	VK3AWW	14 140

C.W.

Call	Cer. C'tnt- No. ries	Call	Cer. C'tnt- No. ries
VK3BZ	6 222	VK3CX	28 180
VK3FH	15 210	VK4EL	9 175
VK4FJ	29 206	VK3BY	45 172
VK4HR	8 200	VK3CN	1 163
VK3EO	10 200	VK6RU	18 161
VK2EO	2 183	VK3RX	23 159

Amendments

VK3RJ 42 111

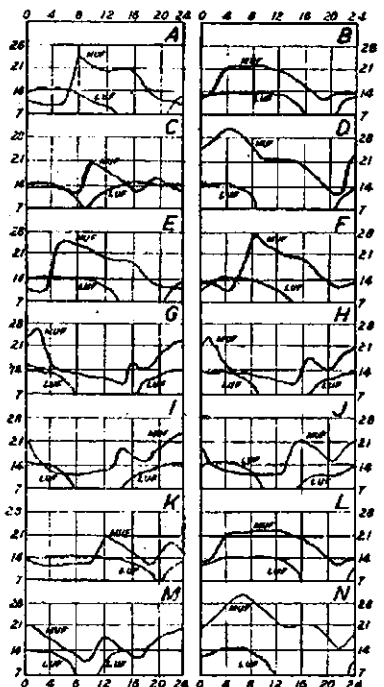
OPEN

Call	Cer. C'tnt- No. ries	Call	Cer. C'tnt- No. ries
VK3BZ	4 231	VK2NS	16 195
VK2ACX	6 225	VK3HG	3 181
VK4FJ	32 217	VK4EL	10 175
VK4HR	7 214	VK6KW	13 171
VK6RU	8 204	VK2DI	2 170
VK3JE	12 198	VK4DO	15 168

Amendments

VK3YS 57 112

PREDICTION CHART FOR JAN., 1956



A—Eastern Aus. to West. Europe—Short Route.
B—Eastern Australia to South Africa.
C—Eastern Aus. to West. Europe—Long Route.
D—Eastern Australia to Far East.
E—Eastern Australia to Mediterranean.
F—Western Australia to Western Europe.
G—Eastern Australia to North West U.S.A.
H—Western Australia to North West U.S.A.
I—East. Aus. to North East U.S.A.—Short Route.
J—Western Australia to North East U.S.A.
K—East Aus. to North East U.S.A.—Long Route.
L—Western Australia to Central America.
M—Eastern Australia to Central America.
N—Western Australia to Central America.

BOOKS!

BOOKS!

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- ★ PHILIPS' VALVE DATA BOOK—10/6 and 9d. postage.
- ★ OSRAM NINE-ONE-TWO PLUS AMPLIFIER MANUAL—7/6 and 9d. postage.
- ★ SINGLE SIDEBAND FOR THE RADIO AMATEUR—25/- and 9d. postage.
- ★ HIGH FIDELITY—Design Construction and Measurements—16/- and 9d. postage.
- ★ R.C.A. RECEIVING TUBE MANUAL—N. J. Harrison. 10/- and 9d. postage.
- ★ MINIWATT, TRANSISTORS AND GERMANIUM DIODES, 2nd Edition. 2/- and 6d. postage.
- ★ AMPLIFIERS (Audio Handbook No. 1)—N. H. Crowhurst. 5/3 and 6d. postage.

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A & R OUTPUT TRANSFORMERS

★ TYPE 921 (921-8: 2 or 8 ohms; 921-15: 3.7 or 15 ohms):

For VALVES:

807, KT66s,
etc.

Suitable Conversion

"WILLIAMSON" to U.L.

See "Audio Engineering" of
June, 1952.

20 WATTS: 80-30,000 c.p.s.

Primary: 6,000 ohms.

SCREEN TAPS: 10% of Plate Z.
F.R.: Plus or minus 1 db 10-60,000
c.p.s.

Leakage Inductance:

1/2P/1/2P: 18 mH. maximum.
Prim/Sec: 20 mH. maximum.

★ TYPE 931 (931-8: 2 or 8 ohms; 931-15: 3.7 or 15 ohms):

For VALVES:

6L6, EL37,
KT66, etc.

See "Radio and Hobbies" of
February, 1955, 17 watts
U.L. Amplifier.

20 WATTS: 30-30,000 c.p.s.

Primary: 4,500 ohms.

SCREEN TAPS: 10% of Plate Z.
F.R.: Plus or minus 1 db 10-60,000
c.p.s.

Leakage Inductance:

1/2P/1/2P: 15 mH. Maximum.
Prim/Sec: 15 mH. maximum.

★ Ultra Linear Output Type—

Type 916—12 watts.
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screen taps).
Sec.: 916-8: 2 or 8 ohms;
016-15: 3.7 or 15 ohms.

Type 949—12 watts.
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Sec.: 2, 8, 12.5 15 ohms.
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Valves: 6V6, 6BW6, KT61,
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FEDERAL, QSL, and DIVISIONAL NOTES



FEDERAL

THE NEW YEAR

Once again the Federal Council and the Federal Executive of the Institute desire to wish all members a Happy and Prosperous New Year.

It is appropriate at this festive season to give a few moments' thought to those whose work and efforts have kept our Institute functioning. Many play a part, and a special vote of thanks and good wishes for the future goes out to the Magazine Committee, Federal Contest Committee, QSL Managers, Correspondents, Traffic Officers and the others who, behind the scenes, make for the smooth running of the W.I.A.

1956 promises much in electronics with Television on the immediate horizon. However, with experience from the past to guide its decisions, the W.I.A. can look with confidence to the future.

FEDERAL STATION VK3WIA

Members will have noted that the Federal Station VK3WIA is being used at the Pan-Pacific Scout Jamboree at Clifford Park, near Melbourne.

It is intended by Federal Executive to have this station in operation during the coming year.

Regular broadcasts, disseminating news to all Divisions, are proposed. These will be given by members of Executive and will cover topics of a Federal character. In this way, all will be kept informed of the activities and problems of Executive and its kindred bodies at first hand.

FED. CONTEST COMMITTEE

A letter was received concerning the issue of Certificates for Awards made to winners of past Contests from which it appears that many VK/ZL Certificates have not been sent. It was resolved by the Committee that as soon as time permits the omissions would be rectified.

To assist the Committee, it is asked of contestants who were due for Awards in ALL the Contests run by the W.I.A. up to the end of 1954, that they notify the Committee immediately, Box 1254K, G.P.O., Adelaide, together with the details of Contest, Awards, etc.

The question of having a sub-committee conference at the Easter Convention. If one is to be held, was discussed at some length and following upon letters received from the Divisions regarding the framing of rules for the various contests, it would seem that such a conference will be the only means of arriving at some unanimity.

The value of comments received, along with logs submitted by contestants regarding rules, conduct of the contest, etc., brought serious discussion and it was agreed that these comments should be the true guide to any alterations. It was felt that those who submitted logs were the interested parties. However, where there is a definite policy directive, the Committee has no option but to follow that policy until such time as Federal Council either repeats it or frames some other policy.

Photographs of the Ross Hull Memorial Trophy have been received by the Chairman and are to be suitably inscribed and sent to the previous winners. A letter will be forwarded to each winner before his copy is sent. Those who receive these very fine photographs will certainly congratulate Federal Executive on their foresight when they agreed to a request from the Contest Committee for permission to have them done.

FEDERAL QSL BUREAU

BAY JONES, VK3RJ, MANAGER

Tom Laidler, VK5TL, Postmaster at Alice Springs, N.T., advises that he will try and get on 14060 Kc. c.w. twice daily for the benefit of overseas stations desiring the contact with Northern Territory for the W.A.V.K.C.A. Award. Tom will set on at 0900 and 2100 G.M.T. All contacts will receive a QSL via the Bureau.

VK5TL will appear on 50 Mc. as soon as he constructs a tx for that band. He is still in the building process.

Interesting cards sighted during November are YA1AM, of Kabul, Afghanistan; F7Y7E, of Cayenne; French Guiana, and AC4YN, of Tibet. The latter card confirmed a QSO with Trev. VK2NS on 27th August, 1949!

Esquil Eriksson, SM4AWC/MM aboard M.S. "Mangarella" would appreciate a visit from

any local Amateurs while his ship is in various VK ports. He recently was at Melbourne, Adelaide, Fort Firie and Burnie. The ship runs between VK and the West Coast of U.S.A. Esquil operates 14 Mc. c.w. during the voyages. His QSL shows a nice picture of the ship.

Mick Russell-Clarke (ex-VK4IC, of Willis Island, and now resident in VK2 land) advises that he hopes to have his QSLs ready for distribution in the near future. During his sojourn of 12 months at Willis Island (400 miles East of Cairns), Mick kept VK4IC on the air almost daily, using c.w. and phone.

Any VK who worked VP8AZ and did not obtain his QSL card, can apply again to Mike Faulkner, 13 Lovatt St., Newport, Pagnell, Bucks, England. VP8AZ operated from Graham Land, Antarctica.

FEDERAL AWARDS

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

Additional Certificate, No. 19, has been issued to J. P. Grubbe, W7RT.

OFFICIAL COUNTRIES LIST

Elsewhere in this journal will be found the official countries list as at this date. The list is made up in alphabetical order of prefixes and zone numbers are also listed.

ADDITIONAL COUNTRY

Kermadec Island, a dependency of New Zealand, has been declared to be a new country, effective 1/11/55. It would appear that Laos, Cambodia and Viet Nam will be declared separate countries by the time this reaches the press.

—G. Weynton, VK3XU, Awards Manager.

VICTORIA

STATE CONVENTION

Those who attended the State Convention at Bendigo had a very enjoyable week-end, some renewing old acquaintances, others making acquaintances with fellow Amateurs who up till that time had only been voices. Approximately fifty-three attended the Convention; this was not as large a crowd as usual and was a little disappointing for the organisers. After the dinner and the departure of the ladies to the pictures, the OMs got down to the business of the Convention.

There were six items on the agenda and these were apparently very fully discussed as they were still discussing item 3 at 11.30 p.m. when the ladies returned to rejoin them at supper. After supper a film from the Monsanto Chemical Co. on their latest developments in the chemical field was shown. This film was very, very interesting, but it was also very late by the time everyone got to bed.

However, a State Convention only comes once a year. Those who slept at the hotel got a good night's rest, but those who camped at that very picturesque park, "White Hills," know exactly what sort of a noise a peacock makes all night long.

The first item on the programme on Sunday was a hidden tx hunt on 2 metres. For some of the competitors this provided a scenic tour of Bendigo over mine shafts and "molecule" heaps as someone's harmonic aptly named those heaps of rubble to be seen everywhere around Bendigo. The tx was finally located by Laurie 3ALY at Lightning Hill, near Eaglehawk. Those who located the tx there were rewarded for their efforts by a wonderful panorama of the Bendigo district which could be viewed from a lookout at Lightning Hill.

Then followed another tx hunt, this time on 80 metres. This was a really difficult hunt. After traversing mere bush tracks in heavily wooded country, the tx was located firstly by Don 3ALQ deep in the scrub in the vicinity of One Tree Hill, nearly an hour after the signal had come on the air. While these hunts were being run, a bush tour of Bendigo, as alternative entertainment, was enjoyed by others.

After lunch all gathered at the White Hills Gardens where there were events for all. Two frequency guessing competitions were won by Bill 3AMH and Associate George Robertson, a nail driving competition for ladies was the next on the programme and this was won by Marj (Mrs. 3ALY), followed by a "stepping out a cricket pitch" which was won by Alma (Mrs. 3AMH), and a treasure hunt for the children, won by the President 3TF's harmonic, John.

A grand week-end altogether, we thoroughly enjoyed every moment of it, our only regret

was that there were not more there to enjoy it with us and reward Neville 3ACN for his colossal job in organising the Convention, and Pat, his fiancée, who was a charming little hostess to the ladies.

GENERAL ITEMS

The A.O.C.P. Class got away to a good start with twenty-two pupils attending on the first night, however there are still a few vacancies for anyone desiring to do the course. Yours truly joined in the struggle once again, pretty tough on poor old "teach" though, he has to leave out most of his appropriate little stories with a female in the class.

The best item of news for the month was the announcement of the engagement of life member and councillor, Jack Duncan, 3VZ, to Miss Phyl Mumme. They plan to marry early in the New Year. Congratulations and best wishes are extended to you both, Jack and Phyl. (Looks as though this Fox has been running with the hounds.—Ed.)

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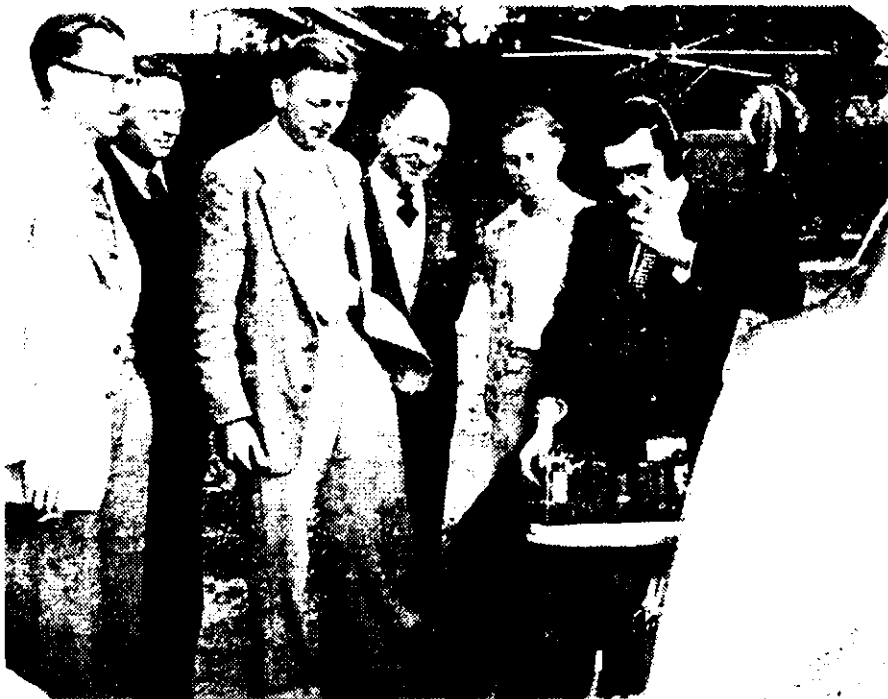
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Calling CQ at State Convention (Bendigo). Left to right: 3AFJ, 3AKW, 3ACN, 3ZS, 3AWC, 3ATK.

For the holiday week-end at the end of January, a group of Amateurs and their families are going to Portarlington to enjoy camping, Amateur Radio, the seaside and perhaps a little fishing. If you are interested in these things, come along and join us. For further particulars get in touch with Mrs. 3LN (FU 6239).

The Institute activities wound up for 1955 with a family night in a real Xmas spirit. This was in place of the general meeting and OMs, XYLS and harmonics enjoyed a very excellent selection of films. The children all received a Xmas novelty and supper was enjoyed by all. The President, Gordon 3TF, extended to members and their families, Xmas

greetings and best wishes for the coming New Year.

SOUTH WESTERN ZONE CONVENTION

The activities this month have been very numerous with the Convention held in Colac on 12th and 13th November. Several chaps worked mobile coming down, but conditions did not favour 40 or 80 mx. 144 Mc. was extra good as Tony 3ZAZ and his XYL were transmitting whilst mobile to 3AGV in Colac, although Pauline had to do all the driving.

On arrival we were greeted at 3AGV's QTH and received hotel bookings for the evenings, or should I say mornings' sleep, as that is how it usually turns out, as John 3AGD and Kevin 3AKR will agree.

Those present at the dinner were as follows: Bob 3IC, Harry 3XI, Tony 3ZAZ and XYL Pauline, John 3AGD, Gordon 3AGV, Brian 3ZBS, Mart 3AKU, Ed 3AEH, Bill 3AWZ, Ron 3KX, Dud 3KJ, 3AXU, Leigh 3II, Reg 3APR, Bill Wines and Jack 3ALP. We were very fortunate in having as our guest WDKC, Earl Whiddon, from Boston, Mass., U.S.A.

The Convention was officially opened at the dinner by His Worship the Mayor of Colac, Cr. D. Stalker, 3KJ. We trust that this event may tend to increase public interest in the affairs of Amateur Radio.

The M.C. at the dinner was Chris 3AXU who has not been in the zone a great time, but did an excellent job along with Gordon 3AGV who had all the responsibilities.

After the dinner, Chris 3AXU brought the tape recorder with him and we heard a very good lecture by Dr. Grote Reber on Radio Astronomy, which was most interesting. Following this we had another lecture on the tape, this was on Atomic Energy by Professor Baxter, which also was most interesting.

After the conclusion of these lectures, 3II had his projector and he presented a few films including the beautiful coronation film. Leigh, you had better bring it to the Warmambool Convention in March.

Supper was served later in the evening in the hotel dining room. After supper, we migrated to our rooms for some shut eye, but room 12 did not go QRT until about 2.30 a.m. as Harry 3XI, Bill Wines, John 3AGD, Tony 3ZAZ started to re-build a modulator of a Type 3 while awaiting the late arrival of Kevin 3AKR, who was working mobile on his way down from Westmere. He arrived at 12.45 a.m. and took over the modulator building.

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MARYBOROUGH

4CB building a new exciter unit, including Gelofo v.f.o. to fit into his rack. Painting the new home keeping him off the air. The steel tower is still in pieces. 4AI also started a new exciter. How about a v.f.o. this time Alan? At present chasing bugs out of his xtal controlled rig. 4BG threw away the Gamma Match to his 14 Mc. beam, put in quarter wave matching section to 300 ohm line and is delighted with DX results, even though beam only 18 ft. high at present. 4GH contemplating more house alterations before coming back on air. —4BG.

TOWNSVILLE

A well attended meeting of the T.A.R.C. was held as usual at the residence of Graham 4BX. After the usual correspondence was finished, the meeting was open for general business. Alan 4PS and Joe 4JH opened up the discussion on a 144 Mc. link for North Queensland and suggested that it would be possible to have a link from Maruba in the north to Brisbane in the south, along the coastal route. The longest distance to be covered would be Ayr to Mackay and Sarina to Rockhampton, which could be quite feasible even with low power. It was decided that at the next meeting plans would be formed to implement same, and suitable circuits be approved including transmitter, modulator, and converter suitable for emergency use if required.

Meeting adjourned to give ample time to Mr. G. Baines to give a lecture on his conquest of Mt. Victoria in New Guinea and his film on same was very good, shots were in technicolor and the best that I have seen of the natives, especially in their headdress of Bird of Paradise plumes. After a hearty vote of thanks to George for his address and film, all partook of the usual light refreshments.

Congratulations to Norm, protege of Andy 4BW, on passing the recent A.O.C.P.; won't be long before he is using the same black crow to herald his station on the air. Alan 4PS and Joe 4JH now gathering all necessary bits and pieces to get all the chaps on the air on 144 Mc., good work boys. Frank 4FC, Ingham, worked 7 Mc. with quite hefty sig. John 4DK installed new modulator and certainly fills the carrier, even when choked back. 4EJ had a day in bed after his visit to Ingham and then went to Magnetic Island for week-end to recuperate. Vern 4LK going great guns on 50 Mc. and giving this band a hiding.

Very few Townsville boys on the air at present. May be a lull before a storm of activity. Met Jack 2AAX in town and promised to call next time ship is in port. Worked a new one, AC5PN, after he had worked VK2 and 4HR, and missed out on his QTH due to a VU2 in India calling him frantically on the freq. before QSO had finished. Hope he is legit. —4RW.

SOUTH AUSTRALIA

The general meeting was held on the 8th November at the usual stamping grounds in Waymouth Street. Half those present forgot to sign the attendance book, but the chairs were all occupied so the numbers must have been up to the usual. No visitor's signatures appeared in the book, but the members of the A.O.C.P. theory class came along to swell the ranks. John 5UL unfortunately had hurt his eye during "cracker" night celebrations and was unable to carry on with the lecture for that night.

Apologies having been received from quite a number of members for non-attendance, the Chairman then introduced the guest speaker, Mr. Ted McGrath. Ted, who is Divisional Engineer in the Radio Section of the P.M.G., spoke on the developments in communication engineering over the last 100 years, with particular reference to Australian conditions. Most of us are aware that Ted holds the call 5MO, and until recently was active on all bands. With the aid of well prepared diagrams and photographs, the progress from single earthed lines, single pair multiple circuit lines to double co-axial lines carrying 1800 channels was traced. The place of radio links in the Australian network was described and in particular those links which have been installed in South Australia and proved invaluable.

The Chairman then called upon Cliff 5CX to propose a vote of thanks to the lecturer, pointing out to members that Cliff had had considerable experience in the field whilst stationed at the McLaren Vale Exchange.

Business matters were at an all-time low and after correspondence had been received and new members accepted, the meeting was closed at 2155 hours, and the unofficial meeting began with members discussing their latest gear and DX exploits. As the official QSL Officer, George 5RX, was unable to attend owing to shift work, Dougal 5BY and Joe 5JO handled the distri-

By the time these notes appear quite a few of us will be listening for Doug, who will then be VK1IJ, from Macquarie Island. At least for the summer season it is anticipated that the North Eastern Zone hook-up will be operating on 7050 Kc. at 1330 hours local time and all members on phone or c.w. are welcome.

GEELONG AMATEUR RADIO CLUB

Club members have been treated to a wide range of interesting events this month. Firstly, Ted 3AEH conducted members over his place of work and explained the intricacies of electronic timing equipment. Our thanks go to Ted for an interesting evening.

The Colac Convention was well attended by local enthusiasts and we must thank Chris 3AXU and Gordon 3AGV for their usual hospitality. The champion won the 80 mx hunt again, that is 3AEH.

The club's tx was taken out by Bob 3IC and Jim 3ZBR to Lovely Banks for a field night and the first man in was Kevin Mills, closely followed by Ted 3AEH. Vic Clarke was in close attendance.

Another interesting evening was given by John Mitchell and his XYL. John took us through Central Australia with 35 mm. coloured slides and the boys made suitable comments as the talk proceeded, on the probability of good radio QTHs. An excellent supper concluded a most happy evening and we thank our hosts warmly.

Arrangements are in hand for the Xmas Party when the harmonics will really let their hair down. We wish all the compliments of the season.

QUEENSLAND

BRISBANE DISTRICT

With Santa Claus back at his workshop preparing for next Christmas, here again are your budding journalists to give you a short précis of what has been going on over the last month. From what the clued-up scientific types predict, 1956 should be the beginning of another period of mighty conditions on the h.f. bands a la 1946-1950. Old "Sol" is in the process of getting himself his normal eleven yearly batch of chicken pox and let's hope that some of the fever (DX chasing type) infects the Amateur population. Let's hope, also, that the sunspots will help to build up the membership of the W.I.A. again, especially in the VK4 Division. Joking aside, all the very best wishes to you from your Divisional Council and may 1956 bring you everything you wish in Amateur Radio and in your everyday life.

Now to get on with the "doings." Arthur 4PX has re-affiliated with the W.I.A. and it was really good to see "Snowy" at a general meeting again. Arthur is active on the bands, especially on 21 Mc. Another old member to come back into the fold is Bert 4AO. Bert is knocking over bags of DX and is in the midst of a building programme. He personally built himself a beautiful house and if his new rig is up to the same standard, look out for another WIFH in our midst. Bill 4YA has shown encouraging progress in health and is now permanently in Ipswich. The Ipswich gang have rallied around and let's hope the old familiar voice will be heard on the bands shortly.

Del 4RJ is back on the air and, after experiments with beams has settled for a vertical. Del has one of the most unique earthing systems in VK—when he can't get correct loading, he tips a bucket of water out the window and his final current rises by 30 or 40 mills. Mick 4MD has rejoined the W.I.A. and it will be good to hear something from Kangaroo Point other than noises of shipbuilding and the scramble for counter lunches at the "local milk bar." Come on soon, Mick.

Numerous inquiries have been made regarding Morse Classes in Brisbane and if there is anyone who would like to take on classes and give instructions to prospective Amateurs and others, please contact the Secretary. We can assure any instructor that classes will be well attended. Harold 4HB is in a new QTH at Aspley with a spacious Hacienda, acres of land, and a nice rig and beam. A recent visit to his QTH by some of the gang saw Tibby 4HR, VK4's top DX man, climbing up Harold's beam tower with the ease of a kid on a bird nesting hunt. Your scribes have been trying to get 4PA to become active and it looks like the New Year will see activity by the technician over whom a local broadcast station has no control. Why don't you tune the b.c. rig up on 14 Mc. Al?

Well, there you have it for this month. Don't forget the first general meeting for 1956 will be at the usual place on the fourth Friday of January. Let's see a good roll up to start the year on the right footing. All the best to you all from 4ZM and 4PR.

Sunday morning we started off early by assisting the Colac Amateurs at 9 a.m. Following this there was a 144 Mc. hidden tx hunt, which was won by 3AGD from 3ALY, who is the king of the fox hunts in Melbourne; still the country lads are not too bad.

At 11.30 a.m., as conditions were not very good for the W.I.A. broadcast, 3AXU took us out and showed us through 3CS' new 1kw. tx using 833s in the final; after this we returned to the hotel for lunch.

Several members who were unable to be present at the dinner on Saturday were at the hotel for lunch. They worked mobile on the way down. Bert 3VA from Ballarat, Don 3FO and a few others.

At 2 p.m. we started from the hotel to find the hidden tx which was on 3.5 Mc. band. This was won by Ed 3AEH. After this, there was a scramble, lasting one hour. This was won by Kevin 3AKR, working 16 stations in the Wyndom. At 4 p.m. the XYLS of all the Colac Amateurs turned on afternoon tea. Congrats, ladies, on a very good job and we all thank you most sincerely.

Earl WIDKC brought his Harvey Wells tx up from the boat. It is a beautiful piece of equipment covering all bands, including 144 Mc. with an 807 in the final; many thanks, Earl. May we take this opportunity of wishing you all the very best while in Australia.

This concluded a very enjoyable Convention, the success of which was due to Gordon 3AGV, who has had a very busy time. We hope we get a many members at the Convention in Warrnambool some time in March.

EASTERN ZONE

Gwen 3US and Rex 3VL have a new junior op. The Zone members congratulate and send best wishes to you both. Bert 3BB came on the Sunday hook-up on 8th November with a very strong signal after an absence of some weeks. 3AAV putting out a good quality signal of his own, complains about its terrific power. Gilbert 3AYM has joined the hook-up with his newly acquired call and rig. Bill 3TY, at Sale, is working the zone boys on 2 mx at last.

The Latrobe Valley Radio and TV Club is going strong, holding monthly meetings with good attendances. The East Gippsland Society enjoyed an educational film show at Stratford at their last meeting. Next meeting will be at Alf Mackrell's place, Darriman.

3SS-3DY headquarters now have a call sign VL3TP, and Cliff Trall is VL3DF over near Sale. Freq. 2682 Kc. Both are base stations for the rural fire brigade trucks in the area. David 3DY is busy modifying the mobile rig to be fitted into them. 3AAV is making up mobile equipment also. Keith 3SS spent two weeks in hospital after losing an appendix. This will hold up journeys up the tower to put on the 2 mx beam. George Francis has passed his limited exam and is awaiting his call sign.

NORTH-EASTERN ZONE

Jim 3JK has been modifying his p.p. 809 modulator, and Jack 3AKC is active. However, nothing has been heard recently of the tx construction project of Ron 3AQG and the help from Henry 3HP. Frank 3ZU is moving into a new flat in Yarrowonga, not far from Kevin 3JR. The opportunity of hearing of Ken Mercer was missed. The news of the month is that Col 3WQ has been promoted to Ormond, and it is hoped that the metropolitan area capitalises suitably on our loss. George 3GD has been heard on 40 mx, and Tom's (3TS) beam tower and antennae are quite a landmark over Corop way, but nothing has been heard of Stan 3AGT in Tongala.

Les 3ALE has been kept busy helping the XYL with the new harmonic, mentioned last month. Bruce 3AGG is in strife with his 20 mx transmissions and the local taxi service on 83 Mc., however Brian 3ASF is doing well on that band. Murray 3HZ and Alex 3AT are kept too busy for Amateur Radio, but Ted 3AOB has been installing double conversion on his EC348 with very pleasing results. We are pleased to welcome to the zone Ray 3FL coming to Radio Australia, and the zone Ray 3FL coming to Radio Australia, has been out of the news lately. Ken's (3KR) interesting DX in November is 3W8A in Hanói. Howard 3YV, Hugh 3AHF and Bill 3JP were seen at the Gliding Club Fagant at Benalla. Jack 3PF is well occupied with his sheep these days.

3SM, who was at Alexandra a while back, spent a recent holiday at Springhurst. Vern 3AXW is quite active. Norm McDougall is now receiving "A.R." Jack Dunne has applied for Associate membership, and Jack Kington is making enquiries re A.O.C.P. qualifications. Syd 3CI and Alan 3UI are very interested in the v.h.f. field days. It is understood that Keith 3JC will be with them, if the house-building permits. Peter 3APE is active on 6 mx. Johnny 3ACK is active on 40 and 20 mx.

bution of the cards. The new members were: Messrs. V. L. F. Schwinger (country associate), L. K. Earp (6ZAE), W. J. Howse (6ZAA), J. Stewart (6ZAS), full country members. Welcome back into the fold again Bill 5HR, who has been active on 288 Mc. lately. Another old timer, George 5GB, is with us again.

Round the city there is a revival of DX chasing with Reg 5QR racing along with Jim 5FO for new countries. Even my rx and tx still work on 4 Mc. and my notes include John 5HI and Dougal 5BY who are always there when anything breaks. Now's your chance Dave to get 5DH round the world from that new QTH of yours: don't plan too long, or the sunspot cycle will be past its peak!

Brian 5FQ has been heard calling the rare ones too: I'll bet you find your new location somewhat of a paradise after your trials and tribulations elsewhere. Heard Les 5LC scooping in the signals with his cubical quad—or did the big blow remove it Les? What about the gen on it for the magazine?

Now when I get around to writing rare ones—guess who? Luke 5LL was very glad to know that the tranny was successful Luke. Shall be glad to have you in the "fone" team on the Picnic Day. We might even talk Pansy into joining us again, but Doc, you can't qualify for the phone this time, after winning the c.w. section of the R.D. Contest—"Hardly, sir, hardly! It wouldn't be cricket, sir." Which makes me wonder if it ever was, is, or ever shall be.

Ron 5MK has been somewhat seedy, but we hope that life is picking up again in time for the Ross Hull Contest. Albert 5ZL interested also in a Boys' Club at Brooklyn Park and with Howard 5XA and Joe 5JO, at the Brompton Boys' Club, staged a 288 Mc. demonstration. Many others assisted from outside with signals and it stimulated the interest of the lads and their parents. These are very valuable works that some of our members are doing and they are bringing credit to the Institute with their efforts. We also have Les 5AX interested in Scouting at Gawler. There are probably others, too, who are showing a lead to the young folk and do it whenever they can.

Have had some excellent contacts with the country chaps on Sunday mornings, but conditions are still poor for Fred 5MA at Renmark. Conditions can be excellent to all other parts of the State, but not in that direction; possibly could be the shadow of the hills, Fred. Even had a contact with Les 5UX at Cook; with Les on c.w. too! (5BY, please note). Bob 5RI has been fair on occasions also. Reports coming in indicate that 80 mx transmissions from 5RR often get through when the 7 Mc. band is not open. Reg has been using a 6 mx link from 5WI and finds that he can modulate the 80 mx tx much better.

Ron 5DO has been running schedules to the Eastern State on 20 mx and Howard 5XA and Joe 5JO have had success with Tom 5TL, located at Alice Springs. 20 mx has the unfortunate habit of closing down like a trunk line call and leaves each end suspended like a fish out of water—that's just what happened on a recent Sunday morning with me waiting to have a word with Tom, but he sent us a batch of hot weather as a reminder!

Stuart 5MS called me to let me know that Bram 5ZAB (get it right this time Ed.) had passed his code exam and hoped to be busy on the h.f. bands with 5AB. Associate Carl is an associate no longer—congratulations to you both on your perseverance. Stuart has resurrected a 21 Mc. beam after the weather man had ruined his other one for him, but finds it works better off the back; what are you grizzling about, it works doesn't it? The R.D. Trophy should have been located at 5WC before you read this and Bruce 5OR has printed a small card to display with it.

EYRE'S PENINSULAR

Wally 5DF reports that Pat 5LT is once again active on 20 mx, having re-built tower and beam. This time located well away from any other wires belonging to the Public Services. The beam is a "ZL Special" with 5LT modifications. Reports show that it works from the back as well as from the front; however, the sides are null! Very little heard of Jack 5VJ these days, but he is still in Pt. Lincoln. Lack of signals rather suggests that business keeps him fully occupied. No reports from him about his v.h.f. ambitions and Xmas 1955 is very close. Associate Alf is studying for the A.O.C.P. and now has a s.w. rx with which he is doing quite a bit of listening—c.w. no doubt.

5DF usually around for a contact with 5WI on Sundays. However 50 cycles is bread and butter to Wally and family so 50 cycles it is for the rest of the week. Some 50 miles S.E. from Lincoln is an island called Wedge and on it is a "Ham" called Norm with the call of 5YM. There Norm lives with XYL and family and naturally enough Norm looks for contacts on 7 Mc. phone and c.w. in such a lonely

outpost. Recently wife and three children have come into Lincoln so that the kiddies may attend school. Norm is now batching and has for company some 1200 sheep, a few cows and some 50 wild goats! So chaps, keep a look out for that call, 5YM. A trip to the island with a portable station by Wally was only successful from the "fish-feeding angle" as the tx refused to load.

Bert 5DR has decided that Cape Borda Light-house is a good place in spite of lightning strikes and other lesser inconveniences. He hopes to have power lines soon; maybe a mixed blessing Bert! You still have to hear them to work them. Hope that the 144 Mc. rig is coming on slowly, but steadily, for the Ross Hull Contest.

LOWER NORTH

Ern 5EN still has time to be active; glad you have seen the motto, "DX before Dishes." Main thing is to keep it hidden from the XYL. Very nice score you put up for the R.D. Contest, it should be possible to display the Trophy there later on after it has been across to Lincoln and if you can arrange same. 5AP also active and heard here on 40 mx. Had a brief but pleasant contact with Brian 5CO a Sunday or so ago. Austin 5WO at Laura manages to pop up occasionally. Compton 5EF at Gawler usually listening on 40 mx or 2 mx relay from Keith 5MT. Comps doing a bit of construction on beams, remote controls and other technically intricate schemes. What about drawing that amazing diplexer for "A.R."?

SOUTH EAST

Stuart reports that the monthly meeting was sparsely attended, but a very interesting night was had by those who visited the new A.B.C. station, 5MG. This station is fully automatic and seems to do about everything but find its own faults. The B.E.S.S. does even that, doesn't it Warwick?

Erg 5KU was absent from the meeting; has been on the sick list for a few weeks. Claude 5CA been in hospital having an operation. Hope you both are well when you read this. Les 5ZAG still trying to contact Hyman on the v.h.f.s., but to date not much success. Stuart finished his 21 Mc. converter and trying it out on the aforementioned beam; has less time now that he has changed his occupation; don't tell me you've taken up teaching Stuart! No, oh well, I thought I might be able to do a swap. John 5FD and Col 5CJ no speaka da English these days; where have you been boys?

And now from the President and Council, all the best for 1956 chaps, may it bring bigger and better beams, converters and DX. 1955 has been a good year for this Division, let us make 1956 a record for membership, attendances—and not the least, for articles in "Amateur Radio." Sincere thanks to those sub-sub-editors in our country centres who have faithfully sent in notes.

WESTERN AUSTRALIA

The usual monthly meeting was held in the Technical College Annexe during November. Business was brief. A letter from the Divisional Secretary (Jack Mead) was read giving notice that he intended to resign as he expected to go on long service leave next year. Any aspirants for the Divisional typewriter please contact Jack. Signals were presented from VK7 (re protest against rules of Ross Hull Contest) and F.E. (re the granting of Amateur Television Licenses).

The contest officer reported that the closing date for lodging of logs for the Week-end Mail Contest had been extended. Results of this contest have since come to hand, and first place was gained by 6RU, who worked no less than 122 countries during the month of the contest. Runner-up was Jack 6EJ, who worked 85 countries. Nice work, Jim and Jack.

After the closing of the meeting, members adjourned to see some films presented by Mr. M. Crabbe, publicity officer of one of the local oil companies. These showed various aspects of oil search, both on land, in many different parts of the world, and on the sea floor. The final film was a cartoon showing something of the technical side of oil search—rock formations likely to bear oil and testing methods, etc. Our thanks go to Mr. Crabbe for an extremely interesting meeting.

Skipper 6WS has had a birthday recently, his 83rd, I believe. Heard him telling a ZL about it. Congratulations Skipper and many more of them! Jack 6EJ tells me that during the course of his DX working, he has been experimenting with low power. He succeeded in working VP9 and G land with 1 watt input. A new full license has appeared on 40—Jim 6JH, of Geraldton. He has been making regular Sunday afternoon appearances. Glad to hear you around, Jim. Another new license (limited) is Tom, of Brunswick. Tom is a stayer,

he passed at his sixth attempt. Congratulations OM. Tom is having a go at the morse next time and expects to pass.

Your scribe and Wally 6ZAA recently visited Albany with the expressed intention of contacting Perth on 2 mx. Quite a collection of Albany Amateurs were present in 6WG's shack: 6LT, 6KJ, 6WG, and 6WZ (complete with tape recorder). Harry 6WZ is still house hunting—so far without success.

Bernie's 6KJ garden looks quite impressive with three four-section 8JKs and an 80 mx dipole.

The 40 mx Scramble was fairly successful, apparently. A post mortem set the number of participants at 26. Results are still being awaited.—6BE.

TASMANIA

Well chaps, another Christmas has passed, and I trust that it was a very happy one for all concerned. The time lag between writing and printing caught me out, and too late I realised my omission to extend greetings. However, as I write these notes, in November, I can avoid a repetition, and I take the opportunity now of extending to you, one and all, my very best wishes for the New Year. May 1956 bring you all that you would wish yourselves.

The 2 mx field day, held on 20th Nov. proved a most successful event, with the honours going to Dave TDH. The tx was hidden at Blackman's Bay, and quite a good crowd rolled up, although a certain select band (all with the same excuse) arrived a little later on. Hohum. That old reflective mood. The Perpetual Trophy has now passed into the custody of Ted 7FJ, and doubtless it will take pride of place in his lounge room.

The Noise Investigation Service is still active and recently Len 7LE and Harry Melling, of the Wireless Branch, visited TRX in another attempt to locate the interference. Yes, you have guessed it, the noise was conspicuous by its absence. Better luck next time chaps.

Bv now 7LS will have moved to his new QTH at Wynyard, and since the rig was the last thing to be packed prior to moving, there is a fair chance that it was one of the first cases opened at Wynyard. Hope the move went smoothly. Len, Leon 7JP is now at Queenstown. Let's hear from you Leon. Harry 7HE has just had a most unfortunate accident with some acid and is in hospital. May we express a most fervent hope Harry that when this appears in print you will read it with slight completely unimpaired.

News of Doug 7DZ reveals that he has visited Italy, Spain, and Germany, and is now in London. Doug hopes to visit the U.S. before returning home and he is most impressed with the hospitality extended everywhere he has been. Max 7CA has found that upward modulation on the speeder needle is a costly business. Better fit a de-compressor on that accelerator Max. Tom 7SW also recently had an interesting QSO with the 80 Mc. equipped gentry in the early hours of the morning, and evasive action was taken, but they established contact. It would appear, fortunately, that they are not going to QSL.

If you know of a QTH which is t.v.i. and b.c.i. proof, and gives guaranteed DX with an inside antenna, would you please contact Ted 7FJ. Heard Island and offers over five figures will not be considered, and the house should have a suitable window for displaying the Perpetual Trophy. To sum up, Ted has sold his present QTH and is looking for another one. 7LE advises that 2 mx still has a following, and quite good mobile contacts were achieved recently with 7AJ and TDH. Alan TCJ is steadily re-assembling the rig up North (not the 10kw. one), and I have an idea that something will be doing in the near future. Hurry up, Alan, there is still room for one more. Also heard Fred 7FC active on 40 mx. Once again, in closing—All the Best for 1956.

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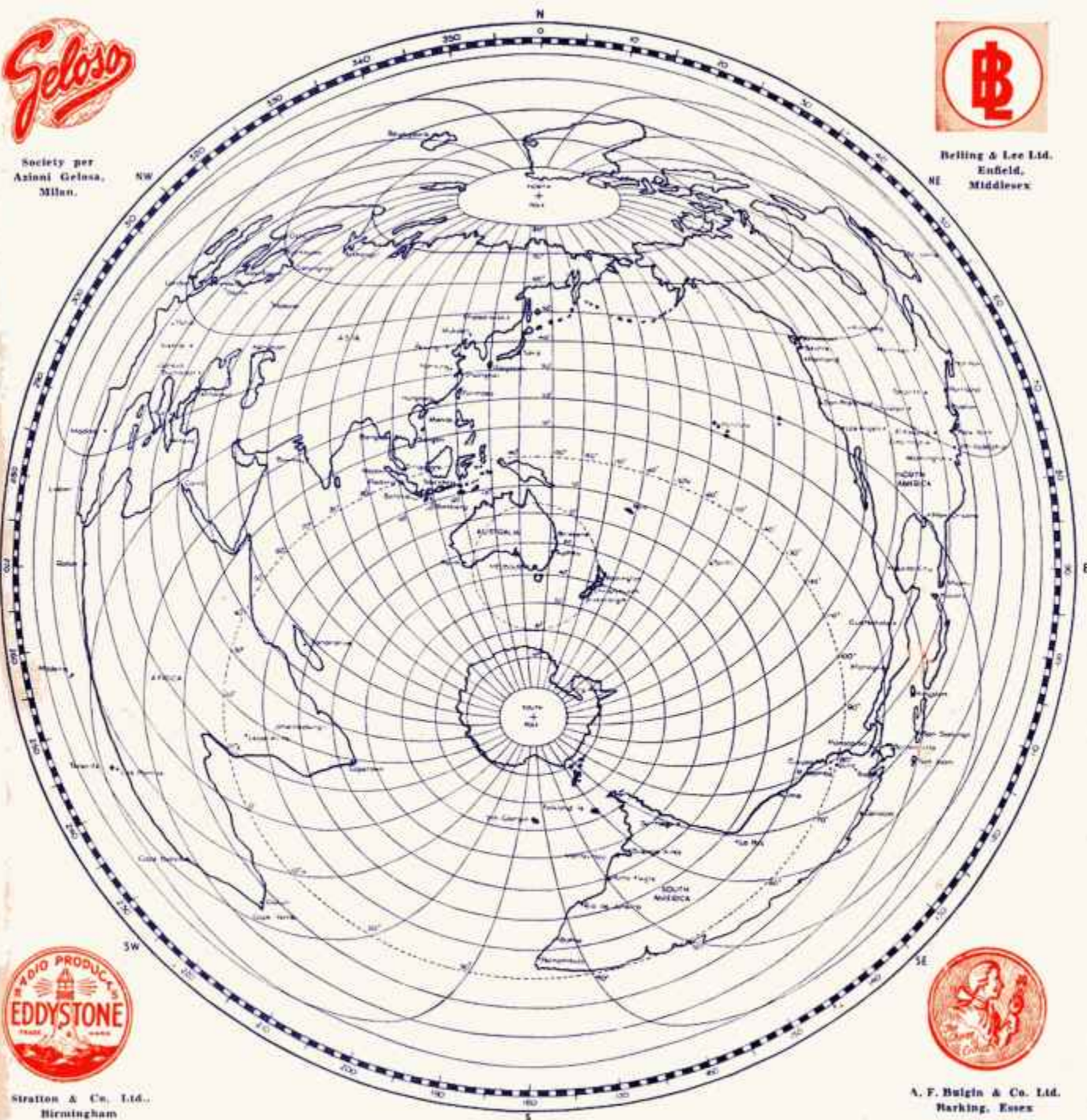
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EDITORIAL



FURTHER HORIZONS

In a recent Editorial, some of the problems associated with future long-distance communication on the v.h.f. bands were propounded. There are, however, other outlets for the Amateur who is interested in electronics generally rather than just dabbling in contacts with other Amateurs. One of these is the comparatively new and promising science of Radio Astronomy.

This new science has arisen over the last decade and has now established itself as a branch of the much more ancient science of Astronomy. Disciples of this new cult are referred to as "radio astronomers," their specially devised instruments are called "radio telescopes" and the term "radio star" is used to describe what they "see" with them. It is now definitely established that certain stars emit waves in the radio spectrum which can be detected with the right equipment. That the sun and stars are broadcasting radio waves is perhaps an unfamiliar idea, yet it is an inevitable consequence of the fact that light, heat and radio waves all arise from a common cause—electrons in motion.

They are in fact, all waves of electromagnetic energy, but differ only in one essential, their wavelength. Due to the random fashion in which they are moving and the jostling impelled by the temperature of their surroundings, these thermal radio

waves are spread generally over a range of wavelengths from a few centimetres to about 30 metres, and then rather weakly. However, if certain, of these random electrons move in so-called "phase," very much stronger signals are produced but on a much narrower band of frequencies.

There are two ways in which radio observations are providing information about extra-terrestrial bodies—that of radar techniques in pulsing and receiving signals and the presently described method of receiving radio waves emitted naturally from heavenly bodies. By observing how these latter vary in direction, intensity and time at different wavelengths, many useful inferences of assistance to the astronomer can be drawn.

From the Amateur aspect, reasonably simple equipment can be used to receive these signals—a parabolic or other highly directional antenna rotatable in elevation and azimuth, a sensitive receiver and a means of recording the received signals. There are already many enthusiastic Amateur astronomers who, no doubt, would be very glad to have their observations supplemented and confirmed by Amateur Radio Astronomers. Here then is another method in the electronic field in which the Amateur and S.w.l. can pursue their hobby and yet render valuable information to the scientist.

FEDERAL EXECUTIVE.

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HEINRICH RUDOLF HERTZ

(A paper on the life and work of Heinrich Rudolf Hertz read to the Wireless Institute of Australia, New South Wales Division, V.h.f. Group)

BY ROBERT H. BLACK,* VK2QZ

INTRODUCTION

There are those who, like Henry Ford, consider history to be "the bunk"—but contemporary history caught up with Ford, as it eventually does with all who disregard that which has gone before. We can be sure that those who are presently "great" as the result of publicity will be allotted their appropriate place in the future and that those, whose significant contributions are not appreciated now, will be recognised as truly great at some later time—provided, of course, no Big Brother unwrites them from the history books.

The study of the lives of men who have made considerable contributions to our knowledge usually brings to light men of modesty and humility. They have found their personal reward in the search after truth, which they sought with zeal and devotion, without thought of self-aggrandisement. Hertz was such a man.

History, too, shows how great advances have been made by the observation and interpretation of apparently insignificant, even annoying, phenomena. Often these have been seen before by others, but the appreciation of their significance has awaited the notice of a man with a particular attitude of mind and background of training. As instance of this, we have recently seen the birth of a new concept in medical treatment—the introduction of penicillin and the other antibiotics—which had its origin in the chance contamination of a culture plate in Dr. Fleming's laboratory.

Except where it is shrouded by the veil of national security, or is a trade secret, scientific work is well reported—perhaps too well reported—in periodicals, books and communications to learned societies. It is on the record; and the careful experimenter makes sure that his claim to originality is a true one. In describing his work he points out what has already been done, and if his work is merely the confirmation or the development of the work of others, he states that it is so.

THE HEIDELBURG LECTURE

Hertz's contributions to physics covered many fields, but of particular interest to us are those dealing with the propagation of radio waves. I propose to commence this brief account of his work by reading a translation of part of his address given at the 62nd meeting of the German Association for the Advancement of Natural Science and Medicine at Heidelberg, on 20th September, 1889. Hertz was then 32 years old and he had completed his experimental and theoretical work on the propagation of electro-magnetic waves.

The lecture was entitled "On the relations between light and electricity." He described the work of Faraday and

Clerk-Maxwell—the former spending his life seeking for proof of his concepts of lines of magnetic and electric force, the latter developing Faraday's ideas mathematically and proposing a phenomenon hitherto unknown—electric waves, which would be transversal waves, of any wavelength, but which would always be propagated in the ether with the same velocity—that of light. Hertz continued by stating that it was at this point—some 20 years after the publication of Clerk-Maxwell's work—that he was so fortunate as to be able to take part in the work. The translation by Jones and Schott (with minor amendments) then reads as follows:

the spot where we wish to detect the force we place a conductor, say a straight wire, which is interrupted in the middle by a small spark-gap. The rapidly alternating force sets the electricity of the conductor in motion, and gives rise to a spark at the gap. The method had to be found by experience. For the sparks are microscopically short, scarcely a hundredth of a millimeter long; they only last about a millionth of a second; but in a perfectly dark room they are visible to an eye which has been well rested in the dark. Upon this thin thread hangs the success of our undertaking. In beginning it we are met by a number of questions. Under what conditions can we get the most powerful oscillations? These conditions we must carefully investigate and make the best use of. What is the best form we can give to the receiver? We may choose straight wires or circular wires, or conductors of other forms; in each case the choice will have some effect on the phenomena. When we have settled on the form, what size shall we select? We soon find that this is a matter of some importance, that a given conductor is not suitable for the investigation of all kinds of oscillations, that there are relations between the two which remind us of the phenomena of resonance in acoustics. And lastly, are there not an endless number of positions in which we can expose a given conductor to the oscillations? In some of these the sparks are strong; in others weaker, and in others they entirely disappear.

"If you give a physicist a number of tuning-forks and resonators and ask him to demonstrate to you the propagation in time of sound waves, he will find no difficulty in doing so, even within the narrow limits of a room. He places a tuning-fork anywhere in the room, listens with the resonator at various points around and observes the intensity of sound. He shows how at certain points this is very small, and how this arises from the fact that at these points every oscillation is annulled by another one which started subsequently but travelled to the point along a shorter path. When a shorter path requires less time than a longer one, the propagation is a propagation in time. Thus the problem is solved. But the physicist now further shows us that the positions of silence follow each other at regular and equal distances: from this he determines the wave length, and, if he knows the time of vibration of the fork, he can deduce the velocity of the wave.

"In exactly the same way we proceed with our electric waves. In place of the tuning fork we use an oscillating conductor. In place of the resonator we use our interrupted wire, which also may be called an electric resonator. We observe in certain places there are sparks at the gap, in others none; we see that the dead points follow each

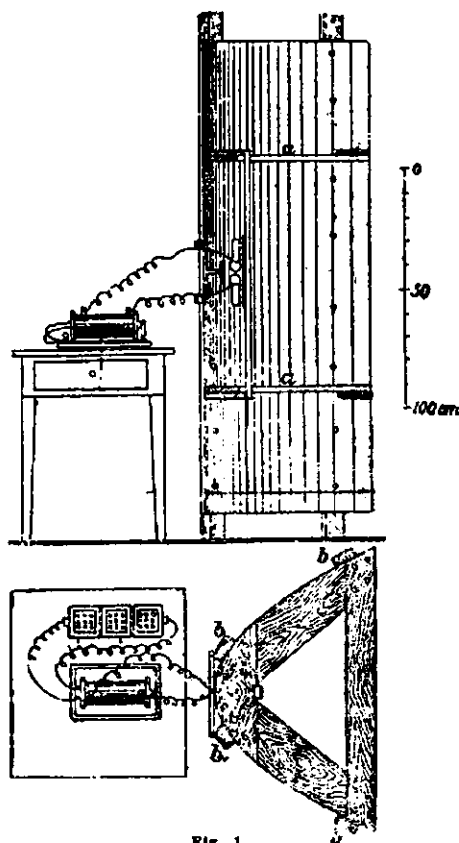


Fig. 1.

"Under suitable conditions the discharge of every kind of conductor gives rise to oscillations. These oscillations may be much shorter than those obtained by the discharge of Leyden jars. When you discharge the conductor of an electrical machine you excite oscillations whose period lies between a hundred-millionth and a thousand-millionth of a second. These oscillations are few in number and rapidly die out.

"The action of these oscillations can be perceived at a distance of about ten meters by very simple means. Just at

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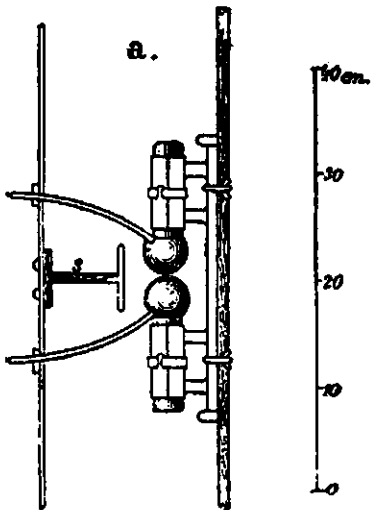
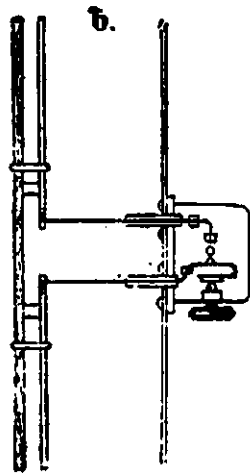


Fig. 1.



as light. In order to refract a beam of light we send it through a prism, and it then suffers a deviation from its straight path. In the present case we proceed in the same way and obtain the same result; excepting that the dimensions of the waves and of the beam make it necessary for us to use a very large prism. For this reason we make our prism of a cheap material, such as pitch or asphalt. Lastly, we can with our beam observe those phenomena which hitherto have never been observed excepting with beams of light—the phenomena of polarisation. By interposing a suitable wire grating in the path of the beam we can extinguish or excite the sparks in our resonator in accordance with just the same laws as those which govern the brightening or darkening of the field of view in a polarising apparatus when we interpose a crystalline plate.”

SOME OF HERTZ'S EQUIPMENT

As Hertz's experiments on radio waves were conducted in the room of a university building, they were, of necessity, conducted in that part of the spectrum now classified as the very high frequencies. V.h.f. was necessary so that observations could be made over several wavelengths and yet be within the range of the method of detection.

Figures 1 and 2 illustrate the construction of his oscillator and receiver in the experiments using the parabolic beam antenna. In these experiments he was operating on about 66 centimeters (or about 450 megacycles).

In demonstrating stationary electrical vibrations he used a different oscillator which operated on about eight meters. This is shown in Figure 3.

He derived the figure of 280,000 kilometers per second as the velocity of propagation using waves 2.8 meters in length and vibrating one hundred million times per second.

HERTZ'S POSITION IN THE HISTORY OF THE DEVELOPMENT OF RADIO

For the information of the V.h.f. Group it should be pointed out that Hertz was not the first man to operate on two meters. This honour, if such it be, is due to Professor G. F. Fitzgerald, who opened up this band in Dublin, in 1883—just 72 years ago. Hertz was unaware of this work and had to find the v.h.f. bands for himself.

The work of Faraday and Clerk-Maxwell has already been mentioned. Joseph Henry and Oliver Lodge had come near to demonstrating electromagnetic waves and von Bezold had written of electrical surgings or waves in short wires and of the interference between ordinary and reflected waves.

But to Hertz is given the credit of the first unequivocal experimental demonstration of the propagation of what he called electric waves and his work fulfilled all the postulates of Clerk-Maxwell. The story is a fascinating one—the prediction of a phenomenon not appreciable by man's unaided senses—this prediction arising as the result of Clerk-Maxwell's mathematical treatment of Faraday's conceptions of lines of force. Similarly, we have more recently seen the theoretical considerations of the atom practically demonstrated in a much more violent form.

The publication of Hertz's work was, of course, followed by some controversy—he had made an error in calculating his frequency of oscillation, and so on—but his results were confirmed and with his work began an epoch in the history of experimental physics. More sensitive methods of detecting electric waves were soon discovered, but Hertz did not live long to see the vast development of his researches.

Before we turn to the story of his life, some mention should be made of his work in other branches of physics for he published 18 other papers besides those which were collected in his book on electric waves.

SOME OF HERTZ'S OTHER CONTRIBUTIONS TO PHYSICS

These included a treatise on the Principles of Mechanics, work on induction, elasticity and hardness, evaporation of liquids including the description of a new hygrometer, invention of a hot-

other in ordered succession. Thus the propagation in time is proved and the wave length can be measured. Next comes the question whether the waves thus demonstrated are longitudinal or transverse. At a given place we hold our wire in two different positions with reference to the wave: in one position it answers, in the other not. This is enough—the question is settled; our waves are transversal. Their velocity has now to be found. We multiply the measured wavelength by the calculated period of oscillation and find a velocity which is about that of light. If doubts are raised there is still another method open to us. In wires, as well as in air, the velocity of electric waves is enormously great, so that we can make direct comparison between the two. Now the velocity of electric waves in wires has long since been directly measured. This was an easier problem to solve, because such waves can be followed for several kilometers. Thus we obtain another measurement, purely experimental, of our velocity, and if the result is only an approximate one it at any rate does not contradict the first.

“With the aid of our electric waves we can directly exhibit the phenomena of light. We set up the conductor in which the oscillations are excited in the focal line of a very large concave mirror. The waves are thus kept together and proceed from the mirror as a powerful parallel beam. We cannot indeed see this beam directly, or feel it; its effects are manifest in exciting sparks in the conductors upon which it impinges. It only becomes visible to our eyes when they are armed with our resonators. But in other respects it is really a beam of light. By rotating the mirror we can send it in various directions, and by examining the path which it follows we can prove that it travels in a straight line. If we place a conducting body in its path we find that the beam does not pass through—it throws shadows. In doing this we do not extinguish the beam, but only throw it back: we can follow the reflected beam and convince ourselves that the laws of its reflection are the same as those of the reflection of light. We can also refract the beam in the same way

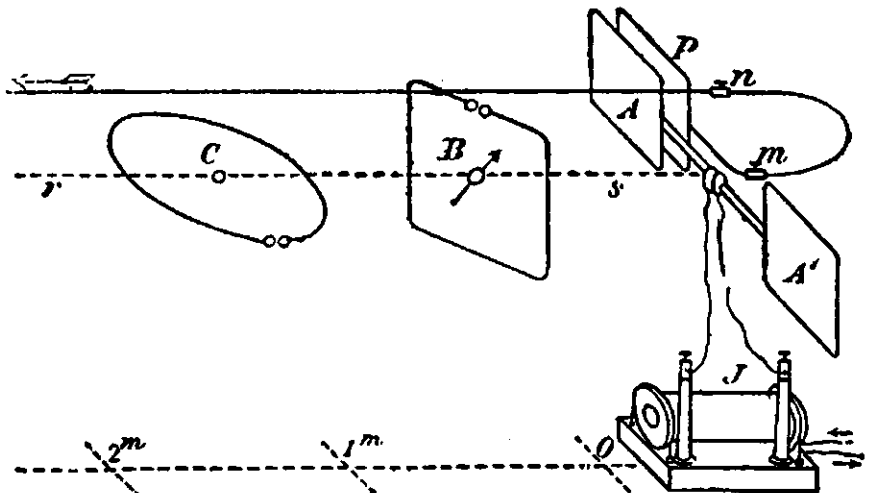
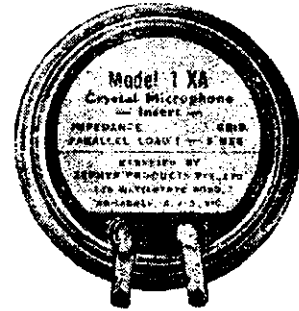
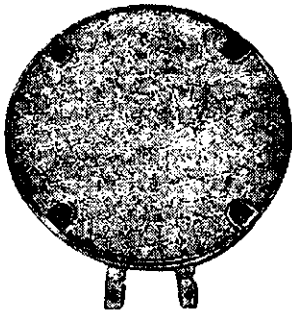


Fig. 3.

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- Aluminium diaphragm mechanically protected and frequency controlled by "Zephyrfil" filter.
- Australian made throughout.
- Only carefully selected cements used throughout, to suit Australian climatic conditions.

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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.

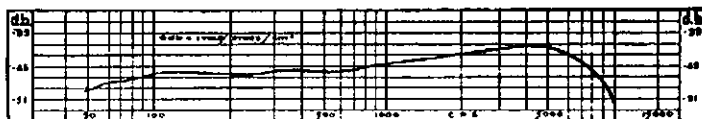
When mounted in a microphone cage, it is recommended that the insert be suspended in rubber, to eliminate shock and vibration.

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 $1\frac{1}{2}$ " 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)
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wire ammeter, and just before his death he discovered that cathode rays would pass through thin metallic layers, thus foreshadowing the development of X-rays.

All of this was compressed into a life span of just under 37 years.

CURRICULUM VITAE

Heinrich Rudolf Hertz was born 22nd February, 1857, in Hamburg. Partly of Jewish origin, he was the son of Dr. Gustav Hertz, a barrister who later became senator. As a boy he attended the municipal primary school and, after a year's preparation at home, proceeded to the Hamburg High School; here he matriculated in 1875, at the age of 18 years. Even while he was attending school his interests had become manifest—he worked at home at his bench and lathe and attended the Trade School on Sundays to practise geometrical drawing.

In 1877 he went to the University of Munich to continue his training in engineering, for which he had already prepared himself by the study of mathematics and natural science. However, after careful consideration, he decided that he would not be satisfied with engineering although it was a profession in which he would be certain to earn his livelihood. He wrote and asked his father if he would support him through the studies of the natural sciences in which pursuit he obtained much more satisfaction. Having obtained permission to change his course, he spent a year at Munich attending courses in mathematics, mechanics and practical physics.

In 1878 he went to Berlin University and found that there was a prize being offered for the solution of a problem in physics dealing with electrical inertia. He discussed this with von Helmholtz and decided to attempt to solve it. He was given a room to work in and received the interested attention of von Helmholtz. He attended lectures in the morning and worked on his problem in the afternoon, reading the literature at night. He solved the problem and then wrote up his results while doing his military service at Freiburg. His research gained him the prize of a gold medal.

He then turned his attention to induction, and also attended lectures by Kirchhoff on magnetism. He wrote to his parents that much of what he was told he had already worked out for himself. His work on induction formed the thesis for his doctorate which he secured in 1880.

For the next three years he worked as demonstrator in the physics laboratory as assistant to von Helmholtz. Some of his work at this time dealt with cathode rays and he was so anxious to get on with it that he could not wait the two days for tubes to be made on order by the glass-blower; he made them himself. In 1883 he moved to Kiel with promotion to Privat Dozent, or unpaid lecturer. Two years later he was called to Karlsruhe where he became ordinary Professor of Physics and where he was able to carry out his work on electric waves. Here, too, he married Miss Elizabeth Doll, the daughter of one of his colleagues.

In 1889 he attended the meeting of the German Association for the Ad-

vancement of Natural Science and read his paper on light and electricity. In the same year he became Professor of Physics at the University of Bonn. In these, his last years, he received honours from many learned societies in many countries, including the Rumford Medal of the Royal Society. In 1892 he became ill, but an operation was performed at the end of the year which allowed him to continue lecturing, with great effort, until 7th December, 1893. He died on New Year's Day, 1894.

Of his early death von Helmholtz said that "in old classical times it would have been said that he had fallen a victim to the envy of the gods." He added that Hertz's memory would live not only through his work, but also through his modesty, his warm recognition of the labours of others, and his genuine gratitude towards his teachers. Although naturally quiet, Hertz could be convivial with friends, and enliven discourse by many an apt remark. He never made an enemy, although he knew how to judge slovenly work, and to appraise at its true value any pretentious claim to scientific recognition.

Dr. Oliver Lodge spoke of Hertz's death as weakening the front ranks of scientific workers—the untimely end of a young and brilliant career which, however, had effected an achievement which would hand his name down to posterity. "Never was there a man more painfully anxious to avoid wounding the susceptibility of others."

REFERENCES

For those of you who wish to share the enjoyment of Hertz in his work, his papers have been collected in three volumes in English, translated by D. E. Jones and G. H. Schott, published by MacMillan & Company, as: "Electric Waves," in 1893, with a preface by Lord Kelvin; "Miscellaneous Papers," in

1896, with an introduction by Professor Lenard; and "The Principles of Mechanics," in 1899, with an introduction by von Helmholtz. In an introduction to "Electric Waves," Hertz goes through the period of his experimental work, recording his hopes, ideas, difficulties and interpretations so that we have here a record of his mind at work—a rare thing in the history of scientific discovery.

In addition, there is "Signalling through space without wires: the work of Hertz and his successors," by Oliver J. Lodge, published (undated) in "The Electrician" Series, London. Hertz's experiments were also described in outline by Sir Joseph J. Thomson in an article in the Encyclopaedia Britannica.

HINTS AND KINKS

FINISHING TEST INSTRUMENT PANELS

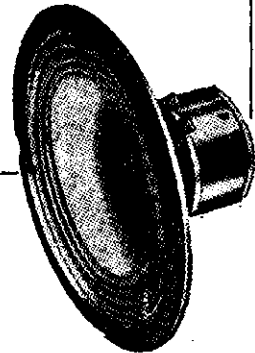
A very fine and workman-like finish can be made with panels for test instruments, etc., by first cleaning the aluminium panel with some steel wool and spraying (a fly spray is excellent for the job) with clear varnish as used for coating charcoal and pencil sketches. This varnish can be obtained from most stores dealing in artists' colours and oils.

Another good clear coating (which the writer prefers) is ordinary clear nail lacquer. This can be brushed on with a fine camel hair brush or even the small brush that comes with the bottle. It leaves a very clear and durable finish.

If prior to varnishing, the panel is drilled and lettering done with black Indian ink, a quite professional job results and the coat of lacquer protects the ink from cracking or being rubbed off.—VK3SZ (reprinted from "A.R.," Jan. 1946).

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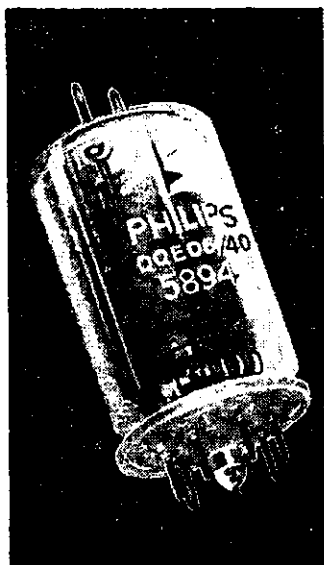
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Transformer Theory and Practice

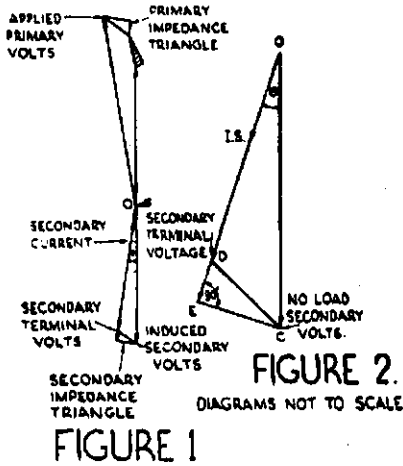
PART ONE

BY V. J. McMILLAN,* VK2AWN

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Fig. 1 shows a vector diagram of a normal power transformer supplying a non-inductive load. The two shaded triangles are the vector quantities representing the iron loss and magnetising current components of the exciting current. In practice, these are so small, as compared with the other vector quantities, that they can be neglected.

This leads us to the very simple vector diagram shown in Fig. 2. In this diagram the separate values of primary and secondary resistance and reactance values have been combined into "equivalent" values of resistance and leakage reactance.



• In this article the Author endeavours to explain some fundamental aspects of transformer design as applied to modulation transformers, and also discusses leakage reactance in general terms. The Author assumes that the reader understands the basic transformer equation covering the relationship between turns, voltage, frequency and total flux.

(g) The angle Theta is the phase angle between secondary terminal voltage and reversed primary voltage.

It is usual to express the equivalent resistance, reactance and impedance as a percentage rather than in ohms.

The percentage resistance is:—

$$\% R = \frac{\text{Copper loss of both windings} \times 100}{\text{volt-amp. rating}} \quad (a)$$

The percentage impedance is:—

$$\% Z = \frac{Z \text{ volts} \times 100}{\text{Normal voltage of winding}} \quad (b)$$

where Z = that voltage which will cause normal load current to pass through the winding with the other winding short circuited. (This test can be carried out with either the primary or secondary short circuited, whichever is the most convenient.)

The percentage reactance (%X) is:—

$$\% X = \sqrt{\% Z^2 - \% R^2} \quad (c)$$

The foregoing values of %Z and %R are, of course, measured values on a completed transformer. However, it is possible to calculate the values of %R and %X, from which the value of %Z may be obtained. More of this later.

Having obtained, by measurement or calculation, the values of %R, %Z and %X, we can draw the vector diagram shown in Fig. 2 for the secondary voltage side of the transformer. At this stage an example would help to clear up any obscure points.

Let us assume that we have a transformer rated at 60 volt-amperes, primary voltage 450, secondary voltage 467, single phase, 50 cycles. At 60 volt-amperes rating the primary current will be: $60 \div 450 = 0.1333$ amps., and the secondary current will be: $60 \div 467 = 0.1284$ amp.

If we short circuit the secondary (467v.) winding and apply a 50 cycle voltage to the primary (450v.) winding, such that the current in the primary winding is 0.1333 amps. (that is, full load current), then this voltage will be a measure of the full load impedance voltage of the transformer (at this particular frequency). For example if this voltage was 18.45 volts, the percentage impedance voltage would be:—

From formula (b)

$$\frac{18.45 \times 100}{450} = 4.1\% \quad (\%Z)$$

If we assume that the primary resistance at the time of testing the above transformer is 69.6 ohms and that the secondary resistance is 72.6 ohms, we can determine the total copper loss of the transformer by calculation, viz.:—

ing or calculating the values in the equivalent impedance triangle represented by the lines E.C, E.D, and D.C, we can calculate the secondary terminal voltage represented by the vector line O.D.

For one specific value of load and frequency this is a relatively easy problem. In the case of a modulation transformer, however, it is not quite so easy since both load current and leakage reactance vary with the frequency.

First of all it must be appreciated that a modulation transformer does supply a load which is to all intents and purposes non-inductive. Actually, due to the presence of the tank tuning condenser and by-pass capacitors, the load is of slightly leading power factor, but the value of capacity current as compared with the resistance load current is so small that it can be neglected.

At this stage it is necessary for us to have a thorough understanding of certain transformer facts before we are able to appreciate the significance of the various quantities shown on the vector diagram Fig. 2.

- (a) The rating of a transformer is expressed in volt-amperes. The volt-amp. rating is the product of the secondary current and the no-load secondary voltage. Although the user is only concerned with the secondary terminal voltage at a specified load, from a transformer calculation point of view, the terminal voltage is merely incidental!
- (b) The vector quantity E.C. in Fig. 2 is the equivalent leakage reactance voltage drop at the specified volt-amp. load.
- (c) The vector quantity E.D. in Fig. 2 is the equivalent resistance voltage drop at the specified volt-amp. load.
- (d) The vector quantity D.C. in Fig. 2 is the equivalent impedance voltage drop at the specified volt-amp. load.
- (e) The vector quantity O.C. in Fig. 2 is, the no-load secondary voltage which is opposite in phase and equal to the primary voltage on the assumption of a one to one ratio of turns.
- (f) The vector quantity O.D. in Fig. 2 is the secondary terminal voltage at the specified volt-amp. load.

Actually, when we measure the impedance and copper loss of a transformer, the values which we obtain in the test are "equivalent" values since there is no practical method of directly measuring the separate values of primary and secondary leakage reactances although the separate values of primary and secondary resistance can, of course, be measured.

In Fig. 2:

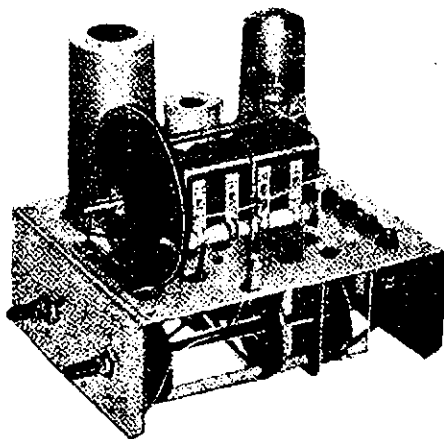
- The vector O.C. is the no load secondary voltage.
- The vector O.D. is the secondary terminal voltage when the secondary is loaded.
- The vector D.C. is the "equivalent" impedance voltage drop when the secondary is loaded.
- The vector D.E. is the "equivalent" resistance voltage drop when the secondary is loaded.
- The vector E.C. is the "equivalent" leakage reactance voltage drop when the secondary is loaded.
- The angle Theta between the no-load secondary voltage and the secondary terminal voltage is the "phase angle" or, as Radio Engineers would term it, the "phase shift."

The angle D.E.C. is always 90° and so by using the hypotenuse of a right angled triangle to represent the no-load secondary voltage, and either measur-

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GELOSO SIGNAL SHIFTER

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The Variable Frequency Oscillator that Geloso have designed for their transmitter type G.210-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.

In order to obtain complete isolation and freedom from "detuning" effects between the oscillator and power amplifier stage, it is desirable to employ an isolator stage and this is adopted in the Geloso unit.

The GELOSO SIGNAL SHIFTER employs three valves. It can be used in conjunction with any type of transmitter and it is easily adapted, both on account of its small size and the accessibility of controls. The power supply is external and can be provided from any existing unit. A source of stabilised voltage is desirable for the 6J5 stage.

The function of the 6J5 is that of Oscillator. The table summary printed below shows the wavelengths to which the different oscillating circuits are tuned. The tuning of the oscillator is controlled by a variable condenser of four sections, of 50 pF. each. Two sections are connected in parallel and are used to cover the range of the 80 metre band. A third section is used in the range of 40-10 metres, and the fourth section for the 20-15 metre range.

A 6AU6 acts as an Isolator. The signal reaches this valve through a 100 pF. condenser connected to the cathode of the oscillator. Through another condenser of 100 pF. the signal passes from the plate of the 6AU6 to the power amplifier stage which employs a 6V6/6L6 type valve. The plate circuit of this valve contains a tuned circuit for each range.

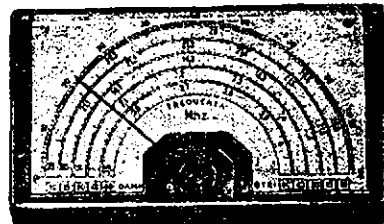
A single multi-contact switch is used for band changing of all these circuits. It is necessary to connect a knob to this switch with suitable panel markings to indicate the respective wave band. It might be noted that a high L/C ratio has been employed in this circuit.

FUNCTION OF THE VARIOUS CIRCUITS

Band Mc.	Clapp Osc. (6J5)	Isolator (6AU6)	Power Amp. (6V6)	Final Output
3.5	3.5-4.0 Mc.	Aperiodic Amp.	Amplifier 3.8 Mc.	3.5-4.0 Mc.
7	7.0-7.45 "	Aperiodic Amp.	Amplifier 7.26 "	7.0-7.45 "
14	3.5-3.6 "	D'bler 7.15 Mc.	Doubler 14.2 "	14.0-14.4 "
21	3.5-3.6 "	D'bler 7.15 Mc.	Tripler 21.25 "	21.0-21.6 "
28	7.0-7.45 "	D'bler 14.1 Mc.	Doubler 28.2 "	28.0-28.8 "

The screen of the 6V6 is connected to a separate terminal on the power-connecting strip. When this lead is connected to a potentiometer of 35,000 ohms from the h.t. supply, a voltage control of the screen voltage is obtained, thus providing a control of the output of the unit.

The VFO is supplied ready for use and only minor retrimming will be necessary to peak all circuits. With this unit is also supplied a special dial which can be easily fitted to the VFO. With the aid of the dial, which is graduated in frequency, and a good frequency meter (e.g. BC221), the calibration of the unit is a relatively easy matter. A table is given with each unit showing the settings and steps to be followed, both with the Clapp Oscillator as well as for the isolator and p.a. stages.

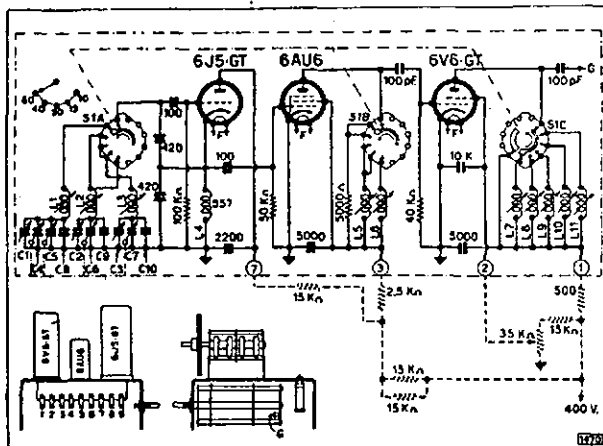


SUMMARY. Power Supply: 400 volts at 32-54 Ma. (80-10 metres). RF Power: If a type 807 valve is used in the final stage, the Geloso VFO will provide better than 3.5 Ma. on all bands across a 25,000 ohm grid resistor.

Next Shipment is due March-April. Order NOW to avoid disappointment.

- ★ Instant change of frequency on any band by coil switching.
- ★ Controllable output over entire tuning range.
- ★ Single control full band-spread on each band.
- ★ Capacitive output.
- ★ Utmost frequency stability (± 200 c.p.s. on all bands).
- ★ No plug-in coils required.
- ★ Laboratory tested.
- ★ Power supply required: 400 volts at 32-54 Ma.

GELOSO SIGNAL SHIFTER and Calibrated Dial ... Price (inc. tax) **£10/4/9**



GELOSO PI-COUPLER

Another winner for the Amateur. The answer to TVI and antenna matching. Will match any impedance from 40 to 1,000 ohms over 80 to 10 metre Amateur Bands. Delivery in March-April.

PRICE (inc. tax):
30/6

Established over 90 years.

WILLIAM WILLIS & CO. PTY. LTD.

Phone: MU 2426

428 BOURKE STREET, MELBOURNE, C.I

Primary loss =
 (0.1333 amps.)² × 69.6 = 1.24 watts
 Secondary loss =
 (0.1284 amps.)² × 72.6 = 1.20 watts
 Total loss = 2.44 watts

This total loss must now be referred to the volt-amp. rating of the transformer, which is 60 V.A.

From formula (a)
 $\frac{2.44 \times 100}{60} = 4.06\% \quad (\%R)$

We can now calculate the percentage reactance from these two values.

From formula (c)
 $\sqrt[3]{(4.1)^2 - (4.067)^2}$
 = $\sqrt[3]{16.81 - 16.54}$
 = $\sqrt[3]{0.27}$
 = 0.52% approx. $(\%X)$

This particular value of (leakage) reactance holds only for the particular frequency at which the transformer is tested. Its value at any other frequency varies directly proportionally to the frequency. This latter statement is particularly significant when applied to modulation transformers.

In the foregoing example we have determined the percentage impedance (%Z), percentage resistance (%R), and percentage (leakage) reactance (%X). We can now apply these values to determine their effect on the secondary side of the transformer, viz.:-

Secondary impedance drop =
 4.1% of 467 = 19.15 volts.
 Secondary resistance drop =
 4.067% of 467 = 19.0 volts.
 Secondary reactance drop =
 0.52% of 467 = 2.43 volts.

The above values are "equivalent" values referred to the secondary side.

We assumed in the foregoing example that the operating frequency was 50 cycles. If we use this transformer as a modulation transformer, the secondary resistance drop will remain unchanged (at the same volt-amp. rating), but the secondary reactance drop will vary in accordance with the applied frequency, and since the reactance is altering so, too, must the impedance drop vary.

At 400 cycles the reactance voltage drop will be (2.43 × 400) ÷ 50 = 19.44 volts. At 5000 cycles, the reactance voltage drop will be (2.43 × 5000) ÷ 50 = 243 volts.

This value of 243 volts is 52% of the no-load secondary voltage, which obviously shows that the secondary terminal voltage cannot be anywhere near 100%. There is, however, a levelling off effect since a reduced secondary voltage will pass a reduced current through the external load, and so the output of the transformer is reduced.

The actual terminal voltage can be determined for any frequency by converting the %R and %X values to ohmic values.

In the foregoing example the secondary "equivalent" resistance drop was 19 volts and since the secondary load current is 0.1284 amps., the "equivalent" ohmic resistance is 19 ÷ 0.1284 = 148 ohms.

Similarly, the secondary "equivalent" reactance drop was 2.43 volts and the "equivalent" ohmic reactance is 2.43 ÷ 0.1284 = 18.92 ohms (at 50 cycles).

As stated before, the equivalent ohmic resistance does not alter, but the equivalent ohmic reactance varies directly as the frequency. In the example, the ohmic reactance at 400 cycles will be (18.92 × 400) ÷ 50 = 151.4 ohms, and at 5000 cycles it will be (18.92 × 5000) ÷ 50 = 1892 ohms.

In order to fully appreciate the significance of changing frequency on a modulation transformer, let us assume that the previously considered transformer is supplying a 100 watt transmitter which has 600 volts and 174.7 milliamps. supplied to it. That is to say, it represents a load resistance of 600 ÷ 0.1747 = 3435 ohms (approx.) To this value of load resistance we must add the "equivalent" secondary resistance of the transformer, viz.: 3435 + 148 = 3583 ohms total.

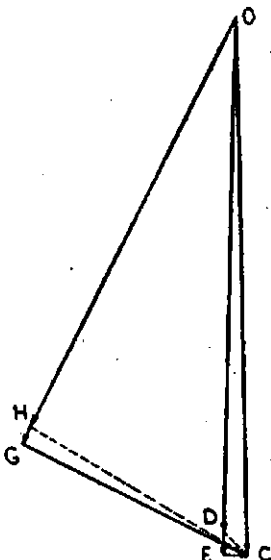


FIGURE 3

Fig. 3 shows a scale vector diagram for the above example calculated for the conditions at 400 cycles and 5000 cycles. To draw this vector diagram we must first of all calculate the load impedance for the two conditions. For the 400 cycle condition the total resistance (which we have just calculated) is 3583 ohms and the reactance—as we have seen previously—will be 151.4 ohms. Since these two components are 90° out of phase with each other, their combined impedance (Z) will be:-

$$Z = \sqrt{(R)^2 + (X)^2} \quad (d)$$

which is $\sqrt{(3583)^2 + (151.4)^2}$
 = $\sqrt{12,837,889 + 22922}$
 = $\sqrt{12,860,811}$
 = 3586 ohms approx.
 (4052 at 5000 cycles).

Since the secondary no-load voltage is 467v., the current through the secondary winding will be 467 ÷ 3586 = 0.1302 amps. (0.11525 at 5000 cycles).

From this value of load current we can determine the values to insert in the vector diagram Fig. 3, viz.:-

The vector O.C. is the secondary no-load voltage = 467 volts.
 The vector C.E. is the reactance drop at 400 cycles which is 0.1302 (amp.) × 151.4 (ohms) = 19.7 volts.
 The vector O.E. is the total resistance drop in the circuit (that is, load resistance plus equivalent secondary resistance of the transformer). This value is thus: 0.1302 × 3583 = 466.5 volts.

The vector D.E. is the equivalent resistance drop in the transformer secondary which is: 0.1302 × 148 = 19.3 volts.

The vector O.D. is obviously the difference between O.E. and D.E. which is: 466.5 - 19.3 = 447.2 volts.

This voltage is the actual terminal voltage of the transformer and would be the voltage impressed on the carrier of our transmitter.

By a similar series of calculations, we find that at 5000 cycles the vector quantities (in Fig. 3) are:-

C.G. = 218 volts
 O.G. = 413 volts
 H.G. = 17 volts
 O.H. = 396 volts

We can therefore see that the transformer regulation with this particular resistance load at 400 cycles is approximately 20 volts, which is: (20 × 100) ÷ 467 = 4.27%; whilst at 5000 cycles it is 71 volts, which is: (71 × 100) ÷ 467 = 15.2%. A similar calculation carried out for 10,000 cycles would show an even more marked voltage regulation figure.

By this time you should fully appreciate the necessity for a low reactance between the primary and secondary of a modulation transformer. It is also very easy to see how a poorly designed transformer cannot possibly have a good high frequency response.

The general explanation given above and vector diagram (Fig. 3) deal with the transformer operating conditions at the higher frequencies. At the same time, certain effects which do occur in practice (such as resonance and the shunting effect of the capacity of the windings) have been neglected.

At low frequencies the effects of iron loss and magnetising current are of more importance than that of leakage reactance. However, in most cases (providing the core iron is not run beyond its saturation point) the voltage regulation—due to the iron loss and magnetising current—does not exceed 1 or 2 per cent.

From a practical design point of view, the core iron should not be run at an induction density greater than 14,100 lines per square centimetre at the lowest frequency that it is desired to reproduce.

From a communication point of view, there is little to be gained by making a transformer to reproduce 50 cycle notes. The loud speaker of the average Amateur's receiver is not capable of handling it anyway! Very few Amateurs have their speakers properly baffled—more frequently they are contained in a small box about 10" square!

(Continued next month)

AMATEUR CALL SIGNS

FOR MONTH OF NOVEMBER, 1955

NEW CALL SIGNS

- VK—** New South Wales
 2EC—E. C. Rough, 31 Lords Place, Orange.
 2FS—B. C. Fleck, 20 Yooloona St., Griffith, 5S.
 2KJ—P. J. Greigg, "Glen Retreat," R.M.B. 13
 Foots Rd., Ourimbah.
 2ML—R. M. Ellison, 161 Albert St., Strathfield.
 2ABW—E. G. Baker, 66 Bridge St., Waratah.
 2AHS—N. E. Parsons, 120 Ashley St., Chatswood.
 2ASD—Sydney University Squadron, 8th Floor, Dymock's Bldg., 428 George St., Sydney.
 2AVJ—W. B. Jones, C/o. Griffith Producers Co-op. Pty. Ltd., Griffith.
 2AVL—C. F. Luck, St. James Flats, 6 Stanley St., Sydney.
 2ZBY—J. T. Parrott, Gordon St., Culcairn.

- Victoria**
 3DF—G. D. Clarke, 545 St. Kilda Rd., Prahran.
 3EO—R. A. H. Russell, 5 Francis St., Coburg.
 3IJ—D. R. Twigg, 33 Chapman Ave., Glenroy.
 3OP—J. H. Kossek, 43 Ford St., Newport.
 3ADV—B. D. Alexander, Station, "Wahroonga," Beaufort Rd., Skipton; Postal: P.O. Box 19, Skipton.
 3AHJ—R. J. Harrison, Lot 2 Railway Pde., Glenroy.

- Tasmania**
 3APX—P. K. Davies, Station: Police Station, Romsey; Postal: C/o. 3 Jackson St., Toorak.

- Queensland**
 3AUM—A. M. Upton, Station: Bilcola Heights, Cockatoo; Postal: 15 Bowen St., Hawthorn.

- Western Australia**
 3AZY—T. J. Hunt, "Yamala," Olivers Hill, Frankston.
 3ZBO—R. F. V. Crewe, 11 Clifton Gr., Hawthorn East.
 3ZBP—G. I. Davies, 159 Dawson St., West Brunswick, N.12.
 3ZBZ—A. W. M. Buesst, 5 Torresdale Rd., Toorak.

- South Australia**
 4GV—G. C. Campbell, "Camp Bell," Cyprus Ave., Surfer's Paradise.
 4MO—I. C. Morrison (Dr.), "Avon Lodge," 171 Riding Rd., Hawthorne.
 4PW—D. W. Presland, 18 Jeffries St., Yeppoon.

- North Queensland**
 5MG—J. McG. Moffatt, 8 Swan Ter., Port Adelaide.
 5VB—W. D. Randall, 38 Fefton St., Largs Bay.
 5ZBA—J. A. Beasley, 7 Francis St., Cowandilla.

- Western Australia**
 6DG—G. D. Garratt, Troughton Island, W.A.

CHANGES OF ADDRESS

- VK—** New South Wales
 21B—G. L. Rhodes, 6 Bourke St., Pymble.
 2LN—A. Le Nevez, 5 Wyuna Rd., West Pymble.
 2NS—T. F. Evans, 100 Mitre St., Bathurst.
 2QI—C. Bowler, Station: S.S. "River Glenelg"; Postal: C/o. 25 Castle St., Randwick.
 2AQB—R. B. Digby, Cr. Bent and Beaconsfield Rds., Lindfield.
 2ATN—F. G. Barron, Lower Burrinjuck, via Bawnwing.

- Victoria**
 3AP—A. H. Bowley, 5 Caroline St., Hawthorn East.
 3EE—C. E. Fredrickson, 27 Patterson St., Carrum.

- Queensland**
 3EV—F. W. Walker, 15 Closter St., Nunawading.
 3GT—G. E. Lewis, 20 River St., Briar Hill.
 3IB—A. C. Hawker, C/o. Station 3LK, Lubeck.
 3KI—T. P. Kirby, Durham Rd., Kilsyth.
 3SQ—A. C. Robinson, 18 Essex St., Blackburn.
 3VW—C. C. Waring, 24 Korolt St., Warrnambool.
 3ZR—G. C. Moody, 67 Princess St., Kew.
 3AGJ—G. W. Jane, 11 Bellevue Ave., Chadstone, S.E.10.
 3ZAL—R. A. Foot, 67 Parkmore St., East Bentleigh.

- Western Australia**
 4EF—E. F. Fell, 17 Roy St., Ashgrove, Brisbane.
 4WD—W. G. Dodd, "Dunolly," 62 Pier Ave., Shorncliffe.

- South Australia**
 5AL—K. S. Harris, Wonarah, via Tennant Creek, N.T.
 5RA—L. R. Latta, 40 Cooper Place, Beaumont.
 5SL—L. N. Sjoberg, 16 Rodney St., Woodville.

- Tasmania**
 7MC—W. R. Attwood, No. 1 Staff House, Bell Bay.
 7MK—M. N. Koglin, Block 178, East Risdon Rd., Lindisfarne.
 7RE—R. A. Emmerton, 155 New Town Rd., New Town.

- Territories**
 8BP—B. P. O'Connor, C/o. A.P.C., P.O. Box 84, Port Moresby.

CANCELLED CALL SIGNS

- VK—** New South Wales
 2AOC—A. O. Chappell.
 2ZAL—C. F. Luck, Now VK2AVL.
 2ZBF—B. C. Fleck, Now VK2FS.
 2ZBJ—W. B. Jones, Now VK2AVJ.

- Victoria**
 3WC—P. J. Greigg, Now VK2KJ.
 3AQM—H. P. Morris.
 3ZBO—T. J. Hunt, Now VK3AZY.
 3ZBP—B. D. Alexander, Now VK3ADV.

- Queensland**
 4DS—N. E. Parsons, Now VK2AHS.
 4ZAM—I. E. Morrison (Dr.), Now VK4MO.

- South Australia**
 5DG—G. D. Garratt, Now VK6DG.
 5WZ—F. G. Anear.
 5ZAM—J. McG. Moffatt, Now VK3MG.

- Tasmania**
 7IJ—D. R. Twigg, Now VK3IJ.

- Territories**
 8GV—G. V. Campbell, Now VK4GV.
 8RO—R. M. Ellison, Now VK2ML.

ERRATUM

Among the new call signs listed in the last issue of "A.R.," was VK3OLU. This should have read: VK3ALU, L. E. Lloyd, Murray Valley Highway, Nyah.

FOR MONTH OF DECEMBER, 1955

NEW CALL SIGNS

- VK—** New South Wales
 2MC—D. M. MacMillan, 28 Vernon St., Cessnock.
 2ML—R. M. Ellison, 161 Albert Rd., Strathfield.
 2AHS—N. E. Parsons, 120 Ashley St., Chatswood.
 2AWT—N. J. Watling, 23 Station St., Pymble.
 2ZBK—N. F. Wilde, "Wyoming," The Village, Blayney.
 2ZBL—W. S. Lane, 15 Hyman St., Tamworth, N.

- Queensland**
 2ZBV—A. F. W. Reynolds, 159 Rose St., Darlington.
 2ZCA—K. G. Laycock, 20 Bremer St., Canberra, A.C.T.

- South Australia**
 2ZCF—R. C. F. Norman, 23 Queen St., Croydton.
 2ZCH—A. K. Hore, R.A.A.F., Bankstown.

- Victoria**
 3MJ—W. L. Matters, 12 Kinsdale Cres., Box Hill North.
 3NB—A. F. B. Nickson, 18 St. Andries St., Camberwell.

- Western Australia**
 3OR—R. S. Robinson, Station: 8 Avalon Rd., Armadale; Postal: Flat 8, 37 Eildon Rd., St. Kilda.

- Queensland**
 3AOE—H. J. Edney, Mandevelle St., Hopetoun.
 3AVE—E. V. Avenell, C/o. Beam Wireless Station, Fliskville, via Ballan.

- Western Australia**
 3ZBH—P. C. Laycock, Windsor Rd., Boronia.
 3ZCB—L. J. Bills-Thompson, 76a Fairmount Rd., Hawthorn East.

- Queensland**
 3ZCC—W. G. Francis, Woolamai Rd., Dalyston.
 3ZCM—W. J. R. Michie, 36 Sussex St., Brighton.
 3ZCR—R. C. Owen, 57 Reeve St., Sale.
 3ZCW—M. A. White, Mitchell St., Ouyen.

- Queensland**
 4DW—C. D. Wright, 1 Browns Dip St., Enoggera.
 4GT—W. G. Heaton, 5 Spring St., East Ipswich.
 4LI—R. J. Linsket, 6 Clay St., East Ipswich.
 4NT—N. T. Casey, Hastie St., Mareeba.
 4YU—D. Dawson, C/o. Station 4MK, Gordon St., Mackay.

- Queensland**
 4ZAE—A. M. Simpson, 19 Little St., Albion, Brisbane.
 4ZAJ—F. J. Edwards, 1 Market St., Warwick.
 4ZAT—T. R. Cuttle, Robertson Rd., Ipswich.

- South Australia**
 5AB—B. C. Jellett, Norton Vale, Hynam.
 5EK—G. H. Keith, 58 Francis St., Clarence Park.
 5QW—B. G. Waight, C/o. Mrs. O. Cosgrove, 8 Hulbert St., Hove, Adelaide.

- Queensland**
 5SS—C. G. S. Sappalizer, 7 Bennett St., Hilton.
 5ZAR—R. W. Hercules, 317 Kensington Rd., Kensington Park.
 5ZAS—R. H. Angrave, 18 Mary St., St. Leonards.
 5ZAZ—J. M. Gluyas, Port Pirie.

- Western Australia**
 6DG—G. D. Garratt, Troughton Island.
 6DJ—W. R. Woodley, 9 Cagill St., Victoria Park.
 6UG—J. H. White, 30 Sutcliffe St., Nedlands.
 6ZAG—J. Kitchin, 17 Pakenham St., Mt. Lawley.

- Queensland**
 6ZAJ—B. W. A. Jacobs, 69 Lawler St., Subiaco.
 6ZAL—T. S. Long, 106 Spencer St., Bunbury.
 6ZAP—D. C. Fairs, Collier Rd., Bayswater.

- Tasmania**
 7RF—R. T. Forster, 1 First Ave., Springfield, Hobart.

- Territories**
 1DA—D. A. Brown, Macquarie Island.
 1IJ—D. R. Twigg, Antarctic.

CHANGES OF ADDRESS

- VK—** New South Wales
 2GT—G. T. Bruce, "White Mists," Eighth Ave., Loftus.
 2JE—J. C. Redman, 52 Raglan St., Wallend.
 2NX—J. R. Cameron, Cambridge St., South Grafton.

- Queensland**
 2QT—T. G. Thorpe, 930 Botany Rd., Mascot.
 2RW—R. W. Cushter, 32 Derby St., Hornsby.
 2SA—V. E. Salmon, 77 Flora St., Kirrawee.
 2VX—W. E. Stanley, Station: O.T.C. Station, Doonside; Postal: Box 6, P.O., Blacktown.

- Queensland**
 2VZ—F. W. Ross, 313 Connells Point Rd., Connells Point.
 2AAT—J. H. Hansen, M.V. "Boonaroo," C/o. 70 Robey St., Maroubra.

- Queensland**
 2ZCA—A. K. Hore, R.A.A.F., Bankstown.

- Victoria**
 3QJ—R. H. Roseblade, 149 Ashburn Gr., Ashburton.
 3ZU—F. A. O'Donnell, 81 Sharp St., Yarra-wonga.

- Queensland**
 3APD—J. P. Downie, 26 Gwenda Ave., Moorabbin.
 3AQH—H. Denver, 3 Murray Drive, Burwood.

- Queensland**
 4BE—A. F. W. Taylor, 9 Lothair St., Pimlico, Townsville.
 4GG—G. Heilbronn, Creek St., Crows Nest.

- Western Australia**
 6GK—D. R. Annesley, Cr. York Rd. and Lynn St., Collye.
 6RD—H. R. Dowsett, 53 Festing St., Albany.

- Tasmania**
 7LC—L. A. Chappell, 8 Cheveron Rd., Sandy Bay.

CANCELLED CALL SIGNS

- VK—** New South Wales
 2UG—J. H. White, Now VK6UG.
 2YU—D. Dawson, Now VK4YU.
 2ZN—J. Brand.
 2AKW—G. H. Humphrey.

- Victoria**
 3IJ—D. R. Twigg, Now VK1IJ.
 3LW—A. F. B. Nickson, Now VK3NB.
 3ADG—D. A. Gray.
 3AFW—R. F. Woolley.
 3ATF—R. T. Forster, Now VK1TF.
 3ZBC—A. K. Hore, Now VK2ZCH.

- Queensland**
 4EK—G. H. Keith, Now VK5EK.
 4GW—H. H. Varnes.
 4WT—N. J. Watling, Now V2AWT.

- South Australia**
 5JX—J. C. Golley.
 6ZAB—B. C. Jellett, Now VK5AB.
 5ZAC—E. L. Murray.

- Tasmania**
 7DN—T. F. Carter, Jnr.

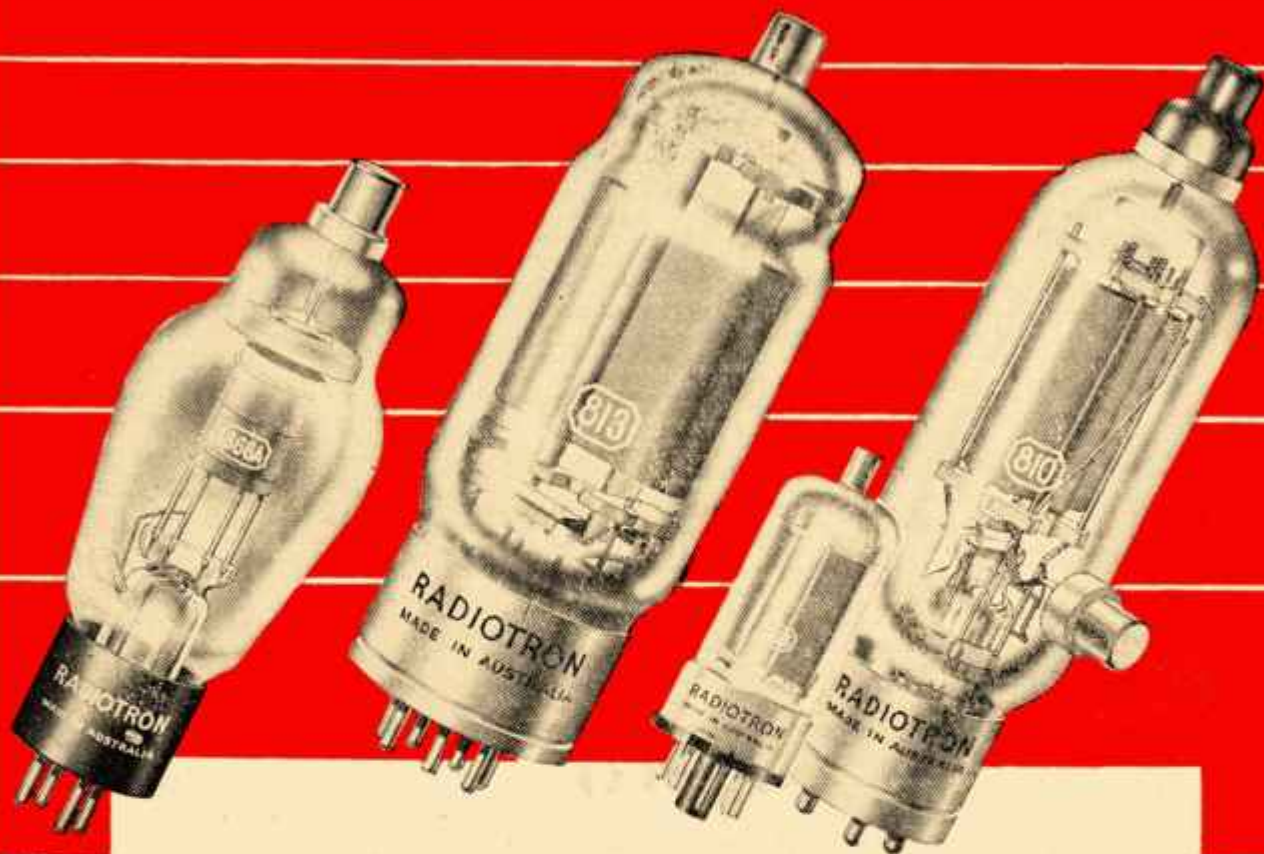
1954 WORLD WIDE DX CONTEST VK RESULTS

Published in "CQ," October, 1955

C.W.—Single Operator	
All Band	14 Mc.
VK2GW ... 90,882	VK2GW ... 20882
VK3XK ... 30,256	VK5HT ... 17543
VK2PV ... 17,538	VK3XK ... 8738
3.5 Mc.	VK2PV ... 7406
VK3AHH ... 462	VK3HL ... 7185
VK2GW ... 20	VK3CX ... 6916
VK2PV ... 4	VK3KB ... 2372
VK3XK ... 4	VK1RT ... 1387
7 Mc.	21 Mc.
VK2GW ... 9620	VK2GW ... 2384
VK3XB ... 3304	VK2PV ... 152
VK3XK ... 3285	VK3XK ... 144
VK2PV ... 896	

Phone—Single Operator	
All Band	21 Mc.
VK2GW ... 8003	VK4EL ... 848
VK4HD ... 1701	VK4HD ... 630
VK5WO ... 1372	VK5WO ... 24
7 Mc.	VK2GW ... 12
VK2GW ... 288	14 Mc.
VK5XN ... 10918	VK4HD ... 252
VK2GW ... 4582	VK5WO ... 6
VK3ACN ... 1950	
VK5WO ... 880	

RADIOTRON POWER VALVES



Today's high standards of radio performance are dependant upon the use of first quality components.

Radiotron valves are manufactured to exacting standards which ensure you of the ultimate in performance at all times.

Be sure of the quality and consistency of your signals by using Radiotron Power Valves.

Important: When ordering valves, be sure to mention "Amateur Radio" so that priority can be given to your order.



RADIOTRON

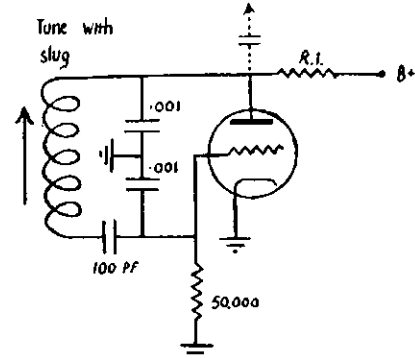
AMALGAMATED WIRELESS VALVE CO. PTY. LTD.

HINTS AND KINKS

A SIMPLE B.P.O.

Remember the small slug-tuned coil in the American I.F.F. set? This makes an ideal b.f.o. coil for a receiver with an i.f. of 450 Kc. or thereabouts. It can be mounted on the chassis in the same way as it was in the I.F.F. set and if mounted near the b.f.o. tube a neat and compact assembly results.

There are three terminals on the coil, two being the coil ends and the third a tap. Although this tap would probably allow the use of the coil as an electron-coupled or Hartley oscillator, it has been successfully used in the circuit shown.



This will be recognised as the Clapp circuit arranged so the cathode is grounded. It can thus be used with a filament-type tube without the need of a second winding.

With the b.f.o. tube close to an unshielded detector, it was found unnecessary to copy the output, but in some cases a small condenser between the b.f.o. plate and the detector will be required. Resistance R1 should be chosen to reduce the plate voltage to approximately 50 volts, but should not be less than 15,000 ohms.—VK5JG.

SHIFTING THE FREQUENCY OF A CRYSTAL

Lower.—A coating of finger nail polish thinned down with cuticle remover will lower the frequency of a crystal considerably. Very little, if no effect, on the strength of the oscillation will be noticed.

Higher.—To shift the frequency higher, give one side of the crystal a few light rubs with a little Bon Ami.

TAPS ON TANK COILS

Taps on tank coils can conveniently be made by using a piece of sheet brass $\frac{1}{4}$ " wide, looping it round the required turn of wire in the desired position and soldering.

BOOK REVIEW

"FROM THE ELECTRON TO THE SUPERHET."

We recently had the pleasure of perusing a copy of "From the Electron to the Superhet." Perhaps "perusing" is not the correct word to use as we ultimately read the whole 700 pages. The book is divided into 42 lessons with test questions at the end of each lesson.

Each lesson deals with a specific subject and the whole course is specially based on radio service practice. The theoretical principles are therefore dealt with only as far as is strictly necessary, and are explained in a straight forward manner. Illustrations and circuit diagrams are freely used to simplify the understanding of the principles being explained.

This book was specially written for the radio serviceman who wishes to brush up his knowledge by self-study, but it should prove very popular with those engaged in any field of radio.

"From the Electron to the Superhet." is available only from Philips Electrical Industries of Australia (Pty.) Ltd., Philips House, 69-73 Clarence Street, Sydney. The cost is £3/10/- per copy.

BACK COPIES OF "AMATEUR RADIO"

Copies of "A.R.," other than those listed below, are available at the Victorian Division's Rooms, 191 Queen St., Melbourne, at 9d. per copy, plus postage.

- 1945—October.
- 1946—February, March, June and November.
- 1947—January, February, June, July, August, September, November.
- 1948—March, May and September.
- 1949—February and March.
- 1950—July and September.
- 1951—July.
- 1952—November and December.

All copies are available for the years 1953, 1954, and 1955.



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., 120 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 VK3AHH†

PROPAGATION REPORT

3.5 Mc.: There is no doubt that the high noise level is the major reason for the small number of reports on this band. However, European break-throughs and openings to North America have been observed. Times for Europe were 1800-2000z.

7 Mc.: This band allowed the usual DX to be worked, although a deterioration of conditions was noticeable. Times were: American continents: 0800-1400z, and Europe: between 1800 and 2100z, with break-throughs around 0800z.

14 Mc.: Conditions have deteriorated somewhat, as was to be expected. Nevertheless, fair openings were observed and reported. North America was workable between 2000 and 0100z and between 0500 and 1600z. Conditions for contacts with South America existed around 0400-1200z, while Africa was represented between 0500 and 1400z. European countries appeared around 0700-1400z.

21 Mc.: On this band, conditions were reasonably fair to all continents. Times were as follows. Europe: 0900-1500z; Africa: 0500-1100z; South America: 0000-0800z; North America: 2100-0400z.

27/28 Mc.: Conditions to Europe existed around 1000z, together with break-throughs from South-East Asia. Openings to the American continents appeared between 2300z and 0300.

NEWS AND NOTES

At the time of writing, the Kista Dan is on her way to the Australian Antarctic Research Base at Mawson. Gordon VK1GA will represent the 1956 party on the Amateur bands. The 1955 expedition will return and is expected to reach Melbourne some time in March.

Bells were ringing in another year, and in mud, rain, and MUD the Federal Station of the Wireless Institute of Australia, VK3WIA, opened business at the Pan-Pacific Scout Jamboree at Clifford Park, near Melbourne. It did not take long for this call to be regarded as a rare one—in fact, real DX queues sometimes worried the operators! This W.I.A. show took place under the determined leadership of Doug 3DU, while the technical side was in the experienced hands of George 3AG. The Victorian Division was well represented by operators and assistants. And, largely because of their willing co-operation and patience, the show can be called a success.

The DXpedition to the Kermadecs is off—for the time being anyway! News will be published when available (info from W6YY).

Doug VK1IJ, a member of the 1956 Macquarie Island party, has commenced his DX activities. QSL cards may be sent to VK3ATN who will dispatch VK1IJ cards in reply, directly if reply coupons or stamps were enclosed, otherwise through the Bureau (from 1IJ and 3ATN).

The relief party at Kerguelen Islands commenced operation in January—call sign FB8XX (from W6YY).

VP2VB/P is now on his way to Tokelau Island (from W6YY).

FB8ZZ on Amsterdam Island has daily phone contacts with CN8MM at 1630z (from 5WO).

XW8AB intends operating on 7 and 21 Mc. (from NCDXC).

LU2ZY and LU3ZY are active from South Sandwich Islands (from 2QL, W6YY).

VS9GV is active on phone from Aden (from W6YY).

ACTIVITIES

7 Mc.: Laurie 2AMB reports KL7AZS*, and YU3AB, YZ2ACD, YU3AJK. Jamboree Station (see Notes) VK6WIA worked JAG1WV, Eric BER5185 adds DL4F, IIZFY, YU3AFR.

14 Mc. C.W. 2QL: STANG, VS9AS, FY7Y*, VQ8LQ, VP8BM, ZD6EX*, CR1LU, CR1Z*, ZD2DCP*, LZIKSP*, Y1ZAM*, ET2AH*, VK1RA*, ZSEJ*, CR6X*, and FB2TZ, FB8ER, FM7WF, OX3WE, KG1AR, OQ8BT, OQ8H, VQ5*K, VQ2SP, VP5DC, 2AMB: HR1JZ, XE1AX*, LUSHR*, LU4FDQ*, YV1AD*, CE3DZ*, TZPZ*, KZ5IF*, HC1KD*, VP9BM*, and VQ8CB, HB9GV, FO8AK, IS1FC, VS2CV, VS6CO, VS6DI, VS1BJ, HC1LE, VP7NS, VU, 2JG, OX3RE, 4X4DH, VQ8LQ, YV5BO, KP4ZW, KW8BV, LU3DB, LUBSA, Neville 2APL: VS-1BJ*, JA*, YV5BJ*, G*, F*, OH*, Bud 2AQJ: ZC4IP*, JA*, VS1BJ*, Alan 3CX: CR6AI*, ACSPN*, 3V8AA*, FB8ZZ*, FY7Y*, FY7Y*, PZ1BS*, HP1EH*, KV4*, TZ2MR*, SV0WY*, VQ4EO*, KP4MV*, KP4CC*, VQ8CB*, HB1RF*, VP9BM*, VP9BD*, YV1AD*, COSY*, HK5CR*, KP4KD*, OQ8HT*, 3V8AB*, ET2LB*, VS8AS*, MDSUK*, HC1LE*, KP4ABA*, VQ4AQ*, HS-1VR*, CR9AE*, KJ6BN*, HC1KD*, ET3GB*, ZSSND*, plus Europeans, and VP5DC, OX-3UD, Jack 3JA: 4S7PT*, YV5AK*, DL*, G*, Ken 8WB: VK1AW1*. Stan 8TE: DL*, EA*, EA6BD*, G1DQ*, IS1FC*, OESRE*, ON4*, ST2AC*, VQ4FZ, YU3BH*, ZC4CK*, 4X4DH*, Allan 3AHM: VS5EW*, KP4MV*, HR1JZ*, ZC4IP*, KZ5IF*, KP4JE*, MDSUK*, LUISE*, KP4ZV*, LUSAQ*, KJ6BN*, TZPZ*, XE1CM*, 3W8AA*, KZ5GH*, HP1BR*, LU2RD*, KZ3DK*, OX1OS*, HL2AA*, and Europeans. Ron 8ARV: TZ2MAS*, TZPZ*, YV5BJ*, FB8ES*, VQ8AG*, JA* and Europeans*. Ray 3ATN: ZD9AC*, Tim 3AZY: 3V8AS*, XW8AB*, DL*, OH*, and EA, 4X4BR, I, Y1IAM, IT1AL, ON4, 8W1A: JA*, VE*, OE1BH*, ZS2X*, 1*, DJ/DL*, PA0*, SM*, KP4*, VS1*, VU2*, FABRJ*, KLT*, KW6*, YU*, KR6*, VQ8CB*, VK1AVI*, VK1EM*, VK1JW, VK1RA*, ZS2K*, OH*, 4X4*, CO*, G*, LUSMC*, TF57P*, FO8AO*, KTI*, PY*, ST2*, Bob 4RW: FA9HN*, YV1AD*, ZS6ANZ*, ZS6AJQ*, Z8JU*, FB8BR*, VS1BJ*, VS9AS*, VQ3JTW*, ZS3VC*, 85AX*, VU2BL*, ZC4IP*, 3W8AA*, VQ2ST*, MP4QAL*. Syd 4SE: JA*, 4SMK*, CR6CV*, CT1, DLs, CE3DZ*, KP-4MV*, VS1GU*, VS1GV*, VS1BJ*, VQ2EW*, ZC4IP*, ZS6CA*, ZS6DG*, ZS4IF*, ZS1PS*, ISREK*, ET3TR*, ET3AH*, ET3LF*, VQ4DT*, KW6EV*, ZS3PN*, VQ8LQ*, YUSMD*, DU*, YV5FV*, Gs*, SM*, KV4*, KJ6BN*, KP4MV*, VP9BM*, 3W8AA*, TZPZ*, GM3CB*, and OX1TR, Z8EOX, ZE2JC, Y1ZAM, VQ4FI, ZS-3HX, VE3TL, CR7AH, VQ5DS, CS3AC, VU0J1, AZ2C, EA, ZK1EL, LUISE, 3V8AB, OE, VQ8CB, SV0WL, 4X4P, FB8ZZ, CR5BJ, HC1XD, GC-3AV, FO4BD, SMA1S, Doug 4BY: Y1AIM*, VQ8CB*, YV5BJ*, Y1AD*, FB8ES*, ZD3A*, VQ8EK*, ET3LF*, ET2LB*, 3W8AA*, PZ1BS*, Rob 8RG: ZS6MS, VK1EM, VK1AWI, Ray 8RK: JA, Austin 5WO, VP9BM, CR6CV*, H3L3, 3W8AA*, FB8ZZ*, Col TLZ: 3W8AA*, G1DQ*, MP4BEE*, IS1FC*, VU1DL, and MP4QY, F9SC/FC, BERS195, DLZ, G1DQ*, DU, KR6CG, SM, VQ8LQ, VS1BJ, VU2JG, XE-1AX, 3W8AA, SMA1S, Dave Jenkin: GIARY, DL, KV4, VS1BJ, P2AJ, AP2Q, V1GV, ACSPN, Rod de Balfour: FB8ZZ, VP5DC.

14 Mc. Phone: 2AMB: YV5AB*, YV5FK*, TZ2RMA*, TZ2ES*, GM*, PY2AHS*, KP4ABD*, CEAC*, KTIWX*, and KP4WA*, KG4AF, VU4AK, ZZZKN, YV5AY, VS6CG, CO8CG, KP-4IS, KP4WD, ZPSJM, CT, CN8MM, 2APL: LU-1QG*, Harold 8AHC: FO8AD*, DL*, F*, EA*, LU8DZ*, LU4ES*, KP4QA*, KP4PT*, KP4-ABD*, HPSFL*, HP1EH*, VS1*, YV5FK*, YV6BS*, YV/AO*, OAIK*, OA2A*, TZ2RMA*, FABON*, 5A1TA, CT2AG*, VP6TR*, HZ2JL*, HZ2JH*, KZ5KJ*, KZ5WA*, KZ5FA*, XE3AF*, XE1RE*, XE2NT*, HR1CB*, YS1A*, TG8EA*, TG8TU*, ET2IS*, ET2MZ*, Gs*, KV4*, CN8MT*, CN8MM*, AP2BF*, AP2CR*, CE3PV*, YN4CG*, HK3FV*, HK3FC*, CO*, VU2*, CT*, GM*, GW*, VS4GS*, VS2BA*, KZ2SS*, XZ2OM*, XZ2KM*, KTIEXO*, VP7NS*, KW6BV*, DU*, PA0*, YI-2AM*, VQ4FK*, 4X4GC*, 4S7GD*, OD5DA*, FB8B*, ZS4AF*, ZC4RX*, Ray 8ATN: FM7WF*, ZD6RD*, HH1HB*, PX1YR*, FB8ZZ*, CR7*, CR6*, ZS9Q*, EL2B*, H18*, FB8BE*, ET3TRC*, VP7*, HH1W*, 3AZY*, OE*, KE2KW*, P1Y*, 4X4DK*, VS1CZ*, 3W8AK*, EL2W*, Is*, Gs*, ZS5FN*, ZS2FA*, CR7CZ*, ZS2VY*, XZ2OM*, MP4BF*, ZS5DE*, DL*, ZS6ANE*, Y1ZAM*, XE2NT*, ST2DB*, and VQ2HJ, Z8JL, CR-7AO, EA2CQ, FO8AD, VQ4RF, ET2AB, LU7AJ, CN8MM, PA0, EA, ON, MP4AK, F, VQ4AQ, 4RW: VQ8EK*, KZ5DK*, ET3AG*, Z8JTI*, LU4ML*, DL*, 5WO: OD5AB*, Y1ZAM*, VQ-5EK*, ZS6JM*, ZS5DE*, KP4ABD*, ZS6QT*, CR7CZ*, HH1HB*, KE2KW*, CN8MM*, VP2DC*, KP4CU*, ZS2FA*, ZS6XL*, ZS8G*, ZS2BJ*, ZS2DY*, VQ4ERR*, VQ4FK*, ZS6ANE*, ZS6-AJX*, VQ4ZFR*, CO*, VE*, Z8JL*, FB8AP*,

ZE4JA*, XE2NT*, ZD4BZ*, OQ5FM*, YN4CB*, 7LZ: KP4ABD*, KZ5EA*, TZ2BX*, 4S7GD*, TZ2RMA*, LU8DB*, MP4KAB*, HZ2AEH*, VP-7NS*, VP7NK*, TZ2LDT*, 4S7YL*, W1A-L3019: VQ8LQ, KZ2SS, VS1, FM7WQ, ST2DB, VU, ET, XZ2KN, FASAY, VS2, VS6, ET2XX, ISNR, ET-2CC and Europeans. Dave Jenkin: XZ2KN, LA7AP, DL, Rod de Balfour: HPSFL, VP7NS, VU, HPIEV, VS2UW, VU, CO, F, OH, Y1ZAM, VS6, HZ2AEH, VQ4AQ, CN8MM, ET2MZ, HZ1AB, OD5AB.

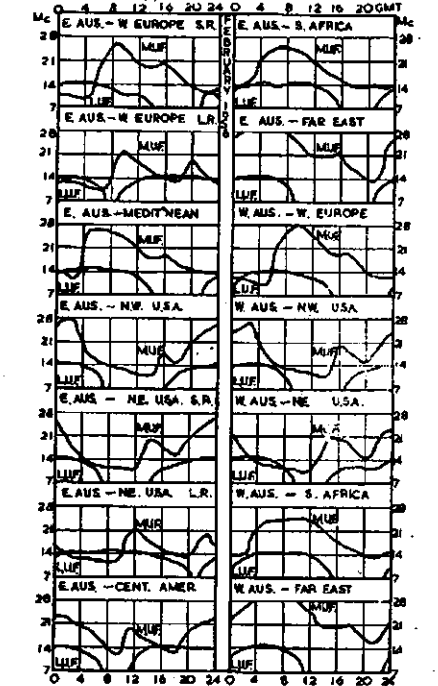
21 Mc.: 2QL: ZS6ANN*, 2APL: G*, DJ*, ZS8LK*, JA*, CR9AH*, 2AQJ: VS6*, Bert 3HE, Gs*, HB9*, and Y1ZAM. 8JA: MP4BBX*, KA*, VS6*, G*, OH5NQ*, OH6NW*, HC1FS*, KZ5CS*, LASYE*, DL*, LU8DD*, LU3DD*, KR1RU*, SM*, Percy 3PA: ZS3Q*, VQ2GW*, a long series of ZSs*, LX1SI*, CX3BS*, CE3DY*, CE3AK*, VP4WR*, VP8RG*, YV3AV*, KV4*, KP4AZ*, KP4KD*, LU5DDG*, LU3DH*, LU-8DB*, LU3EK*, HR1LV*, HC1FS*, HC1ER*, HC1ES*, KZ6CS*, KZ5DG*, BV1US*, DU*, KR6*, VS2*, 4S7*, MP4BBW*, 4X4BT*, ZB1TD*, GD3GMH*, VU*, ON4*, OZ*, SM*, LA*, ET*, F*, DL*, YU*, G*, SATN: KV4*, ZS8Q*, VP-8AQ*, 3AZY: SM*, G*, EA*, 1*, DL*, ZS*, KR6*, DU*, ZS3G*, KA*, 4S7AB*, VS2BD*, OZ2NI*, CR9AH*, F*, VU2CV*, VP8AQ*, 4X4BT*, KV4*, YU1AD*, KZ5DK*, I, HC1FS*, YV5AY*, OESFJ*, ON*, OD5AJ*, GW*, CE3CZ*, HB9FU*, 4X4BO*, HB9FU*, MP4BBW*, 4X4IB*, BV1US*, VS1GR*, KR8RM*, HB9NT*, 5WO: KV4*, KP4AZ*, G*, 1*, HB9ET*, GD3GMH*, ZS*, ZS8AG*, KZ5JM*, 7LZ: CX2AX*, LU-3EX*, VS2ED*, LASYE*, W1A-L3019: DU, SV8, Dave Jenkin: CE3CZ, KV4, GD3GMH, DU, F, VS6, CE3QY, ZS, JA, DL, CE3DY, LU3DD, KX6ZE, KR6CR, LU3DH, KA, KZ5DK, G, LU8DB, KZ5JM, LU8EN, LU5EK, HR1LV, HC1ES, VP8BT (1005Z), Rod de Balfour: VS9, JA, KA, KR6.

27/28 Mc.: 3PA: VETAF*, W8*, W7*, 5YS: W8*, 8AZZ*, W6*, W7*, and GW3UO, 5WO: GW3UO*, VS6CZ*, W7*, TLZ: W6*, W1A-L3019: W1, W4, W5, W6, W8, W0. Dave Jenkin: W6, W7, KH6.

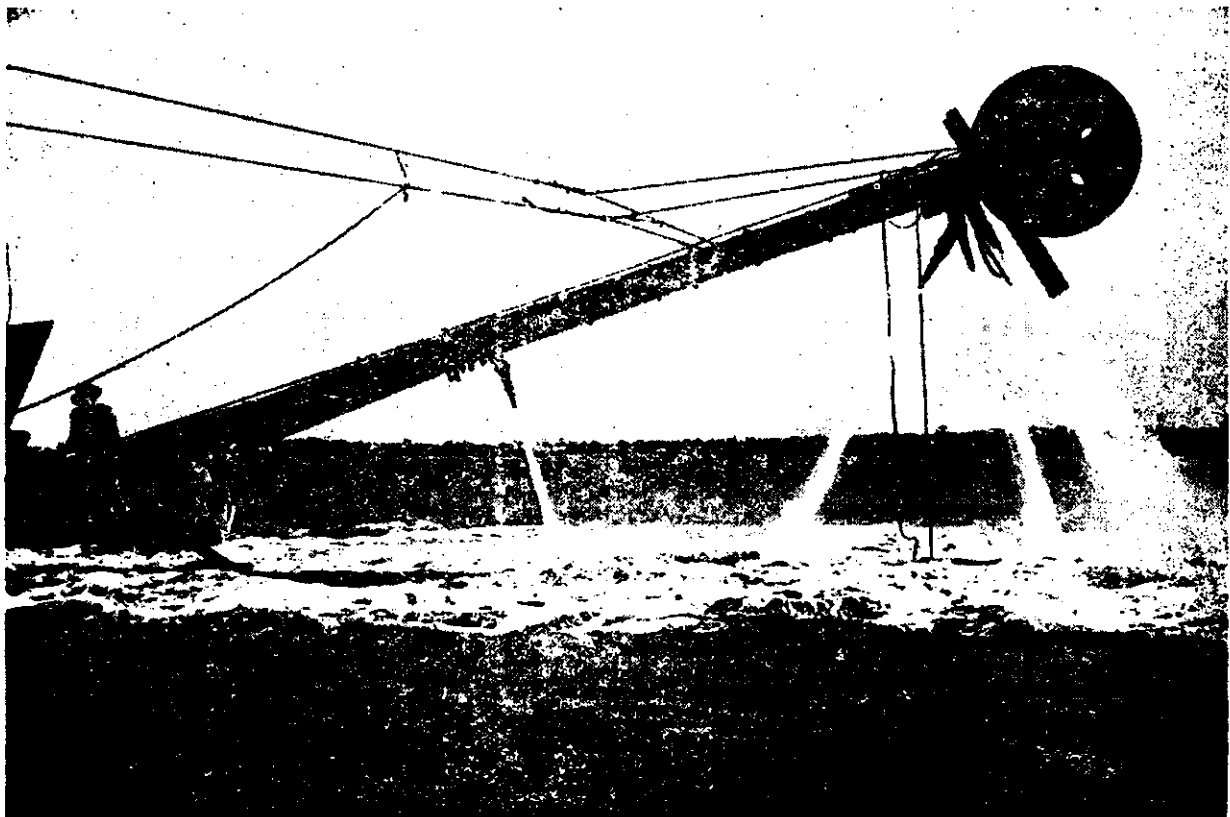
Rare QSLs were received by 2QL: VR3D, VQ8LQ, 2AQJ, FB8KX, 3CX: FY7YE, PZ1BS, 5JA: MP4QAL, YN1PM, KTIEXO, ZD8BX, VQ8LQ, 3AHM: 85AAK, VS8A, SATN: PX-1YR, ZD6AC, 4SE: PY4AO, PY2AFS, 5WO: ZP5CG, FB8BV, VQ8LQ, H1HIB, YN4CB, CR-7CI, FB8XK, FA8DA, TLZ: VPTNK, BERS195: DU9U (for 3.5 Mc. report), VS5RO. Rod de Balfour: CS3AC, VR3C.

Thanks to W6YY, the Northern California DX Club, and VKs 2QL, 2AMB, 2APL, 2AQJ, 3CX, 3HE, 3JA, 3KR, 3PA, 3TE, 3YS, 3AHC, 3AHM, 3ARV, 3ATN, 3AZY, 4RW, 4SE, 5BY, 5RG, 5RK, 5WO, TLZ, and s.w.l.s. W1A-L3019, BERS-195 (VK3), Dave Jenkin (VK3), and Rod de Balfour (VK7).

IONOSPHERIC PREDICTIONS FOR AMATEUR BANDS, FEBRUARY, '56



† Hans J. Albrecht, 10 Belgravia Ave., Box 811 North, E.12, Vic.
* Call signs and prefixes worked.
z—zero time—G.M.T.



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Laying cable under the Coomera River, Q'land.

FIFTY MEGACYCLES AND ABOVE

Reminder: 50-54 Mc. Band closed on 31st January, 1956.
See you on 56-60 Mc. Band (now open).

VICTORIA

Fred 3YS has built up a very nice tx for himself in which he uses an 8 Mc. xtal in the 6AG7 grid plate osc. circuit, tripling in the plate circuit to 24 Mc. This is capacity coupled to a 0CL5 which triples to 72 Mc., capacity coupled to a 5763, doubling to 144 Mc. The output to the 5763 is link coupled to the grid circuit of the final QZE08/40. The p.a. input is 75 watts. This is modulated by Class B 807s driven by 6SN7 cathode follower circuit. The whole tx is housed in the well known TU5 tuning unit cases bolted together in the form of a three tier table rack. Sprayed over with grey lacquer and with new front panels and neat name tags, the tx has a very professional appearance and the workmanship is of typically the Fred Ball high quality.

Ron 3ZEH has passed the Morse test and is now 3AHL. He is busy working on gear for 50, 28 and 21 Mc. bands.

The Xmas Fox Hunt was full of intrigue from beginning to end with the accent definitely on merry making. The fox 3LN arrived at the starting point on foot, having parked the car in a lane nearby. This was to give the impression that he was using a different make of car, but this was not so. Len had used that gag last year. After he had given out the sealed envelopes containing the location of the final rendezvous, he made post haste back to his car and off to the first hiding spot at the rear of the Hawthorn tram sheds where his XYL and harmonics were laying out 200 yards of coax to a temporary antenna and also cutting piles of aniseed with which they completed covered the car which was also hidden in amongst tall aniseed bushes.

After Len's departure, the XYLS in at the starting point belonging to the hound parties got an idea. If the fox was allowed to waive the rules at this Xmas Fox Hunt, well why not the hounds too. They suggested that one hound open his sealed envelope and find out where the final rendezvous was to be held and that they all gang up on Len and arrive there first to give him a surprise. 3VZ was all for this, but some of the other OMs (bless their kindly hearts) apparently had a conscience and felt it wouldn't be quite fair to Len. What a shame, a real spic idea that one.

3VZ was the first one to discover the fox at the initial hiding place and was followed by most of the others. Quite a while was spent at this hiding place as the temporary antenna with the extended lead put the hounds off the scent and had them searching at the opposite end of the enclosure till they finally tracked him down via the coax lead. The second hiding place was at the rear of the Zoo where Len had posted up "no road" notices at either entry to his hiding spot. Rather obvious the fox had no conscience whatsoever. He managed to remain here undiscovered for a quarter of an hour and it was not until he was moving out that 3ADU caught him.

The third hiding place was at the side of the Maribyrnong River. Here some real sculduggery went on. Len had previously arranged with 3ALY to transmit tone on the same frequency at intervals while Len would go off the air. 3ALY was strategically situated on the other side of the river and this really caused a heck of a lot of confusion. Hounds buzzed unsuspectingly around 3ALY, at times even asking him if he had seen the fox. The final location was at the fox's home where 3ADU was proclaimed the winner for the night and the hunts for 1955 wound up on a very happy note in keeping with the Xmas season with all looking forward to the next round in the New Year which will begin on the second Wednesday in February, the 8th.

How about joining in on the hunts for 1956? Start building some gear now, a rx on 144 Mc. is all you need for a start, the tx can come later; it is not at all an essential part of a fox hunt. Because of this, these hunts can be entered into with very great interest and enjoyment by associates, short wave listeners, members of the A.O.C.P. class, etc., and they can have equally as entertaining a night as those holding a license. You can bring your XYL and family or your friends, the only other essential of course is a mobile contraption such as a car or motor bike.

The hunts are run on a competitive form with points awarded for each time the fox is caught. They conclude with a get-together at a prearranged Amateur shack. We all bring our own plate of supper, this makes it less trouble for the XYLS who so kindly offer their

homes for the final rendezvous. The assembly point is at the plantation in College Crescent at the rear of the University at 8 p.m. on the second Wednesday in each month.

50 Mc. News.—Early in December there occurred the first opening on 50 Mc. for this season between New Zealand and VK3. ZLs 1, 2, and 4 were worked with signal strengths around S9. Since then there have been further openings and also to VK2 and VK4.

Stan 3AFL has a couple of GL446A tubes and hopes to apply them on 576 Mc. later on. Hugo 2WH was in Melbourne for a short visit recently, also Tony 3ZAZ, who had his portable gear with him and was heard working several of the Melbourne chaps from mobile positions around the suburbs. David 3ZAY has recently returned from a mobile tour through VK2 and VK4 where he made many contacts from his mobile rig and is now eagerly awaiting the arrival of the QSLs.

The final V.h.f. meeting for 1955 took the form of a visit to the City West Exchange where Mr. Alan Hart and Mr. Peter Barnes showed the Group around and explained in great detail the working of the micro-wave link equipment. The 23 channel system was of great interest to the fellows and also of particular interest were the c.r.o. patterns of the entire system in operation, where it was possible to see the frequency modulation of each of the timing pieces. The fellows climbed a narrow ladder to the roof top to view the parabolas which are 22 feet in diameter. There is provision for many more to come for service to various country locations. From this vantage point on the roof top some 130 feet above the city streets they gained a wonderful view of Melbourne at night with its thousands of twinkling lights.—Phyl Moncur.

288 Mc. Activity.—This month and last have been notable for the enterprise of 3GM and his keen friends, Ron and Ian, who have taken 288 (as well as 144) Mc. gear out portable to Mt. Buninyong and Mt. Warrenheip (near Ballarat) on Thursday and Sunday evenings, weather, etc., permitting.

First station worked was 3ZAI (at home) on 22/12/55 with 5 x 6 reports over the 64-mile path; 3GM used 4 over 4 beam and 3ZAI 8 x 2 40 ft. up; 7193s and r.b. used at both ends. On following Sunday, 3QO was heard weakly. Next week gear (inc. car batteries) was carried up 100 ft. tower on Mt. Buninyong and erected there (after ejecting the two four-legged mountain goats that live there); this extra 100 ft. lifted sigs three S points and 3ZAI had one-hour contact; 3QO was 5 x 6 with 25w. input to 832 final, but could barely hear 3GM.

Next attempt was on 8/1/56 when a fierce electrical storm made the 300 ohm ribbon on top of the tower glow like a neon tube from end to end and Ron and Ian got a few "bites," so they copied the mountain goats and Taced down the tower to safety. As they said, "they sure had some soup on the line, but they could not control it!" Finally, the gear was set up on ground and test made with 3QO with no results. Antennae were changed to horizontal-polarisation and 3QO became 5 x 8 and 3GM 5 x 5 with QSB. Tests were made with 3AAP and 3ZAI, but no contacts.

On 29 and 30/12/55 3AUX went portable to Montrose at foot of Dandenongs and worked 3ZAI and 3QO. Sig on 18 mile path from 3QO-3AUX were R5 S5 with QSB, S8 to S out using vertical polarisation. When antennae were changed to horizontal, signals rose to S8-9 and rock steady and next night results were the same. On the present indications, where signals have to go over difficult paths, horizontal polarisation seems to be desirable, but further tests are needed.

Stations active include 3ZBN (Nunawading) with 16 el. vert. pol. beam, and 16 el. hor. pol. beam, also one badly cut finger, caused by trying to haul feed line through glass louvre window! 3ZAI, who has a xtal rig on 291 Mc. with 6J6 final driven by 6J6 tripler (f.b. John and Ray). 3ZQA has been busy with 6J6-6J6 rx. 3AUX out portable. 3ME with ant. up 40 ft. 3ZAN occasionally on. 3AAP has antenna up 50 ft. 3ZBK has a new rx. 3AHL on occasionally. 3ZAE helped 3ZAI much with his xtal rig. 3ADU out portable, plus quite a few of the 2 MX gang on their 2nd harmonics!—3QO.

SOUTH AUSTRALIA

As your regular scribe SMT is away on vacation, I've been appointed as stand-in. It seems that 288 Mc. is the most consistent of the v.h.f. bands and the number of portables on every

week-end, including a mobile marine, makes for interesting contacts. George 5GB has just completed a 32 el. Yagi on 288 Mc. Col 5RO and Ian 5ZAW heard working crossband duplex and are both revamping xtal rigs for 288 Mc.

144 Mc. has the usual rash of regulars. Reg 5QR has been heard testing his latest 16 el. phased array and Keith 5HT is at present making personal contact with N.S.W. country v.h.f. boys. Clem 5GL and your scribe have mobile rigs working on 144.2 Mc., but were both trying to clear up ignition hash which seems very persistent on 144 Mc.

50 Mc. indicates patchy openings so far. 5RO, 5QR and Hughie 5BC seem to have the band to themselves in VK5. Activity may improve when the change of band position is clarified.—5KC.

WESTERN AUSTRALIA

The first tx hunt on 144 Mc. of the V.h.f. Group was a notable success! Eight cars participated in the actual hunt and the total number of cars involved in the evening can be judged when it is pointed out that Syd 6SJ had two of his sons, Bob and Jim, directing the cars so that they could all park on the vacant block next door to his place. A very welcome visitor was Wally 6AG who, as well as being one of the very first Amateurs in this State, must have been one of the earliest to work 144 Mc. mobile.

The tx, which was hidden in Maida Vale, was found by Ralph 6ZAD and his team—Lionel 8ZAE, Len 6ZAT and Don 6ZAK—five minutes before time. Ralph was the only one to find the tx. Congrats. Ralph! The most striking part of Ralph's equipment was the way he mounted his 4 el. beam. This was attached to a hollow piece of dural which then slipped over the car whip.

After the hunt, about 40 people attended the Xmas party of the Group. A most enjoyable time was had. Yarns were swapped and the gear in the various cars was inspected. Thank you very much, Mrs. 6SJ and Syd, and to the other XYLS and YLs who helped with the supper!

50 Mc.: This band opened later this year than in previous years and the first contact from Perth was 6HK to ZL2ADA on 11th Dec. The band has since opened to all States except VK9 and VK5 (Northern Territory). Rolo 6BC is having considerable trouble with power leak noise from some 68kv. mains which are a few hundred yards east of his beam. Comparison with Don 6HK has shown that signals which are S6 at Don's cannot be copied at Rolo's. It is very disappointing.

144 Mc.: Activity has increased with the advent of the Ross Hull Contest and numbers are being exchanged with enthusiasm. Don 8ZAV is the likely winner of both the open and limited sections at present unless those on 5 metres really get cracking. Have heard 6GB busy on 6 metres. When are you coming on 2 mx again, Jack? Wally 6AG has made a welcome re-appearance and came on one evening mobile. Don 6ZAV and Ralph 6ZAD and Roger 6RK had an interesting time working him as he moved around Perth. Bob 6BE and myself, who were mobile also at the time, were disappointed at not being able to work Wally due to difficulty with the modulator.

Don 6HK has completed his mobile tx and has had excellent results with it. It is hoped that by the time this appears in print that it will have been heard and worked by a large number of VK5s and VK3s. I mean that! During the month, 6HK and myself hope to be mobile as we travel from Perth to Melbourne and return.

288 Mc.: Most noteworthy event of the month was the reception of Don 8ZAV's xtal tx by 6ZAA in Fremantle over the difficult 15-mile path. Two way contact must eventuate!—6ZAA.

TASMANIA

The surprise 2 mx opening to VK3 on Sunday, 11th Dec., almost caught the 2 mx gang at Launceston unprepared. 7PF had only put the 5 over 5 back up on the 8th, and 7GM had only put up his new skeleton slot stacked array on the afternoon of the opening. 7PF heard 3YS at 1822 with test signal, from then up to 2115. Stations heard were 3BH, 3ZAA, 3ZD, 3DG, but calls by 7PF, 7GM, 7LZ, and 7BQ met with no response. 7PF then heard 3ZBE calling 3VL and gave a call on the off chance, and succeeded, signals being 5 and 5.

Conditions were not the best, the opening was probably due to a pre-frontal inversion crossing Bass Strait, making signals unstable. Quite a few stations were heard which would have been OK for a quick c.w. QSO, but unfortunately they could not be raised.

The best VK3 was 3GM portable, who at one time heard 7PF at 5 and 9. 7PF, 7LZ, 7GM all worked 3GM, and 7PF worked also 3RK, 3ALY, 3ZBE; others heard were 3ZAE, 3DG calling 3CI on c.w.

(Continued on Page 16)

SHORT WAVE LISTENERS' SECTION*

Well chaps, it's over a year since s.w.l.'s were given the opportunity of having their own section in "Amateur Radio." It is our job to make material available for this column, and that means that all s.w.l.'s, in Australia can play their part in keeping these notes informative and interesting. So how about it? All you need do is take up your pen and compile a short list of stations you have heard, for a start, and also, why not send us a short description of that super-duper gear you are using. Which type of antenna do you use and prefer to use? Don't keep all these details secret. Let us know all about them.

Hearty thanks are proffered to all who have contributed to our notes in the past, and it is hoped that you will continue to assist us in this way. So when our regular compiler of the notes returns from his holidays, why not deluge him with a shower of details from where you are? Contributions for this page should be forwarded to John Wilson, 37 Rayment Street, Alphington, Vic.

And now! Attention all Amateurs! Would you like to assist the S.W.L. Group? Remember you too were a listener at some stage or another. We would like to hear from any of you who would be willing to receive a visit from a small group of listeners, say a party up to six in number, to see your equipment and yourself in operation. If that is not possible, just seeing the equipment would do. There must be some of you who would be capable of coming to one of our meetings to give an elementary talk on any aspect of Amateur Radio communication. We have quite a few persons in our Group who would be very interested in learning how to give a useful report to a transmitting station, or the correct way to align a superhet, or again, how to erect a really efficient receiving antenna. If you can help us, go ahead and write to John Wilson, or if you are on the phone during the day ring Ian Hunt at FB0261, ext. 367, and find out just what we do want of you.

THE LATEST ON THE BANDS

A very interesting station to appear recently on 14 Mc. is that operated by Danny Weil on board a forty foot sloop called the "Yasme." When first heard by myself, Danny was using the call VP2VB/P. He has since put foot on Tahiti soil and for the present is making himself known on the air as FOBAN, under which call he has contacted at least one ZL station. I haven't yet heard any of the local boys chasing him though. He states that he is running 65 watts, operating phone and c.w. and will probably be in Tahiti for about three months. This information was heard on 17th Dec., 1955. It is understood that Danny is sailing single handed around the world and will call in at many different places on the way. So keep listening out and you may land him under a rare call sign. Further details of operation from that station may be found in "CQ" magazine for September, 1955.

In the absence of reports from other listeners, I am publishing the following list of phone stations heard by myself on 14 Mc. This list dates back to the 3rd December: VR2BG, CE-3JJ, KH6SL, KP6AK, KH6ES, GM6MN, ZP-5CF, LU2FR, LU5DL, LU3MZ, DLADM, VK9FN.

* Compiled by: Ian J. Hunt, WIA-L3007, 101 Robert Street, Northcote, Vic.

VK6MK, KA5JD, BVICE, OD5DA, YN4CB, HK-3PC, KZ5LI, XE2JK, HP3FL, AP2Q, CS3AC, CT1PK, CTSAN, CK2AK, EA7DT, GD2FRY, GW4CC, HCIER, HHIW, HR4WH, JA1CP, KJ-6BN, KR6RP, KTIWX, KV4AA, OE5JK, SM-3EP, SM6SA, VK1IJ, VK9DB, VQ4AQ, VU2CQ, VU2SS, YV5AB, 3V8AB, ZL1, 2, 3, 4, VK2-7, W1, 4-7, 6.

This should indicate to you that 14 Mc. is much improved of late, so dust the cobwebs out and try for a few of these calls yourself. In case you are interested my rx is a 4 valve, d/w superhet, with line up as follows: ECH35 r.f., mixer, o.c., 6SK7 i.f. amp., 6SQ7 det./amp., 6AG6 audio amp. The rectifier is a 6X5. At the moment I am using a half wave, centre fed antenna cut for the 14 Mc. band. The feeders are spaced with plastic spacers obtainable after you have eaten a popular brand of chocolate coated ice-cream. The antenna runs approx. N.E. to S.W.

The feed line for a receiving antenna may be made quite neatly using the said plastic sticks for spacers and if the right gauge of wire is used, a 600 ohm line will result. Does anyone know if these are OK for transmission? (The spacers, I mean.)

Well, I will end these notes with the news that cards are on hand for members of the VK3 Group from the following stations: MP4-BBF, 4X4FW, ITAP, OH6NS, VK2KG, VK3YS, and VK3ACS.

Thanks boys for being interested enough to send a card to a s.w.l. and thus providing encouragement. A happy 1956 to anyone caught reading this page, be he Amateur or S.w.l. May the best of DX go your way and let's hope that old Sol will turn on a mighty fine season for us.—Ian J. Hunt.

FIFTY MC. AND ABOVE

(Continued from Page 15)

A week later on the 16th, 7GM heard 3GM again portable, at 2000 and 7LZ heard 3GM at 2100 but no contacts. The portable operation of 3GM paid off again when on 29th Dec., he was worked by 7PF at 2100, and was heard at 2200. 3BW was worked also by 7PF at 2124. Signals were again not very stable, the barometer being only 29.7 inches.

Due to complaints of QRM, 7PF has now QS'ed to 144.424 Mc. Associate Perce Woodruffe has passed the L.A.O.C.P. and is waiting a call sign. He is 30 miles from Launceston, down the Tamar River at Beauty Point, and should be a good contact for test purposes and maybe a good contact for VK3s. 7GM does a good job working any VK3s at all, as he fires into a 100 ft. hill. 7LZ has stabilised the tx to prevent chirp, and has discovered that 300 ohm feeders don't like being near other objects. He also reports that 6 mx is not the best and he is ready for 5 mx, but has not worked any DX as yet.

7GM has put 6146s in the modulator to increase the modulation. 7PF has an automatic CQ sender and is experimenting with a band-tuner. A parasitic repeater array consisting of a 3 el. beam feeding into another 3 el. beam, one in the direction of Launceston, and we hope broad enough to cover VK3, and the other is beamed onto Hobart; has been erected by 7LX and 7PF on top of Mt. Barrow, about 4,600 ft. high. We hope to run some skeds with southern VK7 and see what happens.—7PF.

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FEDERAL, QSL, and DIVISIONAL NOTES



FEDERAL

VK3WIA IN RETROSPECT

Now that the mud and dust of the Boy Scouts' Jamboree has settled at Clifford Park, it is possible to take a backward view of the operations of VK3WIA.

With 480 contacts and 38 countries (including W.A.C. and 30 U.S.A. States), over a period of 138 operating hours, it is obvious that VK3WIA was particularly active and successful during its 10 days of operation. Conditions were very trying both from a physical and electrical standpoint, but the above figures speak for themselves.

Much of the equipment was kindly loaned by the Services and was set up by Executive and members of the Victorian Division. Difficulties experienced were overcome by the ingenuity of members and delays were minimised. In regard to the setting up and operation of the station, it would be impossible to thank in detail all those whose efforts varied from swinging a pick to punching a key, but due acknowledgment is made to all who unselfishly gave their time and energy to the project.

It would however, be inappropriate not to mention the efforts of two members. Firstly, SAG, George Glover, made responsible for the equipment side, spent many days in organising, arranging transport for, and installing the station. On his effort rests much of the success of the scheme. The other member who gave considerable time was 3ZA, Lance Frith. By working during the early hours of the morning when conditions were good, Lance was able to amass contacts at an astounding rate. He must be thanked for the very large number of countries worked.

Apart from the goodwill gained, the effort of taking VK3WIA into the field has paid tremendous dividends in experience and understanding and these will stand in good-stead in future operations.

VISITORS

Some of the members of Federal Executive had the pleasure of meeting W6NZP and OM (Evelyn Scott and husband Harold) during their brief visit to Melbourne just before Christmas. Interested in radio both professionally and as a hobby, much time was spent in comparing conditions on either side of the Pacific.

W6NZP expects to be travelling north through Queensland and New Guinea during the coming months and will be glad to meet any VKs on the way.

Another visitor of note was the Federal Councillor of VK2 Division, ZASW, Don Pollard. Although he had but little time at his disposal following his return from VK5, he managed to visit Clifford Park and see VK3WIA in action, and meet some of the operators.

SUCCESSFUL AMATEUR CANDIDATES

The following is a list of candidates who were successful at the examinations for the Amateur Operator's Certificate and Amateur Operator's Limited Certificate held in July and October, 1955.

12th JULY, 1956

New South Wales

- J. R. Grouse, Brent Street, Boggabri.
- G. A. Dowse, 6 Bangalow Road, Ballina.
- J. C. Kearness, Post Office, Tomingley.
- *S. D. Glyde, Private Bag, Bowraville.
- *J. G. Pratt, "Inglewood," R.M.B. 23, Illabro.
- P. C. James, 12 Stanley Street, Chatswood.
- J. S. Cuming, 8 Sortie Port, Castlecrag.
- *G. P. Pearson, 17 Esher Street, Burwood.

Victoria

- W. J. Carlyle, 21 Purcell Street, Benalla.
- L. E. Lloyd, Murray Valley Highway, Nyah.
- *J. Qigg, 29 Alamein Street, Morwell.
- *B. D. Alexander, Box 15, Skipton.
- K. J. Love, 27 Bishop Street, Oakleigh.
- *N. R. Deneb, 27 Glenbervie Road, Strathmore.
- *J. R. Wales, 24 Park Lane, Mount Waverley.
- *T. J. Hunt, "Yamala," Olivers Hill, Frankston.
- *G. A. Lane, 12 O'Shannessy St., Nunawading.
- *A. D. Pridgon, 272 Mont Albert Rd., Surrey Hills.
- *R. F. V. Crew, 11 Clifton Gr., Hawthorn East.
- *W. A. Ferris, 28 Jeffers Street, Noble Park.
- A. R. Jarman, 8 Edward Street, Horsham.

Queensland

- S. E. Brigg, 21 McKelliget St., Rockhampton.

South Australia

- B. G. Waight, C/o. Mrs. O. Cosgrove, 8 Hilbert Street, Hove.
- D. G. Goods, Yankalilla.
- W. D. Randall, 38 Feifton Street, Largs Bay.

- *J. A. Beasley, 7 Francis Street, Cowandilla.
- *J. McN. Rowe, 62 First Avenue, St. Peters.
- *G. R. Pope, 16 Seaview Grove, Blair Athol.
- *R. B. Connor, 60 Matthews Avenue, Seaton.
- *R. W. Hercus, 317 Kensington Road, Kensington Park.

Western Australia

- J. W. Hughes, 373 Marine Drive, Geraldton.
- A. A. Entwistle, 22 Charles Street, Midland Junction.
- *T. C. Berg, 72 Fourth Avenue, Mount Lawley.

11th OCTOBER, 1955

New South Wales

- D. M. MacMillan, 28 Vernon Street, Cessnock.
- B. C. Fleck, 20 Yoolooma Street, Griffith.
- W. B. Jones, C/o Griffith Producers' Co-op. Pty. Ltd., Griffith.
- *R. F. Ruff, 66 Toowoomb Bay Road, Long Jetty.
- *W. S. Lane, 15 Hyman Street, Tamworth.
- *K. G. Laycock, 20 Bremer Street, Canberra.
- C. F. Luck, St. James Plats, 6 Stanley Street, Sydney.
- *R. R. F. Norman, 23 Queen Street, Croyden.
- *A. F. W. Reynolds, 159 Rose St., Darlington.
- *N. R. Fenton, 500 Cabramatta Rd., Cabramatta.
- *N. F. Wilde, "Wyoming," The Village, Blayney.

Victoria

- H. J. Edney, Mandeville Street, Hopetoun.
- M. E. Pfeffer, R.A.A.F. East Sale.
- B. D. Alexander, P.O. Box 19, Skipton.
- *M. A. White, Mitchell Street, Ouyen.
- *R. C. Owen, No. 2 Radar Conv. "A", School of Radio, R.A.A.F., Ballarat.
- *W. G. Francis, Woolamat Road, Dalyston.
- P. X. Davies, C/o. 31 Jackson Street, Toorak.
- T. J. Hunt, "Yamala," Olivers Hill, Frankston.
- R. J. Harrison, Lot 2, Railway Pde., Glenroy.
- *J. M. Hamilton, 37 Byfield Street, Reservoir.
- *D. Christy, 49 Oberon Avenue, St. Albans.
- *N. R. Kay, 4 Curraweena Rd., Caulfield Sth.
- *W. J. R. Michie, 38 Sussex St., Mid. Brighton.
- *P. C. Laycock, Windsor Road, Boronia.
- *D. R. Town, 1235 Hoddle St., East Melbourne.
- *D. G. G. Johns, Johnsons Rd., Sth. Warrandyte.
- *L. J. Bills-Thompson, 6a Fairmount Road, Hawthorn East.
- *G. J. Davis, 159 Dawson St., West Brunswick.
- *I. de G. MacMillan, 8 Hamlyn St., Essendon.

Queensland

- N. T. Casey, C/o. Martinez Radio and Elec., Byrne Street, Mareeba.
- *F. J. Edwards, 1 Market Street, Warwick.
- D. W. Presland, 18 Jeffries Street, Yeppoon.
- W. G. Heaton, 5 Spring Street, East Ipswich.
- I. C. Morrison (Dr.), "Avon Lodge," 171 Riding Road, Hawthorne.
- R. J. Linsket, 6 Clay Street, Ipswich.
- *T. R. Cuttle, Robertson Road, Ipswich.
- *A. M. Simpson, 19 Little Street, Albion.

South Australia

- B. C. Jellett, Norton Vale, Hynam.
- *R. S. Lawton (Rev.), Methodist Parsonage, Bordertown.
- C. G. S. Saplatter, 7 Bennett St., Hilton.
- J. McG. Moffatt, 8 Swan Ter., Port Adelaide.
- *G. F. Yelland, 19 Lynton Street, Tusmore.
- *D. G. Pfeiffer, 326 Marion Road, Plympton.

Western Australia

- *T. H. Talbot, "Wedderburn," Brunswick Junction.
- J. Kitchin, 17 Pakenham St., Mount Lawley.
- *D. C. Fairs, Collier Road, Bayswater.
- *B. W. A. Jacobs, Lawler Street, Subiaco.

Tasmania

- W. H. M. Nisbet, "Uneda," Ormond Road, Bellerville.
- *J. C. E. D'Alton, M/S1652, Redcliffe.

*Qualified for Limited Certificate.

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

FEDERAL QSL BUREAU

RAY JONES, VK3RJ, MANAGER

Frank Anear, ex-VK9WZ, at Mornote, has lifted out the call sign VK3AFG, and after a few weeks sojourn in VK6, hopes to air his new call sign from R.A.A.F. Station, Laverton.

Eric Macklin, VK1EM, under date of 13th December, reports safe return from an expedition 200 miles south of Mawson. States he did the last few miles on foot. Apparently he wouldn't listen to reason.

Bob Roberts, G2RO, who last year operated "RO" call signs from numerous British possessions, has got busy and issued QSLs for all

contacts. Any station who has missed out may secure the card on application to Bob at 17 Homestead Park, London, N.W.2.

Harry Fox, VU2HF, is seeking contacts with VK7 and VK9 on 14 Mc. c.w. He is on the air regularly at 1000 GMT, and requests all cards direct to Methani Colliery, P.O. Sitarampur, West Bengal, India.

Luis Alegrett, YV5BZ, who has effected a big improvement in the QSL situation with Venezuela since his appointment as QSL Manager twelve months ago, lived in Nicaragua for 18 years. While there he operated YN1ZK. Luis states that currently YN1RA is the only really active station in Nicaragua, and that he is acting as QSL agent for YN1RA. Luis is distantly related to YN1RA. Luis supplies details of two tough certificates offered by the Radio Club Venezuela. One for working nine YV districts either c.w. or phone or both on any band. Currently no station exists in the 9th district, but one will be active shortly. The second certificate is for working 100 YV stations! A third to be issued shortly will be in multi-colours showing all the shields of the numerous States of Venezuela and the rules for this award are now being drafted. Luis is very pleased with a card from VK1WO and is equally anxious to receive one from Bernie VK1ZM, as soon as Bernie gets settled down again.

Chas Hawker, ex-VKIAC, and active again under his old call sign of VK3IB, advises that he has answered all DX QSLs received, having sent out over 500 cards. Has now only VK and ZL to clear and the job will be finished. Chas is only answering cards received and despatching them via Bureaux unless the necessary coupons are enclosed for direct mailing.

MISSING NOTES

Closing date for copy is the 8th of each month. Any Division or Zone whose notes do not appear in this issue had not forwarded their copy up to the time of going to press.

VICTORIA

One of our recent new members of the Institute, Harry 3XI, is an Amateur who goes in for things in a big way. He is at present in the throws of building a new beam. He has pulled down his old beam which was a mere 3 el. rotary, 80 feet high. The new one when erected will be approximately 110 feet high. It will be a three over three on 20 with a five over five on 2 mx above it. He is erecting it on the ground; he had to buy the block of ground next door to get enough room to do this, and will haul it upright with pulleys and a winch. This will also enable him to make easy adjustments whenever necessary. He has his 20 metre gear operating nicely and is working on some new 2 mx equipment.

Ron 3RN's XYL Helen is convalescing at home after a major operation and Ron, for the present, has become chief cook and bottle washer. By the way, he has discovered a most delightful recipe for pumpkin scones if anyone would like to have it.

Len 3LN has gone "all hi-fi!" and Mr. Volts, Mr. Ampere and Mr. Ohms have got their noses out of joint, his new circle of friends include Mr. Bach, Mr. Beethoven and Mr. Brahms.

Alan 3AKZ, now a Doctor of Philosophy, has made a comeback to Amateur Radio after an absence of five years, three years of which were spent in England and the rest of the time just flat out studying. He has built up gear for 18 mx and during the past couple of months has had regular comebacks to his CQs, particularly from the ZLs.

Recently I had the personal pleasure of spending a day with Evelyn Scott, W6NZP, who, with her husband, is touring VK land. In each State she has visited she has made a point of looking up YL operators, also YLs interested in Radio (I came under that category). She and her husband are in a radio parts business for Amateurs in Long Beach, California, and although their interest in Radio is very great, their main interest while here in Australia is to see as many native Australian animals as they can, so we spent the day at the Sir Colin MacKenzie Sanctuary at Healesville.

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BOOKS!

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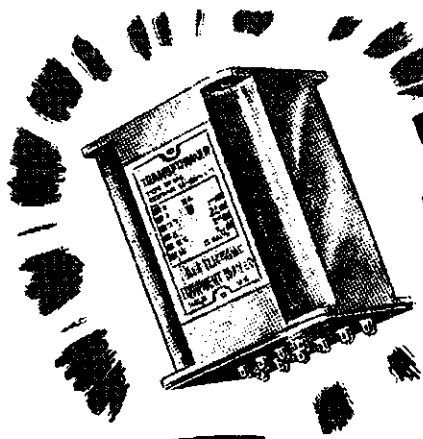
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QUEENSLAND

BRISBANE DISTRICT

With Frank 42M enjoying his annual three weeks' carousel at Tewantin, the notes this month are the sole effort of your Secretary, 4PR. On Thursday, 15th Dec., your Secretary had the great honour of being a guest at the Founders' Night Dinner, of the Institute of Radio Engineers. It was really a superb affair and the evening reached a climax with a speech by Mr. Britain, who is the engineering brains behind one of the commercial t.v. channels to open in Sydney this year. He had just returned from one of his many trips to the U.S.A. and Europe in connection with his job and gave a fairly complete picture of t.v. in those regions. A film on t.v., made for the U.S. public, was shown and though it mainly covered the sales potential of advertising by t.v., it set the lecture off properly. Mr. Britain then gave an hour or so to answering questions. One particular question by your Secretary on t.v. was answered fully and you can be assured that when t.v. comes to VK4 the brunt of interference suppression will not rest entirely on the shoulders of the Amateur as it did in the U.S.

Fortunately, t.v. interests here in VK have had the sorry state of affairs the Ws had early in the piece regarding interference as an example and are not going to be "caught" the same way. The bulk of U.S. rx's manufactured prior to the 21 Mc. band being opened to Amateurs had an i.f. of between 21 and 27 Mc., which really was disastrous. There was t.v. which the Amateur could suppress only by staying off the band and nothing but a new rx with a higher i.f. could fix the trouble. The Australian manufacturers have chosen an i.f. of well over 30 Mc., thus making this fault impossible here. Possibly in respect to t.v., the Federal Parliament's slow introduction of t.v. in Australia was a blessing to Amateurs because we have the experience of our brother experimenters, especially in the U.S., to fall back on.

It may be wise for Federal Executive to get in touch with the A.R.R.L. and that mighty guy, Phillip Rand, who has done so much in the field of t.v., and become acquainted with the troubles we can expect and how to educate the people so that interference caused by ignition and sundry unsuppressed electrical appliances will not be the signal for hot heads in the t.v. audience to lynch the local Amateur population. One thing is certain, with television we shall have a new era in which we will have to use a lot more care with construction of our gear and take a post graduate course in diplomacy to deal with people who would not get violent with a little b.c.l., but who will, possibly, be savage beasts with t.v.

While the I.R.E. Dinner was a tremendous success, the Christmas "Get-Together" of the W.I.A. in Brisbane was a dismal flop. Only 14 members and guests attended, to the disappointment of all, especially 42M who worked hard to make it a success. He had arranged to have catering for 25 and the small attendance put the Division a couple of pounds out of pocket.

To get on to a more pleasant subject, we are very pleased to report that one of our members, 4EB, came into quite a spot of good fortune. Peter won first prize in a recent Golden Casket and is better off by £6,000. Congrats., Peter! While congratulations are flying around, a hearty pat on the back to 7AI for his excellent article on pi networks. To have the first steps towards victory over t.v. when it comes, as it certainly will, we can't be more emphatic in our recommendation of the pi network in the final amplifier and the dope in 7AI's article. Personal pars, this month, have been sparse with 42M on leave, but let us hope the notes have been of some interest in their presentation. If any of our members have anything of interest that could be included in our notes, shoot them into us. 78 from 4PR.

MARYBOROUGH

4AI built a new grid dipper. Rumours that he is forsaking xtal control have been proven by the construction of a v.f.o. Alan claims that it only moves ten cycles when given a smart nudge with a sledge hammer. After a day's work and the help of some cobbers, 4BG's rotary 14 Mc. bird-perch was raised and after a few adjustments, is working according to Hoyle. Ron is now putting his 50 Mc. converter onto 21 Mc. Hands up all those who have done the same.

4CB plans an early come-back on 21 or 28 Mc. Has half completed his new t.v.-proof, tropic-proof, moth-proof tx. Still looking for someone to weld his 50 ft. tower together. 4AI and 4BG recently went to Gympie and inspected shacks at 4XR (found in the act of duplicating a Viking tx) and 4HZ, who has been playing with indoor 80 mx antennae.—4BG.

a noise. Some sporadic listening on 7 Mc. has revealed good conditions for local working. 3.5 Mc. has been so noisy, have given it away. Communication round Central Western Zone is defunct, therefore nobody knows much about what anyone else is doing. 3IB in middle of big re-building spree—new grid dip meter and a preselector utilising 6AC5, which gives better than 30 db lift on 21, 27 and 28 Mc. A brand new tx under construction, set up Geloso-807-813. Only waiting for panels and chassis to come back from sprayers to get on with the job. 3IB still gloating over 100 Kc. xtal won from Lorán C.R.O. in Disposals handout. Went to Melbourne recently to farewell IGA before he departed for Mawson.

3AX made New Year's resolution and contemplating making comeback with new tx in '58. Alan 3AJX was in throes of a complete re-build, but since 3YL and brand new harmonic have arrived home; probably full-time nursemaid, now Congrats to Alan and Audrey on arrival of a daughter. 3AKW has been busy making hay on the farm recently.

EASTERN ZONE

Due to pressure of work Keith 3SS, who usually writes the zone notes, has detailed me to do them this month, so here we go. There is great activity on 2 mx in the zone. Each Sunday night the 144 Mc. gang hold a hook-up, the stations operating are: Bill 3TY in Sale, whose sigs have been heard by 3RK in Melbourne although no two-way contact as yet. Graham 3QZ has a rig on 144 Mc. and works the local boys. Stan 3ZAB active on 144 Mc. Gordon 3TH popping up occasionally on 80 mx and working on 2 mx also. Joe 3TO has not been on 144 Mc. for a while as his rig is (or was) still in Melbourne, having been down there for the Exhibition. Rex 3VL and Gwen 3US have a new beam on 144 Mc. and are getting ready for 50 Mc. Jim 3DI is active on 2 mx and getting ready for 5 mx. Ron 3ZD working 144 Mc. every night with good results. A new call to the v.h.f. group is that of George Francis, 3ZCG. George was married on 28th January and the zone wish him and his 3YL all the best for their future happiness. George is motoring to Adelaide on his honeymoon and working 144 and 288 Mc. mobile and is looking for contacts.

Regular ones on the 80 mx hook-up are Ron 3PR, who is trying his hand at bowls; Martin 3AMV had the misfortune to burn up a trianite and has not been heard for a while; Keith 3SS pops up fairly regularly although pressure of work, plus holidays (on doctor's orders, he says), keeps him busy; David 3DY has his mind on everything bar radio at the moment, but hope he will soon join us in the hook-up again. George 3AOD is trying his hand at a little farming with dire results, due to rain, bad luck. George is awaiting the opening of the 10 mx band to work back to G land. Ian 3AAV went portable/mobile to VK5 during his holidays with good results from his much converted 101. Jack 3AJK still battling along with his 5 watts with good results and maintains a constant appearance on 80 and 40 mx. Graham 3QZ has his activities restricted due to illness of his 3YL. Hope she is getting better now. Graham, Ben 3ADE is working DX on 20 mx; would like to see you on 3550 Kc. sometime. Ben. Stations not heard on the hook-up for many moons are Ossie 3AHK, Leo 3SG, Lindsay 3IO, Bill 3WE, Jack 3FK, Cliff 3AJA, Kel 3AEP and Allan 3AFA. Would like to appeal to you chaps to please come on the hook-ups and make them something worthwhile.

Something of importance that is coming off this month is a v.h.f. field day to be held at Warragul. The V.h.f. Group, 3LN and boys are coming up to give us a demonstration of their gear. The proposed date is 28th February.

New associates are Alf Mc., Terry P., and Ray D.

GEELONG AMATEUR RADIO CLUB

Members have returned from their vacation to find a new Geloso v.f.o. for the Club's tx. The general discussion at the moment is centreing round what form the new rig for 3ATL will take. The tx hunt held recently was won by Ted 3AEH, closely followed by Kevin Mills and Vic Clarke. The location was at Mt. Duneed, about 5 miles from Geelong and the tx was taken out by Bill 3AWZ and Jim 3ABR.

The old bug bear, b.c.l., has reared its head again and some members are winding wave traps and orienting antennae to reduce same. Any advice will be very welcome. Glen 3ZBJ with Bill 3AWZ have worked several stations in Melbourne on 2 mx. Peter 3ZAV has also had some success on 2 mx. At the moment Bill 3WT and William 3BU are deeply absorbed in the construction of the T2FD antenna. Maybe we will hear them on 20 mx soon.

We wish all friends a happy year's activity, free of b.c.l. and QRM.

Their delight in our natural fauna was very gratifying to me, an Australian.

At the next general meeting, to be held on Wednesday, 1st February, at the Radio Theatre, Royal Melbourne Technical College, a lecture will be delivered by a member of the staff of the Radio School, R.M.T.C., on Television, and based on the t.v. commercial operators' license. The next Bi-Monthly Scramble will be held on Monday, 6th February. Rules can be found on page 12 of "A.R." for September, 1955.

80 METRE TRANSMITTER HUNT

A good crowd turned up for the final 80 mx Tx Hunt for 1955 which was held just before Xmas. Bob 3OJ, who hid the tx, picked out a very picturesque spot on an old disused golf course out towards the Warrandyte area. Bob buried the tx in the ground and covered it over with loose rocks. He used a bow and arrow, the bow of which was very large, to shoot the antenna up into some tall trees. The air line direction of the signal from the starting point drew most of the competitors out along the Old Warrandyte Road and between the tx and this road, although not a very great distance in actual length, there was very dense bushland, quite impassable with a car. This was exactly what Bob had hoped for. 3LN, the winner, took an hour and a half to locate the tx and was followed a quarter of an hour later by SADU and 3ALY, who dead-heated for second place. With beautiful trees affording shade from a fairly warm sun and delightful views along the undulating fairways of the old golf course, it was a very lovely spot for a picnic. The day concluded with a picnic tea on a very green grassy spot which we felt may have at some time been the seventh green.

The first transmitter hunt for 1956 will be held on Sunday, 5th February, when 3LN will hide the tx. These tx hunts are held approximately once a month, the dates being advertised over the Sunday morning broadcast from SWI. They are held on a Sunday afternoon commencing at 2.30 p.m. from the plantation in College Crescent at the rear of the University. The frequency of the hidden tx is 3518 Kc.

Build up some gear and come along to the next one, bring the family and friends and a picnic tea and we can assure you of an enjoyable afternoon out with a friendly crowd whose interests are similar to your own. Even if you are not equipped with 80 mx gear it is still an enjoyable outing for you and the family and the antics of the competitors looking for the tx usually prove most amusing. During the summer months top the swim suit in just in case, as these hunts finish up at a variety of places.

NORTH EASTERN ZONE

George 3GD and Vern 3AXW have been heard on 40 mx. Tom 3TS has not been heard using his beam. Associate Jim Harrington now operates on a VLS net to Euroa. Les 3ALE has been slowed down with '88 in the family. Earle Scoones is hard at study. Johnny 3ACK is concentrating on his photography business. Peter 3AFP is on 5 mx skeds. No details of the 2 mx operations of Syd 3CI and Alan 3UI. Keith 3JC is still on his house-building. Ray 3FI is settling in Shepparton, with ambitions re Amateur Radio. Murray 3HZ and Alex 3AT do not get a mention this time, but Bruce 3AGG, now minus his b.c.l. problem, is on 20 mx along with Brian 3ASF, Howard 3YV, with an article in last month's "A.R." is still on the colour photography. Henry 3HP is well occupied with his VLS skeds and Ron 3AQQ has his rig on 80 mx now.

Des 3BP is in strife again with the wind and his antenna system. Jim 3JK is doing well on 21 Mc. Bruce 3QC is working on essential modifications to his caravan, and Jack 3AKC is now in business in Wangaratta. Bill 3AWQ is collecting some gear together. Frank 3ZU is after a parasitic in his tx p.a. Kevin 3IR is still inactive and Ken Mercer is keeping quiet. Ken 3KR is understood to be the first zone member to work Doug. VK1IJ (on Macquarie Island), who is in turn growing a beard. Jack 3PF is doing routine work on VLSQB. Bill 3JP holidaying with the 3YL and family in Brisbane. We all hope Keith Cakebread was successful at the last A.O.C.P. Morse exam. Vic 3ABX has not been seen lately, but Hugh 3AHF is believed to be still about, and lastly, Des 3CO expects to have to re-organise the Lazy-H after the recent wind.

At the moment, the zone hook-up will continue on 7050 Kc. each Sunday at 1330 hours. SWI will advertise any changes.

CENTRAL WESTERN ZONE

3IB activity: Lots of DX on 14 Mc. c.w. to the tune of seven new ones for the past month, making total of 77 countries chalked up now. Occasionally hear Allan 3HL on 14 Mc. making

TOWNSVILLE

The last meeting of T.A.R.C. did not have much of a roll up due to inclement weather and it spoilt the trip to the T.R.E.B. power station under guidance of 4RU, so Wally promised to do the escorting at a later date. Quite a lot of discussion took place re 144 Mc. hook-ups and it seems that finance is the bug bear with most of the chaps and then again some wanted it to be 50 Mc., so it looks like only four will be on 144 Mc. at the most. Good luck to the chaps who are interested as the others may follow if you keep plugging.

4BW has had almost 800 QSOs at 7 a.m. on 7 Mc. during the last three years with Harry 4ZF. 4EJ holidaying at Magnetic Island and day dreaming of new antennae to be built in New Year. 4BE only active on 21 and 28 Mc. and has ZL Special for both bands. 4LK still hoping that 50 Mc. will open up and give him a few contacts for contest.

4DK looking further afield as is now on 14 Mc. chasing DX. 4RW hoping four new countries worked during the month will QSL; has now 160 confirmed out of 175. 4PS heard at 4LR's shack working 4JH on 50 Mc., but they cannot break the sound barrier to 4LK, who keeps a close watch for them. 4WH wondering how the floods will treat him in coming wet season and still trying to get the old bus running. Buy a new one Ed and give the boys a shock. 4ZO in Collinsville hoping to get on 7 Mc. to work Townsville gang. 4NT, our boy from the bush, cutting his teeth with new call sign and working all and sundry; asking for ideas on best antenna to use. Well boys, here is hoping 1956 gives you plenty of DX.—4RW.

SOUTH AUSTRALIA

The Xmas meeting was very informal due to the foresight of Dougal 5BY, who moved that normal business be suspended after new members had been passed and the cards distributed. Entertainment went with a selection of films was the order of the evening and Lloyd 5OK had procured a very fine colour film on the subject of cheese. Those who were not there might wonder how we found such a "documentary." Well, it depicted the old world scenes and places where these differently named kinds originated, and as the film was made in Hollywood, need I add more?

Our official guest for the evening was one of the Institute's original members, Mr. Geoff Clarke, who thoroughly enjoyed his return into the ranks. In his official capacity as a Member of Parliament, Mr. Clarke thanked the members of the Institute for their generous offer to assist in the Emergency Fire Services, and mentioned particularly the valuable ground work that Jim Sullivan, 5JK, had done. We had also with us our friend, 5RC, R. Bennett, Esq., whom we invited so that he could let all his friends see that he was well alive and full of his ready-wit still—in spite of the President and his Past President!!

John 5HI was thoroughly enjoying himself renewing many contacts, and it must be ample reward for those who make it possible for John to be present when they look upon John's happy face. It was good to see Alan Heath and Bob Scott battling along with the regulars. Don't make it too long before you appear again chaps. Tom 5TL sent along his greetings to the members via Howard 5XA, who runs a regular sked with Tom on Sunday mornings on 20 mx.

The Short Wave Listeners' Group held their December meeting on the 19th in the Central Mission rooms. It was a social gathering to which I was invited, but unfortunately I could not make it. For 1956, the meeting night has been changed to the third Monday in the month, 20th February being the first night.

Around the town, activity on the h.f. bands is improving. A call has burst on to the air after a long absence, namely 5KH, Keith. Glad you have made the air again and also the Xmas evening. Joe 5JO busy building a shack to out-do all shacks—looking for future contracts Joe? Carl 5SS, with his new call, passing his enforced rest using the Institute's Type 3 to good effect; the first call is always the worst Carl; the agony of indecision changes to that never forgotten thrill when back comes that call we've worked so hard to own. Whilst I am on new call signs, remember chaps that elevation to full membership is NOT automatic. Application to Council is necessary; some members have not yet applied!

Council at its January meeting discussed the advisability of having a T.V.I. Executive Committee and although as of writing no members have been appointed, Councilors have been detailed to approach those technically equipped to deal with t.v. with the object of getting them together to form the Committee. We must not leave our attack until the har-

monics have escaped! Jack 5JD, who has been an able Federal Councilor for quite a few years now, was reappointed for another term of office (in his absence of course). Thanks Jack, you might be the passenger on the F.C.C. wagon, but you'll have plenty on your back at the Federal Convention. I hope to be the "fly on the wall."

SOUTH EAST ABEA

At the Mount, the monthly meeting was held a week earlier because of the holidays. There was a good roll up with Vic 5JH visiting to partake of the bottles of Xmas cheer. No lecture for the evening, but by the time the last echo had died all had W.A.C. and D.X.C.C.—counting those that got away of course! Those visiting the fair city over the holiday period that made themselves known were 3ATN, from Birchop and our worthy Treasurer, Jim 6FO. Stuart 5MS, 3ATN and 5JH spent very pleasant afternoon with Bram 5AB at Hynam, arriving just in time to hear Bram having his first QSO on 40 mx (which parasitic was that Bram?—Sub Ed.). Good 40 mx signals reaching Adelaide, too, from Claude 3CH with Tom 5TW assisting. Hadn't worked Claude before, so do not let's stop there for 1956; glad to know that a good recovery has been made.

Col 5CJ has been active on 40 mx, but nothing heard of the others—understand ER 5KU spends lots of time "fishing." Stuart 5MS still getting a bit of DX on both 15 and 20 mx; reports coming in seem to compliment the 15 mx band (check on the B.B.C. on 21.710 Mc. at 0600-0645 GMT chaps for European contacts). The boys from the S.E. pass their 73 for 1956 to you all.

AYBE'S PENINSULAR

Have been working Wally 5DF pretty consistently each Sunday. Wally hopes to make Adelaide by the time you read this. Jack 5VJ heard at good strength over the holidays. Norm 5YM active according to reports, but haven't worked him yet. Bert 5OR worked with good strength until QSB took us both out; hopes also to make Adelaide for February. With the extra power Bert you should have some good DXing. Bert also very interested in 144 and 288 Mc. and hopes to get the "gen" when on the main land. George 5EC taking a holiday from his duties at Ceduna, should make the meeting. Am very glad that you have been able to make it after so long. George reports that Clarrie 5KL, of 6 mx fame, is now at Air Radio in Ceduna. When will we hear that call again Clarrie? Not too far distant, I hope.

NORTHERN DISTRICTS

Compton 5EF has forwarded his manuscript. Very good; that makes two from the country, and two from the city. Who is going to win? Our record is close in sight so keep it up chaps (Wally 5DF also sent one in). Bob 5EI usually puts a good signal in from Mt. Bryan and is looking for 144 Mc. signals too.

2AGZ, in Broken Hill, increasing power and improving beams, but don't look for S9 phone signals; c.w. contacts will be the initial break to start with; usually late summer or early autumn. Don 2AMN (ex-5TM) heard for the first time contacting Dave 5BF. Would have liked to have had a yarn myself, Don, but time was against me.

And now I bid you adieu and maybe Jack will be over his shipping troubles by the 8th of February and he'll be looking for the news from you all.—5XU.

WESTERN AUSTRALIA

In the near future it is expected that a visit to the Kurlnana Oil Refinery will be arranged. Few details are to hand at present, but dates have been tentatively fixed at either the 17th or 24th March. It will be noticed that these dates are Saturdays. Full details will be given over 6WI when available. Numbers will be strictly limited. Any country members who will be in town at the time will be welcomed. Watch for further details.

Don 6HK and Wally 6ZAA recently left for a three weeks' tour of the Eastern States. They took portable gear for 7 and 144 Mc. 144 Mc.: There wouldn't be a v.h.f. contest on would there Wally?

Your scribe, along with 20 to 30 others, complete with cars and portable gear, recently participated in the V.H.F. Group's first fox hunt (2 mx). The fox proved to be very elusive, but was finally run to earth by 6ZAD. Many hunters arrived complete with maps, compasses, protractors, etc. Ralph, however, just followed his nose. Wally 6ZAA made an important discovery—12 (volts) into 8 (volt filaments) won't go! One lady was heard to observe that it should be called a pig hunt, seeing that we are all "Hams"!

The question of the election of Federal Councilor is before us, and must be finalised by 17th January. The question is rather a sticky one as George 6GM has declined to nominate again, after filling the post for 20 years. Our thanks are due to George for his sterling service.

Tom 6MK recently returned from a tour of England and the continent. He may be heard nightly, warming up his new beam, working America and Europe. Len 6LG has been doing some re-organising in his shack. Haven't heard him for some time since he finished that job so I guess he must be doing something with some 35Ts. Heard the "Voice of Norseman"—Terry 6TK—for the first time for some weeks recently. How's the caravan progressing Terry? Believe Kevin 6KO has little time for Amateur Radio since they opened that Olympic Pool in Merredin. All the best for 1956—a trifle late perhaps, but this writing a month ahead!—5BE.

TASMANIA

News this month seems to be as scarce as DX on 2 mx. I am not quite sure which is responsible—the holidays or the weather, but whatever it is, I am agin it. Somehow or other, I have beaten the gun again, and this time I moved Len 7LS before he was ready. However, I feel confident that 'ere this hits print, he will be in his new QTH. Queenstown seems to be suffering from an exodus of Amateurs, and Harry 7BR will be leaving shortly for Bronte. Harry has recently acquired an AMR 300, so you will have to watch him Reg, or he will take all the DX away from you.

Leon, it looks very much as though Queens-town is in your hands, so you had better order another half dozen 80Ts. Ah now, here is one I can move with a reasonable degree of accuracy. Ted 7FJ has moved to Springfield and is now only a very short distance from my QTH. Methinks I shall have to apply for a high power permit, and then, even if I can't drown him out, I might manage to induce a few eddy currents in that trophy.

Tom 7AL is playing around with a new converter which shows promise of being really hot. With bandswitching from 80 to 10, and a T2FD waiting to be hooked up to it there is no telling what will happen. Hope you have a good stock of QSL cards on hand Tom.

Joe 7BJ heard on 40 mx, working the Federal station 3WIA. By the way, Joe, what really did happen to that 2 mx converter? Rumour has it that you gave it to 7AL in exchange for his plans of an improved, un-terminated T2FD.

In Launceston recently, the lights dipped in brief salute as Max 7CA found himself across the main h.t. Really cute the way these young harmonics catch on Max. Would you care to say a few words on behalf of all bleed resistors? Sorry Pal, we can't let you broadcast that Len 7LE and Bill 7WG are enjoying recreation leave at the time of writing. Every now and then I give Bill a gentle nudge, but as yet it is of no avail. However, I shall press on, undaunted. I will get him back on the air yet.

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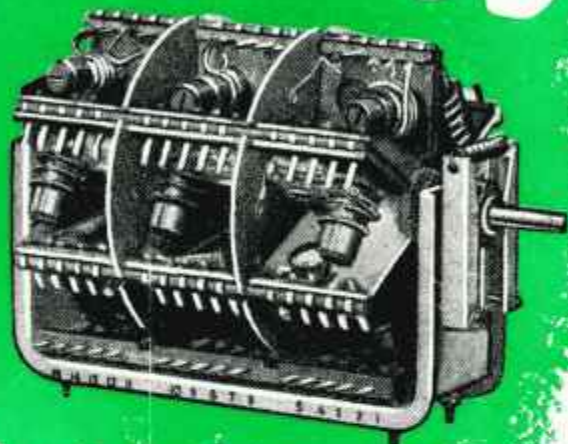
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VK3WI: Sundays, 1130 hours EST, simultaneously on 3573 and 7146 Kc., 51.016 and 146.25 Mc. Intrastate working frequency 7135 Kc. Individual frequency checks of Amateur Stations given when VK3WI is on the air.

VK4WI: Sundays, 0900 hours EST, simultaneously on 3580 and 14342 Kc. 3580 Kc. channel is used from 0915 hours to 1013 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 VK5VI by arrangements on all bands to 50 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



FEDERAL CONVENTIONS

When a man's stomach is full and his appetite is satisfied, like other animals, he is usually content to drowse and ignore the world in general. On the other hand when the gnawing pangs of hunger bite at his vitals, he becomes ferocious and voracious.

Judging by the growing clamour for more privileges and the removal of irksome restrictions, members of the Institute are awakening from the lethargy which has been apparent since 1953. There is a general awareness of the necessity for united action on the part of Divisions.

How can united action be best achieved?

The answer is obvious. "Federal Council must meet and thrash out a course of action."

In 1953 at the Twenty-third Convention it was decided that owing to increased costs and the lack of contentious items—following intensive and successful post-war campaign—Annual Conventions were an unnecessary financial drain on the Divisions. Council therefore resolved that the next Convention would not be held until business of sufficient importance to warrant the expense arose. In the meantime, Divisions

were morally bound to create a fund and set aside a reasonable amount each year in readiness for this event whenever it occurred.

Since 1953 a new Division—VK9 (Papua and New Guinea)—has been formed. Problems have arisen concerning: Constitution, Contests, Band Allocation, Mobile, Novice and TV Licenses. Hence it now appears that Council must meet as soon as possible.

While much of the business of the Institute can be, and is, conducted by mail, there is no known substitute for personal contact and round table conferences when matters affecting high policy are involved. Furthermore, such personal contact is essential to maintain proper liaison between Divisions and avert the calamitous drift from "Federation."

"United we stand—divided we fall."

How can YOU expect Federal Executive to carry out your wishes unless you issue instructions through your Federal Councillor.

Keep yourself informed of Federal affairs, demand action now through the right channels. Don't waste energy on individual campaigns, boost and use the Institute's strength to the full.

FEDERAL EXECUTIVE.

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Experiments with 144 Mc. Underground

BY P. J. HEALY,* VK2APQ

ON Sunday, 4th December, 1955, a party consisting of members of V.h.f. Group of the N.S.W. Division of the Wireless Institute of Australia and the Sydney University Speleological Society, carried out some very interesting experiments on 144 Mc. in the Jenolan Caves area of N.S.W.

The aim was to ascertain if communication was possible between different sections of the caves using 144 Mc. Walkie-Talkie equipment. It was with some doubt as to what measure of success would be achieved, that the trip to Jenolan Caves was made by Perc. Healy, VK2APQ; Ted Howard, VK2XX; Charlie Fryer, VK2NP; Horrie Laphorn, VK2HL; Vic Cole, VK2VL; John Thornthwaite, VK2ATO; Bob Ridgley, VK2ZAR; Cec. Cronan, Darrell Price, Wal Jacobs, who were joined at Jenolan by Brian O'Brien, Cres. Wallace, Laurie Bishop, Adrian Hunt, Tom Draper, and John Lehane, of the Sydney University Speleological Society, but the results achieved were beyond all expectations as the following details will indicate.

The equipment used consisted of four walkie-talkie units, including one crystal-controlled and three modulated oscillators, all with super-regenerative receivers, each with an input to the final stage of approx. 0.4 watt. The mobile units were two crystal-controlled transmitters running 6 watts input, receivers, a super-regen. superhet., and a Goon set. Antennae were quarter wave whips on the walkie-talkies, a three element beam and a gallows on the mobile units.

The first experiment was carried out in the Glass Cave, which is not open to the public. This cave is located about half a mile direct air line to the north of the Caves House, "accessible" by track requiring a two-mile trip over the ridge and down a 700 foot drop with numerous hairpin bends.

the floor of the valley to the cave mouth "B", a distance in a direct line of approx. one-third of a mile. The track from the car to cave was through a gorge along the river bed, then the 150 foot ascent.

Fig. 2 is a scale plan of the interior of this cave, and indicates the relative positions of "C" "D" "E" and "F" from which tests were made.

Three parties, equipped with walkie-talkies, entered the cave and operated from positions "C" "D" and "E". The plan was to endeavour to relay information back to "A" via the fourth walkie-talkie located at "B".



An interior view of Cavern "C" in the Glass Cave. The ladder descends down 25 feet. Refer Fig. 2.

It will be noted from Fig. 2 that the entrance to the cavern "C", which is 50 feet high, is made through a very narrow chimney and a drop of 25 feet to the floor. While to "D" required a 20 foot climb through a narrow neck to a chamber 15 feet high, and to "E" through a "Flattener" about one foot high to a chamber 15 feet high.

The first test made was between "B" and "C", the path between "A" and "B" had been previously checked by all parties. Signal reports were exchanged at readability 5 strength 7. When "B" relayed to "A" that contact had been established with the first link inside the cave at "C", signal report was R5 and S6. It was then suggested that "A" and "C" listen for each other, assisted by "B" as monitor, and to our amazement contact was made with signal reports of R5 and S7 to S8 each way, both "A" and "C" reporting they were copying each other better than they were copying "B". As "B" was then superfluous in the link, it was decided that "B" would make checks on signals away from the mouth of the cave, and found that signals from "C" were stronger at the foot of the slope than at the cave mouth, but as the other stations inside were in contact with each other, no check was made with "C".

Signal reports between locations "C" "D" "E" and "F" were always R5 and S8, proving that 100% reliable communications can be maintained intra Cave.

Tests made between "A" and "D" were R5 and S7, while from "A" to "F" signals were barely readable, apparently due to the narrow neck where "F" was located.

No checks were made between "A" and "E" although the signals from "A" were heard at "E".

The distance from the car station at "A" to the limestone bluff "X" (see Fig. 1) was about 1,000 feet and a further 700 feet of limestone between this point and the interior of the cave. Although no cross bearings were made, it appears that signals were received through the limestone rather than by ducting effects through the cave entrance, which the sketch (Fig. 1) shows was very well shielded in direction of the base station. Peaking the signals by use of the three element beam gave a definite indication that they were being received in a direct line and not by reflection from the surrounding cliffs.

The second experiment was made from the Orient Cave, which is one of the tourist caves, and is very much different in layout to the Glass Cave. The entrance to the Orient Cave is through a 380 foot tunnel, 8 feet high by 3 feet 6 inches wide (see Fig. 3) to a small cavern "D". Then through a companionway 7 feet high by 2 feet 6 inches wide, being covered on top and both sides with a ¼ inch wire mesh for a distance of twelve feet opening into the main cavern "B", which is 50 feet high.

The mobile station was located in a car "A" (see Fig. 3) about 400 feet below the top of the mountain and 50 feet from the start of the limestone slope, which rose at an angle of 60 degrees to the horizontal. All stations were within 10 feet of the same horizontal datum.

The portable unit was the crystal-controlled walkie-talkie with a quarter wave whip antenna and approx. 0.4 watt input to the final. Checks were

PLAN OF AREA

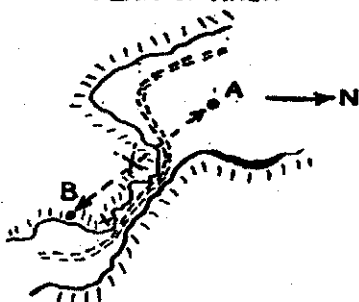


Fig. 1.

Entrance into the Glass Cave is made through a very narrow opening located 150 feet above the valley floor, necessitating a climb up a steep slope of approx. 35 degrees from horizontal, to the base of a limestone outcrop.

Fig. 1 gives an indication of the position of the cars operating as base station "A" located on the river flat in

THE GLASS CAVE

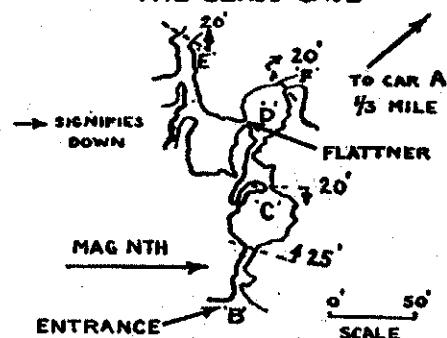


Fig. 2.

* 69 Taylor Street, Bankstown, N.S.W.

made in the tunnel where signals averaged R5 and S5. From the small cavern "D" signal strength increased to R5 and S7, and upon entering the wire mesh covered companionway, signals were completely inaudible. However, in the main cavern clear of wire mesh and guard rails, signals were exchanged at R5 and S8. The distance between "A" and "B" in a direct line was 580 feet, while the walking distance from the entrance of the tunnel to location "B" was 660 feet.

Directional checks made from the car "A" during the transmission periods from inside the cave showed a shift of up to 50 degrees away from the mouth of the tunnel when checks were being made from cavern "D", and a change of 20 degrees back towards the tunnel entrance when transmissions were made

determining the refraction of signals through the limestone and more accurately determining the path of signals.

It would appear that very good use could be made with v.h.f. links in cave search and rescue work, the exploration of cave systems, also the exact pin-pointing of certain areas inside the caves by using mobile units with directional antennae located at various positions outside. These points will be investigated on the next expedition.

Sidelights of the trip were the night spent by VK2HL, VK2NP, VK2VL, and VK2ATO when the deep freeze set in and it snowed, while they were prepared for only a summer's night; a trip through a light snow storm by VK2XX, VK2APQ, Cec. Cronan and Darrel Price when the contact with VK2HL was possibly the first mobile contact on 144 Mc.

ORIENT CAVE

SCALE 1 INCH = 40'

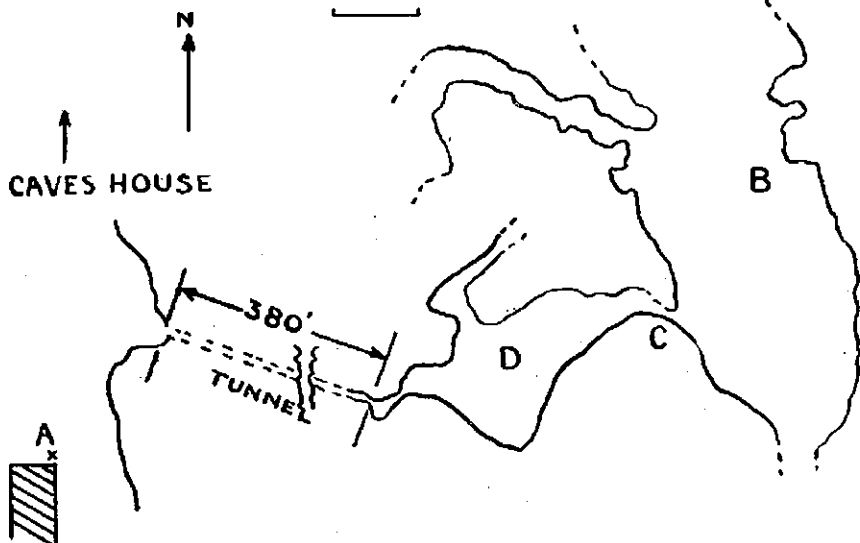


Fig. 3.

from the main cavern "B". It was noted that strongest signals were received by both stations when the portable unit operated from "B" and "D". An important point in these checks was that in the large cavern "B" signals were very much stronger than in any portion of the narrow tunnel despite the 100% increase in distance.

The limestone outside the marked section of Fig. 3 is solid and uniform, therefore it seems certain that signals were received over the direct path rather than by ducting through the tunnel.

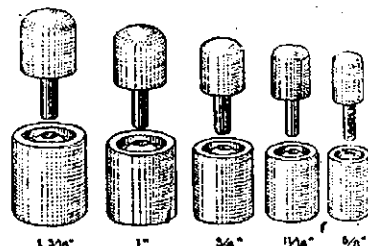
As it was getting late in the day, and it was about 120 miles' trip back to Sydney, further tests could not be made. However, a further test is already being planned when cross bearings will be taken, together with checks on top of the mountain immediately above the caverns, with the view of

made in N.S.W. during a snow storm; the inability of VK2APQ to negotiate the chimney in the entrance to the Glass Cave, reason being the chimney was too small; the reconnoitring carried out by VK2ATO and VK2ZAR using their walkie-talkies which enabled the drivers of the cars to make the trip down the 700 feet drop and back up again.

I wish to acknowledge with thanks and appreciation the co-operation of Brian O'Brien,† B.Sc., President of the Sydney University Speleological Society, in arranging for these tests to be made, and for the assistance in the preparation of notes and maps for this article. Also to Mr. Best, the Director of the N.S.W. Government Tourist Bureau, and Mr. Finney, Superintendent of the Caves, for the help and co-operation they have rendered in making these tests possible.

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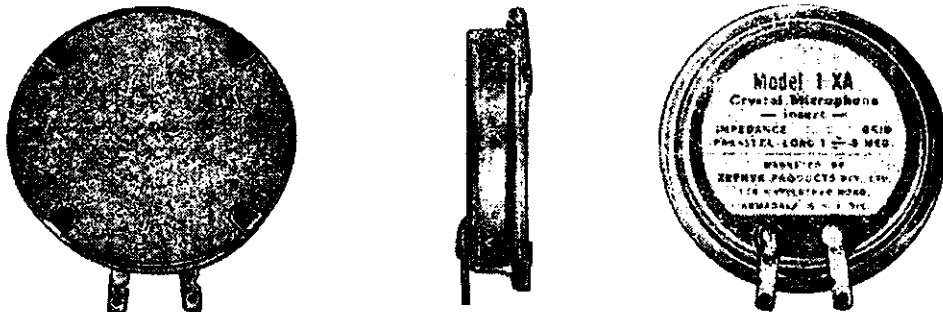
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One of the connecting lugs is directly connected to the case and care should be taken to solder the metal shield of the microphone cable to this solder lug, keeping the unscreened portion of the centre conductor as short as possible to eliminate hum pick-up.

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Transformer Theory and Practice

PART TWO

BY V. J. McMILLAN,* VK2AWN

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At this point we must consider another aspect of modulation transformers and that is the provision of, and reason for, the air gap in the iron circuit.

If you can remember the fundamental theory dealing with direct current solenoids, you will recall that the magnetic flux, produced in a core, is a function of turns and current flowing through the turns. Forget for a moment that our modulation transformer is a transformer, and look on it as a direct current solenoid wherein the turns are the secondary turns of the transformer, and the current flowing is the direct current supplied to the transmitter. We thus have all the elements of a direct current solenoid, i.e., turns, current flowing and an iron core. Under these conditions the total flux generated in the core is only limited by the value of ampere turns, and the magnetic reluctance of the core. In a core which is built up of overlapping laminations (which is the normal way to build a transformer) the magnetic reluctance is very low and so the total magnetic flux in the iron circuit is high. If we introduce a definite air gap in the magnetic circuit, the reluctance of the magnetic circuit is increased. The actual increase depends on the length of the air gap.

We thus have a means of controlling the initial flux density in the core due to the magnetising effect of the steady direct current.

The saturation value of transformer steels is usually of the order of 20,000 lines per square centimetre. Our modulation transformer must be so designed that at maximum signal input the saturation value of the steel is not exceeded.

"B" is steady-state carrier without modulation, and "C" is peak value of the modulating signal "D".

Fig. 4 actually shows the flux conditions in the modulation transformer core.

"A" in this case shows zero flux.

"B" is the level of steady-state flux due to the direct current supplying the r.f. carrier.

"C" is the level of peak flux reached in the core when subjected to the modulating flux "D".

"D" is, of course, the actual signal in terms of a.c. voltage.

The reason for the air gap in the core of a modulation transformer should now be quite clear. The point now arises—how do we calculate the required air gap? There are several ways to do this, but the easiest way, in the opinion of the writer, is to neglect the reluctance of the iron core itself and simply calculate for the air gap alone. That is to say, we assume that the core requires no magnetising current, the air gap requiring the lot! This assumption is not as screwy as it sounds since the greater part of the total magnetising current of a transformer is required for the air gap. This leads to a very simple calculation for the air gap, viz.:

$$\text{Air gap in inches} = \frac{0.71 \times A \times N}{B} \quad (e)$$

Legend:

B = Flux density in lines per square cm.

A = Amps.

N = Secondary turns on transformer.

0.71 = A constant.

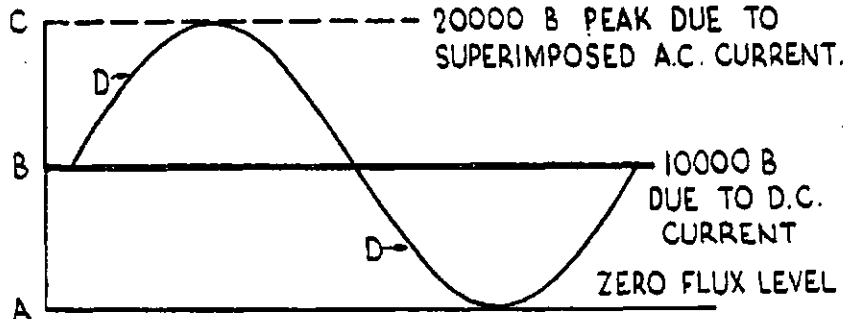


FIGURE 4.

ceeded. If we attempt to go beyond the saturation value, the excess signal input to the transformer primary does not appear on the secondary side.

Without going into the mathematics of the theory, it is sufficient to state that the initial direct current flux density in the core must not exceed 10,000 lines per square centimetre. Under this condition, the maximum flux density in the core with 100% modulation, does not exceed 20,000 lines per square centimetre.

Fig. 4 shows a familiar curve. It is more familiarly known to Radio men as the "modulation envelope" where the "A" line represents zero carrier,

The above legend requires some qualification. The value "B" is the value of B max. as calculated from the usual transformer formula. (The effect of d.c. does not come into this calculation.)

The value "A" is the r.m.s. value of alternating current flowing when the flux density in the core is the above value of B (flux density).

Again, without going into the theory of why, it is sufficient to say that to obtain the conditions as shown in Fig. 4, the value of "B" must be 14,100 lines per square centimetre, and the value of "A" in r.m.s. amps. alternating current must be the same value as the direct current supplied to the transmitter.

In our previously considered 60 volt-amp. transformer, let us assume that the secondary turns are 1640. Since the secondary voltage is 467, we find that the core section will be about 1.41 square inches (net) for a flux density of 14,100 lines per square centimetre at 50 cycles. We have previously considered that it is carrying a transmitter load of 0.1747 amps. direct current. From (e), therefore, we find that the air gap under these conditions will be:—

$$\frac{0.71 \times 0.1747 \times 1640}{14,100} = 0.0144 \text{ inches}$$

The value obtained by this calculation is only approximately correct, but it does show whether the air gap figure is practicable or impossible to attain. The actual air gap must be adjusted by testing the completed unit at a voltage, current and frequency corresponding to the values substituted in formula (e). Incidentally, it is most important that, for the purpose of formula (e), the frequency assumed to determine the value of "B" is the lowest frequency it is desired to reproduce. (In our example we took 50 cycles as being the lowest frequency.)

We have yet to consider the required turns ratio of our modulation transformer. Let us assume that we wish to use a pair of 807s in AB2 to provide the necessary 60 watts of power. We require to know what d.c. voltage and current they will need to provide this power. From these figures we can determine the turns ratio of our modulation transformer.

Power output calculations are somewhat involved and require a knowledge of factors which are not readily available to the average Amateur. However, the following formulae will give the required information with a reasonable degree of accuracy for class AB2 operation. The formulae do not apply to triodes.

$$\text{Power Output (W)} = E \times I \times \text{Efficiency} \quad (f)$$

$$\text{Transformer plate to centre tap voltage (V) (in r.m.s. alternating current value)} = \frac{W}{I \times 1.11} \quad (g)$$

$$\text{Plate to plate impedance (Zp) (in ohms)} = \frac{(2V)^2}{W} \quad (h)$$

Legend:

E = Direct current applied voltage.

I = Direct current supplied to the anodes.

W = Power output in r.m.s. watts.

1.11 = A constant.

In our example we require 60 watts of output from the modulator.

From published data on 807s in AB2 service, we know that the maximum anode(s) current is 0.24 amps. The efficiency we also know will vary from about 50% to 66%, depending on applied anode voltage and permissible distortion. From our knowledge of these facts and the use of formula (f), we find that an applied anode(s) voltage of 450 volts should be suitable, since:—

* 26 Waters Road, Naremburn, N.S.W.

From formula (e)
 $450 \times 0.24 \times 55.5\% = 60$ watts.

The plate to centre tap applied voltage will be:—

From formula (g)
 $\frac{60}{0.24 \times 1.11} = 225$ volts (r.m.s., a.c.)

The plate to plate impedance will be:—

From formula (h)
 $\frac{[2(225)]^2}{60} = 3375$ ohms

We do not actually require to know the plate to plate impedance, but the author has shown the calculation as a matter of interest.

As shown above, the plate to centre tap voltage is 225 volts. Obviously the plate to plate voltage is twice this value, that is, 450 volts.

Referring back to our example, we said that the transformer was modulating a transmitter load of 600 volts and 0.1747 amps. Since we cannot exceed 100% modulation (without taking steps to avoid splatter), the peak a.c. voltage which we can apply to the carrier must not exceed the d.c. voltage. Since all transformer calculations are carried out on the basis of r.m.s. values, we must convert the peak value of voltage to a r.m.s. value, viz.:—

$$600 \times 0.707 = 424 \text{ volts r.m.s.}$$

This 424 volts is the actual voltage we require across the load, but as we have seen, we must make allowance for the internal resistance drop of the transformer (at low frequencies).

As was previously mentioned, the actual load is 3435 ohms plus an additional effective transformer resistance of 148 ohms. The total no-load secondary voltage must therefore be:—

$$\frac{424 \times (3435 + 148)}{3435} = 443 \text{ volts approx.}$$

We assumed that the secondary had 1640 turns on it, so that the total primary turns must be:—

$$\frac{1640 \times 450(V)}{443(V)} = 1668 \text{ approx.}$$

A centre tap must be brought out at 834 turns.

Most of the calculations are now completed for our modulation transformer. One thing you will note is that the start of all calculations springs from the known required output voltage and current. On these small transformers it is usually sufficient to base the required output on the actual load plus 10% (for transformer losses). The required primary turns is the last item to be calculated.

The only factor we have not yet considered is—how to predetermine the transformer leakage reactance.

TRANSFORMER LEAKAGE REACTANCE

There are many formulae used to predetermine transformer leakage reactance. Every transformer manufacturer has his own pet theories on this subject. For our purpose we will only consider one which is applicable to our particular case, viz.:—

$$\%X = \frac{A.T. \times M.T. \times (A + B + 3C) \times F}{S \times 3 (A.L.) \times V.T. \times 50 \times 1000}$$

where: (k)

- A.T. = Total secondary ampere turns.
- M.T. = Mean length of leakage space in inches.
- A = Effective depth of primary winding in inches.
- B = Effective depth of secondary winding in inches.
- C = Space between primary and secondary in inches.
- S = Number of winding sections.
- A.L. = Winding length plus (A + B) ÷ 3 (approx.) in inches.
- V.T. = Volts per turn.
- F = Frequency.
- 50 = A constant.
- 1000 = A constant.

This formula only applies to a transformer that has the primary and secondary windings arranged concentrically, i.e. one wound over the other.

We will consider, as an example, a transformer rated at 5000 volt-amps. (5 kVA.) single phase, 50 cycles, with one primary and one secondary coil, and a voltage ratio of 240/480 volts. At 5000 volt-amps. rating the secondary (480 volt-) current will be:—

$$\frac{5000}{480} = 10.42 \text{ amps. (approx.)}$$

The primary turns are 178 and the secondary turns 356. The coil dimensions, shown as a centre line section in Fig. 5 (all dimensions in inches) are:—

- A = 0.36 inches
- B = 0.84 inches
- C = 0.33 inches

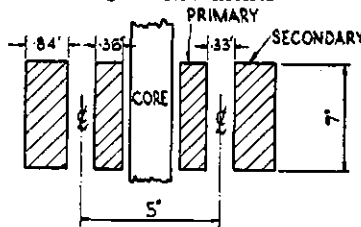


FIGURE 5.

Assuming that the coils are wound on round cylinders, the value of "M.T." in formula (k) will be:—

$$5" \times 3.14" = 15.7 \text{ inches approx.}$$

The value for "A.L." in formula (k) will be:—

$$7" + \frac{0.36 + 0.84}{3} = 7.4 \text{ inches}$$

The value for "A.T." in formula (k) will be:—

$$356 \text{ (turns)} \times 10.42 \text{ (amps.)} = 3710 \text{ approx.}$$

The value for "V.T." in formula (k) will be:—

$$\frac{480 \text{ (volts)}}{356 \text{ (turns)}} = 1.35 \text{ approx.}$$

The value for "S" in formula (k) will be 1 in our example since there is only one winding group. In general, the number of winding groups can be taken as the number of separate spaces between primary and secondary coils. More of this later.

We now have all the information necessary to determine the percentage leakage reactance of this transformer at 50 cycles.

From formula (k):—

$$\%X = \frac{3710 \times 15.7 \times [0.36 + 0.84 + 3(0.33)] \times 50}{1 \times 3(7.4) \times 1.35 \times 50 \times 1000} = \frac{3710 \times 15.7 \times 2.19 \times 50}{1 \times 22.2 \times 1.35 \times 50 \times 1000} = 4.26\% \text{ approximately.}$$

Fig. 6 shows the same transformer except that the windings have been arranged in a fashion that is technically known as double concentric. In this arrangement one half of the primary winding is wound inside the secondary winding and the other half is wound outside the secondary winding. (Incidentally the terms primary and secondary in this sense can be changed over without affecting the operation in any way.)

This arrangement of windings reduces the leakage reactance to a remarkable degree. Formula (k) still applies, but the values change considerably, viz.:—

A.T. remains the same.

M.T. now becomes the average of (5 × 3.14) and (7.34 × 3.14) = (15.7 + 23.1) ÷ 2 = 19.4 inches.

The values of A and B are now only one half of what they were before, that is, 0.18 and 0.42 respectively.

The value of S now becomes 2 because there are two winding groups. The value of A.L. becomes slightly less, viz.: 7 + [(0.18 + 0.42) ÷ 3] = 7.20 inches.

The value for A + B + 3C now becomes: 0.18 + 0.42 + 3(0.33) = 1.59.

All other values remain the same so that we can substitute the values in formula (k) and obtain:—

$$\%X = \frac{3710 \times 19.4 \times 1.59 \times 50}{2 \times 21.6 \times 1.35 \times 50 \times 1000} = 1.96\% \text{ approximately.}$$

We can thus see that, in the particular example quoted, we have reduced the leakage reactance to something less than 50% of what it was originally.

If the space between the primary and secondary coils is small as compared with the winding depth, the reduction in leakage reactance is even more marked.

Fig. 7 shows the same transformer with the windings arranged double concentrically and, in addition, the windings are divided over two legs of the core.

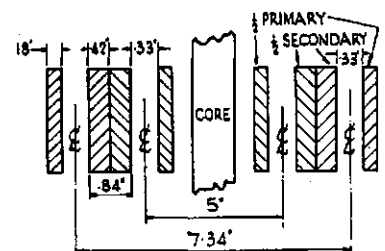


FIGURE 6.

The values to insert in formula (k) now become:—

M.T. is the average of (5 × 3.14) and (6.5 × 3.14), which is (15.7 + 20.4) ÷ 2 = 18.05 inches.

The values of A and B as shown in Fig. 7 are 0.09 and 0.21 respectively.

The value of S now becomes 4 because there are four winding groups (or 4 spaces between primary and secondary coils).

The value for A.L. becomes: 7 + [(0.09 + 0.21) ÷ 3] = 7.1 inches.

The value for (A + B + 3C) now becomes: 0.09 + 0.21 + 3(0.33) = 1.29.

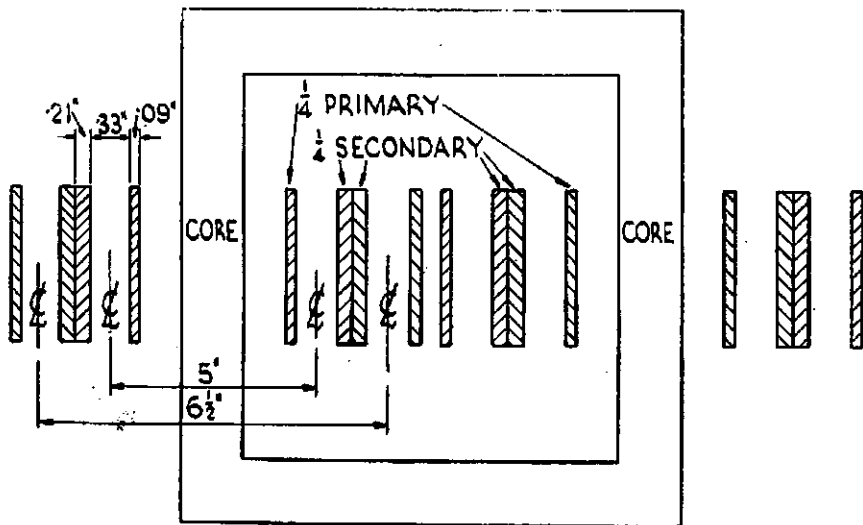


FIGURE 7.

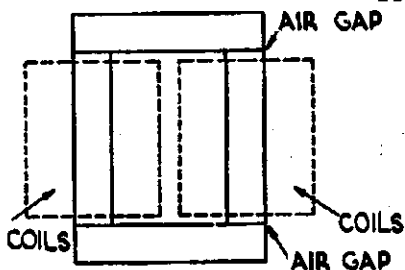


FIGURE 8.

formers, obviously the arrangement shown in Fig. 7 has the most merit. From an Amateur constructor's point of view, this type of construction lends itself to practical manufacture.

Fig. 8 shows a modulation transformer core built up of four "I" pieces of suitable length to suit the coils as wound. Note that the air gap is in four sections so that if we wish to obtain an air gap of 0.0144 inches [as calculated from formula (e)], each gap must be $0.0144 \div 4 = 0.0036$ inches approximately.

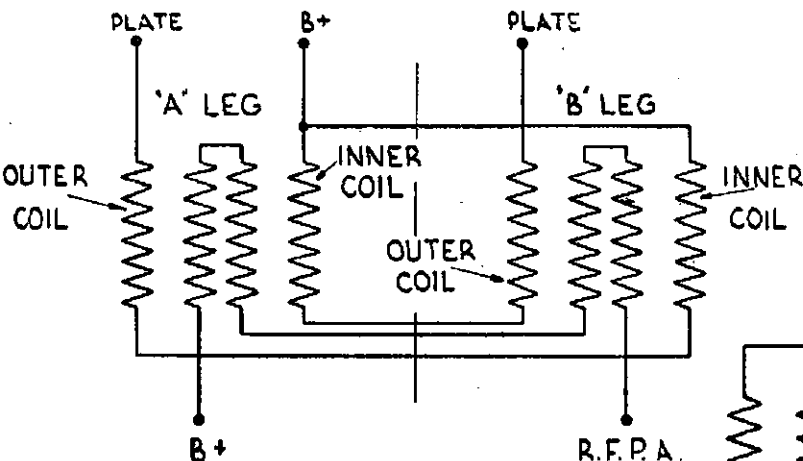


FIGURE 9.

Since all other values remain the same, we can now calculate from formula (k):—

$$\%X = \frac{3710 \times 18.05 \times 1.29 \times 50}{4 \times 21.3 \times 1.35 \times 50 \times 1000} = 0.75\% \text{ approximately.}$$

Fig. 6 and Fig. 7 shows the mean diameter of the first primary to secondary space constant at 5 inches. In actual fact this dimension would become progressively smaller if we maintained the same clearance to the core. The reactance values shown for Fig. 6 and Fig. 7 would, therefore, be somewhat less than those shown.

From the point of view of reducing reactance to obtain a good high frequency response in modulation trans-

The completed core must be tightly clamped together with non-magnetic clamps (brass, wood or bakelite, etc.)

It is a good idea to make a containing case of flat iron (galvanised will do nicely), nearly fill it with molten paraffin wax, then immerse the completed transformer in it. When the wax solidifies, you will have a transformer that is free from "talk back" and, at the same time, you will have a transformer that is repairable if you are unfortunate

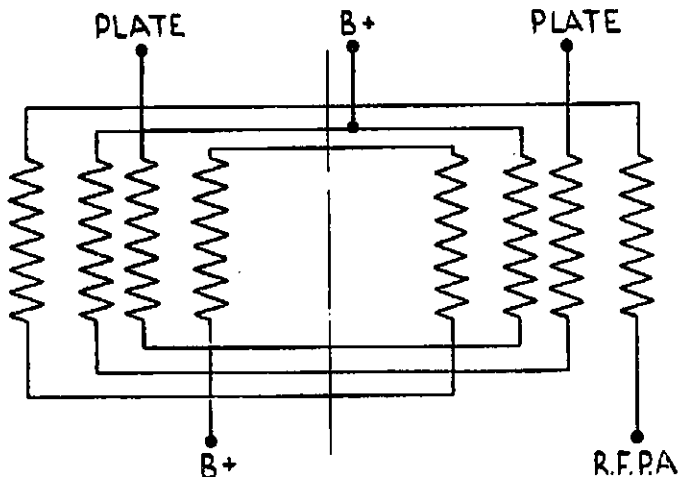


FIGURE 10.

enough to have a winding or insulation failure.

There is just one further point in building a modulation transformer to this general arrangement, and that is, that the windings must be properly interleaved in the arrangement of connections. Fig. 9 shows the correct connections for all coils. The winding direction must, of course, be such that series connection is obtained in the coil groups. This arrangement ensures the same percentage resistance and reactance between each half of the primary (taken separately) to the secondary, and also a low value of leakage reactance between each half of the primary winding.

Fig. 10 shows a coil grouping arrangement which has a still lower leakage reactance between halves of the primary winding whilst at the same time having the other advantages claimed for Fig. 9.

CONCLUSION

The foregoing article represents the views of a Power Transformer Designer on modulation transformer problems. I have no doubt that there are better qualified Institute members on this subject.

Certain approximations have been used in order to simplify the approach to the problem. I hope that the article will be of some practical use to those keen types who like to build their own equipment.

I further hope that those of you who are using radio power transformers as modulation transformers will see the error of your ways! You cannot expect a high fidelity signal if your modulation transformer is not properly designed, irrespective of how good your microphone or amplifier equipment is. If you are happy with communication quality, OK, but if you want a high quality signal don't waste your time using an inferior modulation transformer.

If you don't feel like building one, buy the biggest and best transformer you can afford. The old adage about

"good things coming in small parcels" does not apply to modulation transformers. If you have to decide between two commercially made units of about the same price, buy the heavier of the two units and you won't go far wrong.

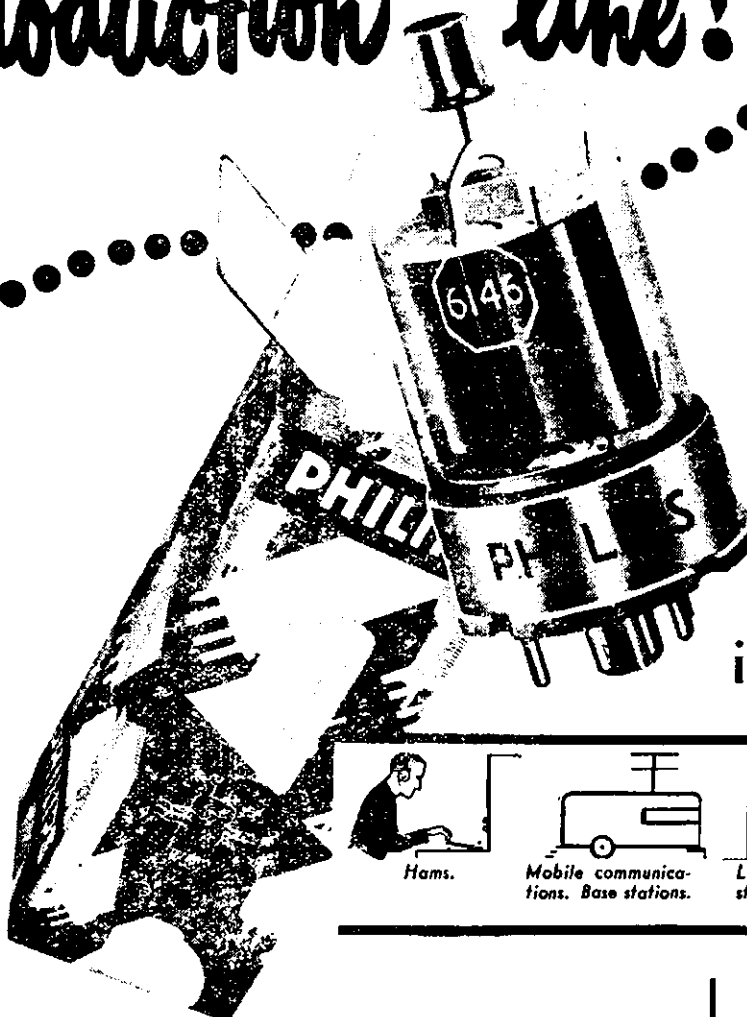
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Bandspreading the Super-Pro on all Bands

BY RON HENDERSON,* VK3ARV

ONE of the most popular receivers ever to grace the Amateur's table or rack-type layout is the Australian-made version of the Hammarlund Super-pro receiver, with which I think every Amateur and S.W.I. is familiar. These receivers have been popular for many years now and give good service if treated properly and operated correctly. With the conclusion of hostilities, these receivers were released on the Melbourne market. Although only very few completed receivers were taken by the U.S. Army, plenty of bits and pieces were obtainable to build your own receiver if you so desired.

From a bare chassis the receiver was built up, coils wound, adjusted and finally calibrated. Many hours were spent at first enjoying the fruits of labour in listening to the new receiver, which looked like a first-class receiver at last to grace the shack table.

In those days we had the full span on the 7 Mc. band to listen to and somewhat crowded conditions of the Sunday morning dogpiles of QRM made tuning rather critical, owing to the capacity on the bandsread dial being larger than I thought would be necessary. After some thought, a scheme was evolved whereby full bandsread was possible on all bands including eighty metres. This was not built into the original design of the Super-pro and the following method is a delight to use on the crowded bands. With intelligent use of the crystal filter and phasing control, any signal can be copied with ease, on the extended bandsread system adopted.

Major alterations are not required, nor is the receiver taken apart for it is practically a wrecking job to remove the coil box from the chassis, not to mention the re-wiring job which would probably frighten most of you into turning over this page. All that is required is the removal of the two top plates over the bandsread tuning condensers as well as the main tuning condenser. It is necessary to use an extended tip on the soldering iron to reach the coil contacts.

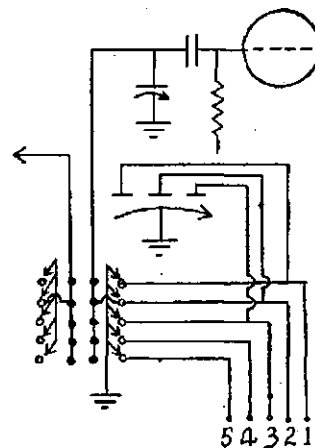
First of all locate the small section of the bandsread gang that connects to the 15 to 30 Mc. coils, remove this connection and run an insulated wire, preferably 16 gauge, across the top of the coil-contact finger board and solder to the connection of the main tuning condenser on the contact board in that stage. Feeding the wire across the board is not hard with long nose pliers. This by-passes the switch and is a permanent connection. Repeat this operation on all stages—R.F., Mixer and Oscillator. With careful use of the soldering iron down past the main gangs no damage will result and you will find that this will not alter the range covered on the 28 Mc. band, nor the new band of 21 Mc. covered on the same coils. This connection will also be satisfactory for the 14 Mc. band on the 10-20 Mc. coils.

Now remove the connection to the contact board of the 10-20 Mc. coils and repeat this operation on all stages as before, bandsread gang only, of course, then remove the connection to the 5-10 Mc. coils of the larger gang and solder this lead to the eighty metre coil range, 2.5-5 Mc. in other words. Move this connection along one solder lug, now connect the 10-30 Mc. gang to the 5-10 Mc. coils on all stages and you will find your task is completed.

Before replacing the two small top plates above the respective gangs, go over your connections and re-read this article if necessary.

Placing the bandsread dial on minimum capacity, make a run over the frequency of your receiver with an accurate signal generator, Bendix frequency meter or what have you, to see if the shifted wires have upset the calibration of the receiver on the 15-30 Mc. band as well as the 10-20 Mc. band. Some slight touch up in calibration may be necessary on these two bands. If more than 500 Kc. out, something is wrong, but don't give in yet, you may still have room to move the trimmer on the high end of the band and the slug at the low end to put things in order

OLD METHOD



broadcast or 7 Mc. band that is covered by this range of 5-10 Mc.

We now tackle the 2.5-5 Mc. range and with the bandsread dial still on minimum capacity as before, make a run over the range that is covered by these coils and check with your Signal Generator to see if the lead capacitance or inductance has made much difference to your calibration, although not much difference should be noticed on this band, and the trimmers and slugs can be touched up as before.

On the 3.5 Mc. band the main tuning condenser is set to 3.96 Mc. and it is now a pleasure to work other stations with the generous bandsread. Almost 90 divisions is used to cover this band, whereas previously you had no bandsread at all.

For those lucky chaps who work 7 Mc. phone DX, the main tuning condenser is set for 7.3 Mc. and you will now have at least 85 divisions to chase the elusive DX on this band. For the range of the 150 Kc. allotted to us for this band, 45 divisions will be available, more than ample for the average and certainly well worth the trouble. On the 14 Mc. band, use almost the full scale of the bandsread dial.

NEW METHOD

Switch Shown
IN POSITION 2.

RANGES.

1. 15 TO 30 Mc.
2. 10 TO 20 Mc.
3. 5 TO 10 Mc.
4. 2.5 TO 5 Mc.
5. 1.25 TO 2.5 Mc.

again, if not, you have extra lead capacitance. You will probably find it is the lead from the small section of the bandsread gang which is connected to the main gang, that is the culprit. It should be spaced from the other wires on the switch by at least half an inch.

If you were as fussy as I was you will find that by using solid copper wire (insulated), for the oscillator stage, most of your frequency drift will have disappeared. The 5-10 Mc. coils will now need checking as we now have both the small sections of the gang in parallel across the coil and although not much difference in lead length is noticed, the change in position of these wires may upset the calibration just a small amount, but only a few hundred kilocycles at the most.

We now have less capacitance across the coil. This will increase the coverage on the required band, whether it be the

The writer will be pleased to answer any queries regarding this article if you will be good enough to include a stamped addressed envelope for reply. The writer has now almost finished his second Super-pro receiver in order to chase two signals at the one time, very handy for contest work. Many of these receivers have been serviced and the bandsread system altered as described, much to the satisfaction of everyone.

The circuit diagram included only shows one stage altered as given in the instructions, the same connections will, of course, be carried out on all four stages in the Super-pro.

For those people who listen on the broadcast band, 1.25 to 2.5 Mc., the bandsread dial will have to be placed on zero or minimum capacitance for the calibrations to read correctly because there is approximately 10 pF. permanently connected all the time.

* 18 Madden Grove, Burnley, E.I. Victoria.

Eighth Annual Urunga Convention

The Eighth Annual Urunga Convention will be held over Easter Week-end, 30th March-2nd April, and the organisers are looking forward to your support to make this the best Convention ever held at Urunga, or for that matter at any place!

V.h.f. enthusiasts will be interested in the two metre mobile and blindfold transmitter hunts, whilst the h.f. men can take part in the 40 metre battery-operated Gerry Challender Memorial Contest and the all-band scramble with phone from any place they can get it. Fishing enthusiasts and tall story tellers may even come up for prizes, too.

Accommodation is available at the Ocean View Hotel and several guest houses, whilst we can provide stretchers under shelter for those who wish to fend for themselves.

Accurate tariff figures are not available at the moment, but last year the

hotel was 35/6 per day, the guest houses 25/- per day with cheaper rates per week.

You are strongly recommended to book your accommodation now by writing to VK2AHH at Kempsey, stating type of accommodation, number of persons, date and time of arrival and departure, and enclose £1 deposit per person.

The area is served by train, whilst arrangements can be made to pick you up at Coffs Harbour if you elect to come by plane.

Our Sunday night concert is of the highest standard and the pleasure of meeting your old cobbbers and making new friends are two further attractions to bring you to Urunga.

SO DON'T FORGET URUNGA.

MARCH 30 TO APRIL 2.

—N. A. Hanson, Nth. Coast Zone Officer.

This book has been written especially for those radio servicemen who, having a sound knowledge of circuit fundamentals, wish to prepare themselves for t.v. servicing.

Several chapters are devoted to the theoretical explanation of scanning, the operation of the picture tube and the wave form of the actual t.v. signal. Next comes a detailed description of a modern t.v. receiver, and to aid the discussion the entire circuit diagram is included. Such problems as antenna matching and r.f. amplifier design are fully covered.

A description of various types of portable test instruments is given, including a pattern generator and t.v. signal tracer.

The final one hundred pages are devoted to a series of illustrations, showing the picture as it appears when the receiver is incorrectly adjusted, or some component part is faulty. Each is shown with firstly the test pattern from the t.v. station and then as it appears using a t.v. pattern generator as the signal source.

This book should be a very welcome addition to any Amateur or Serviceman's book shelf.

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BOOK REVIEW

"INTRODUCTION TO T.V. SERVICING"

By H. L. Swallow and J. v'd. Woerd

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- (4) Two or more crystals can be mounted in the one envelope and thus save space.

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Further Notes on the Transmitter with Low Harmonic Output

BY H. F. RUCKERT,* VK2AOU

This series of articles have created some interest among members and the author would like to give further information in reply to the many questions received.

We have to start, unfortunately, with the correction of a few errors:

(1) The four-range switch under the v.f.o. (October "A.R." page 2) is used to switch the filaments of the multiplier stages off which are not in use. It actually would not matter if they were on all the time. The different resistors in the plate, screen and cathode circuits of these stages limit the current enough not to cause damage when the v.f.o. is not delivering r.f. The same applies to the 807 driver.

(2) The five links, coupling to the tuned grid circuits of the driver 807, should not be connected to the cold ends of the grid tuned circuits. They are directly grounded. The tuned circuits are by-passed at their common cold end with a 0.01 uF. to ground. The 25,000 ohms grid leak resistor must not be shorted out (Oct. "A.R." page 3).

(3) The upper link of the 807 plate multiband circuit should be grounded in a similar way to the lower link. The centre lead must not be grounded.

V.F.O. NETTING

VK2AHH, being an excellent observer, caught the author by saying: "How can a shielded v.f.o. give a beat note in a receiver when the p.a. or doublers are not working?"

The answer: The transmitter is not as well shielded as a signal generator should be. The receiver is next to the transmitter and is connected to the transmitter at the antenna relay and the stand-by relay, and uses also the same mains line. The v.f.o. gives only a S5 signal in the receiver, whilst a grid dip meter gives S9 plus 40 db. (no aerial); the BC221 gives S9 (no aerial).

The second station receiver's first oscillator gives S9 plus 25 db., therefore the shielding of the transmitter is not so bad after all, and t.v.i. cannot be expected.

The three circuit band-filter at the grid of the driver was the best way to prevent long leads with high impedance and high r.f. voltage going to the driver from the different multipliers. We also prevent, in this way, detuning of multiplier circuits because they are not switched on to different leads and valves with different capacities.

The two ranges of the v.f.o. work like this: The whole 3.5 and 28 Mc. bands can be tuned with the 25 pF. air capacitor by shorting out the 25 pF. fixed capacitor and leaving open the contact to the 12 pF. capacitor. The narrow bands like 7, 14, 21 Mc. and the c.w. part of 3.5 and 28 Mc. can be spread over the dial by putting the 25 pF. fixed capacitor in series with the air condenser and the same starting frequency—just below 1750 Kc.—is achieved by switching the 12 pF. capacitor parallel to all the capacitors.

ABSORPTION TYPE FREQUENCY METER

Nov. "A.R." page 3, 2nd column, 5th para.: It was said that a sensitive absorption type frequency meter did not indicate any harmonics at the driver or p.a. stage. Unfortunately it remains to be discussed what is a very sensitive frequency meter of this kind? An examination of the matter had the following result:

Using two different industrial manufactured absorption type frequency meters (0.1 to 60 Mc. and 20 to 220 Mc.), which were not shielded, resulted in overloading of the other components with power from the fundamental, and the harmonics are not indicated. The frequency meter the author built himself has a sensitivity of 4 to 40 mV. link coupled from a calibrated signal generator with the 70 ohm co-ax cable, depending on the L/C ratio of the frequency meter (more sensitive with low capacity at the high frequency end of the ranges) for one scale division deflection of the 40 uA. meter. With this meter we could detect the harmonics of the multipliers, driver and p.a. stages, and also the second harmonic of the g.d. meter and receiver oscillators.

What does this mean? If we have, for example, 800v. d.c. at the plate of the p.a., we may get 500v. r.m.s. r.f. at the tank circuit. If our absorption frequency meter reads full scale one inch away from the tank or antenna coupler circuit at any harmonic frequency, we know that we have about a few volts of harmonic energy in these circuits.

This is far too much for the international required harmonic suppression of 60 db. (1:1000).

It will not be easy to do much about this at the p.a. tank or at earlier stages. We must prevent any direct radiation from these stages by shielding and filtering out-going leads. But at the antenna coupler circuit we should only get a few mV. of the second harmonic (fundamental:harmonic = 10,000:1). Of course there should be nothing after the 50 to 70 ohm impedance low-pass filter at frequencies above 41 Mc., as far as the possibility of checking of harmonics with this frequency meter is concerned (fundamental:harmonics = 50 volts:u-volts). The remaining harmonics should not cause t.v.i. if the t.v. receiver is within a 15-mile radius of the t.v. transmitter and not behind a steep cliff shielding the t.v. signal from getting to it.

At the tank of the p.a. we can find very weak 14 Mc. harmonics up to the 15th at about 213 Mc. with this frequency meter.

CONSTRUCTION OF ABSORPTION FREQUENCY METER

A small 50 to 100 uA. meter is satisfactory. All components must be placed in a shielded box of 2" x 3" x 5" for example. Only one coil end is insulated and the coil is plugged in outside. A good Ge diode should be used. Valves are far less sensitive and not satisfactory without an amplifier. The coupling between the tuned circuit and the rectifier,

(Continued on Page 12)

COIL TABLE FOR VK2AOU TRANSMITTER (see "A.R." for Oct. and Nov., '55)

Stages Mc.	Diam. inches	Length inches	Turns	Remarks
V.F.O. 1.75 Mc.	1.38	1.9	80	On ceramic tube.
Driver Tank Multi-Band 3.3 to 32 Mc.	1.38	1.1	10	4 turn link.
	1.38	2.24	23	6 turn link.
P.A. Grid Circuit Multi-Band 3.3 to 32 Mc.	0.98	1.42	23	5 turn link.
	0.71	1.34	20	4 turn link.
P.A. Tank, Pi-Network 28 Mc.	1.38	1.77	5	¼ inch diam. tubing.
One coil with { 14 Mc. tap for 21 Mc. } 21 Mc.	2.3	1.54	6	¼ inch diam. tubing.
	2.3	0.79	2½	
One coil with { 3.5 Mc. tap for 7 Mc. } 7 Mc.	2.77	3.16	15	½ inch diam. wire.
	2.77	1.78	8	
Antenna Coupler Multi-Band 3.5 to 30 Mc.	2.36	4.5	21	½ inch diam. wire. With taps for 'scope and feeders at 2 to 8 turns. 2 + 2 turn link in the middle.
	1.78	3.0	15	
R.F.C. at P.A. Tank	0.79	2.37	90	Not critical, close wound. Has no resonance holes between 3.5 and 30 Mc.

Band Pass Coils: 13 mm. diam., 1 to 2 cm. long. (Short 6 mm. diam. slug for 14-28 Mc., long 10 mm. diam. slug for 3.5-7 Mc.).

Air Coils ½ inch diam. may be used and calculated from graph and formulae given in "A.R." November, 1955, T.v.i. Filter article. Use calibrated grip dip meter for aligning.

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

QRP T/R Switching for 144 and 288 Mc. Antennae

BY PHIL WILLIAMS,* VK5ZAD

The method of switching, which is described here in its simplest form, lends itself to transmitters of the 10-20 watt class, such as the 522 on 2 mx or the push-pull 7193s on 1 metre. Most suitable relays for transmit/receive facilities are quite expensive, or introduce considerable impedance irregularity in the transmission line on either transmit or receive position—sometimes both.

The only apparatus needed in this method is a 4 x 2 oak switch (mine was obtained from an English I.F.F. set) and two additional quarter wave sections of the transmission line you happen to be using. Two switch contacts are used to short these stubs while transmitting and open them while receiving, the third controls receiver h.t., and the fourth the transmitter h.t.

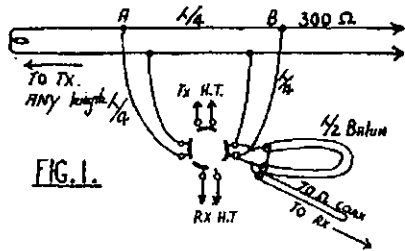


Fig. 1.—T/R switch shown in transmit position.

It will be noticed that in Fig. 1, which is drawn for the transmit position, the line from the transmitter to the aerial is direct, and only has two shorted quarter wave stubs connected to it at A and B. They do not adversely affect transmission. The balun to the receiver is shorted so that the leakage to the receiver is quite small, in fact it is less than the capacitive leakage from an

open relay contact. It is advisable, nevertheless to include a grid leak in the first stage of the receiver to bias it off while transmitting.

On switching to the receive position (shown in Fig. 2), the switch at D allows signal from the antenna to pass along the stub BD to the receiver balun and co-axial cable to the receiver input tuned circuit (not shown). The two quarter wave sections BA and AC now form a half wave line having high impedance at B and C, with the transmitter connected to the low impedance point at A. The transmitter impedance at A may be anything at all while the h.t. is not applied, and therefore connecting it to the half wave line at A effectively isolates it from the receiver circuits so that it does not affect the matching.

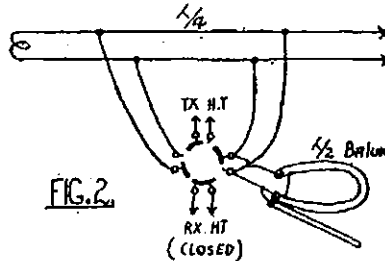


Fig. 2.—T/R switch shown in receive position.

No adjustments are required on the T/R switch itself. Simply switch to transmit and adjust the coupling and tuning for the required output conditions, then switch to receive and adjust your receiver input for best results—either max. signal or optimum noise figure if you're fussy.

Don't forget to apply the velocity correction factor to the quarter wave line sections, and the half wave balun if you use one. On 144.5 Mc. a quarter wave-

length of open wire is 20 inches long, 300 ohm ribbon is 16 1/4 inches long, and polythylene co-axial cable is 13 1/4 inches long. The balun is, therefore, 27 inches long. You may simply halve these for 288 Mc. Measure the stub lengths from the switch contacts, not the switch terminals—particularly at 288 Mc.

This scheme may be used with co-axial cable throughout, in which case the balun is, obviously, not required and switch D shorts the receiver co-ax line a quarter wave from the tapping point at B.

Somebody may like to adapt this method of switching to 5 or 10 metres, with lumped circuit elements replacing the quarter wave stubs.

TABLETOP TRANSMITTER

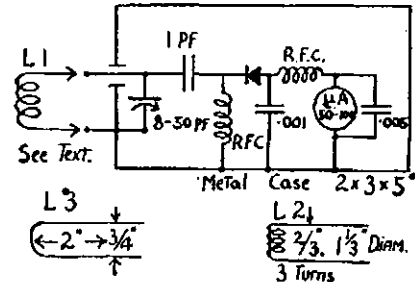
Next month VK2YY's transmitter will be featured. This consists of a Geloso v.f.o., 6146 (or 807) p.a., and 6L6 modulators. The complete phone and c.w. transmitter (including power supplies) is built on one chassis. The article will be illustrated with photographs.

TRANSMITTER WITH LOW HARMONIC OUTPUT

(Continued from Page 11)

etc., must not be too tight and 1 pF. bead type ceramic capacitor is recommended.

The two r.f. chokes are wound on any 1/2 watt high ohm (100,000 ohms to 1 megohm) carbon resistor serving as a former only, with about 30 to 40 turns.



The calibration can be done with a good g.d. meter and a calibrated receiver for checking. The higher frequencies may be checked with a parallel wire Lecher system using the g.d. meter as rf. generator. By using an 8-50 pF. air capacitor, the ranges 16-38, 36-92, and 85-235 Mc. can be covered. Coil L1 has six turns, and is slug tuned. The others are wound to dimensions given.

ANTI T.V.I. FILTERS FOR THE AMATEUR TRANSMITTER

An error appeared in this article in Nov. "A.R." on page 10 at the top of column three. The factor "m" is always smaller than 1, therefore the notations to the formula should read: "m = values between 0.6 and 0.8 (often used). In our example m = 0.65."

On page 11, first column, tenth and eleventh lines should read: "and m near 0.65."

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A Mobile Transmitter and Antenna

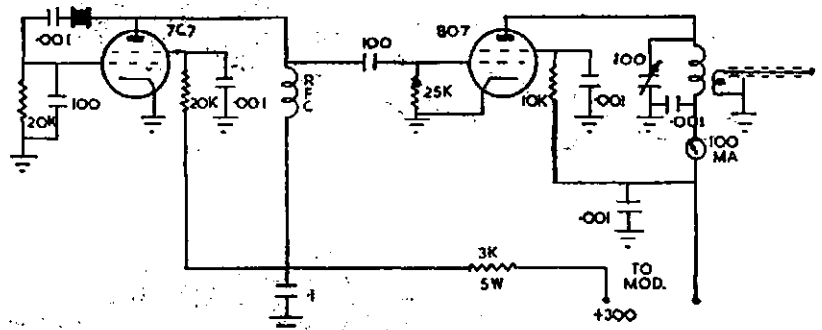
BY R. S. FISHER,* VK30M

The transmitter and antenna to be described are used by the writer as companion pieces to the crystal controlled mobile converter previously outlined.¹ The combination has given excellent results over the last 12 months.

THE TRANSMITTER

The transmitter operates as a medium power crystal controlled unit on the 80, 40, and 20 metre bands. It features 15 watt input, simple plate and screen modulation and provision for crystal or dynamic microphone input. With the final amplifier running 15 watts input, the entire unit draws 14 amps. from a 6 volt battery. This is well within the capabilities of the average car's electrical system.

The r.f. section of the transmitter uses a 7C7 Pierce oscillator driving an 807 or 2E26 in the final. This gives plenty of drive for the final with either 40 or 80 metre crystals. For 20 metre operation it is necessary to double in the final amplifier. This does reduce the efficiency slightly, but as it simplifies the tuning considerably, it was considered worthwhile. Some adjustment of oscillator output can be bad by



MOBILE TRANSMITTER R.F. SECTION

The modulation transformer in the original transmitter consisted of two speaker transformers back to back. The first a 10,000 ohms c.t. to 2.3 ohms, the second 2.3 ohms to 5,000 ohms. Providing medium sized transformers are used, this works very well. However, if it is possible to obtain a small modulation transformer, so much the better. The writer now uses an SCR522 modulation transformer.

gauge wire wound on a lead pencil. These are self supporting. The high tension chokes are ordinary 2.5 mH. r.f. chokes.

Two relays are needed to control the transmitter. One is connected in the main low voltage line from the battery, the second by the power supply to switch the vibrators on. This relay becomes the transmitter control.

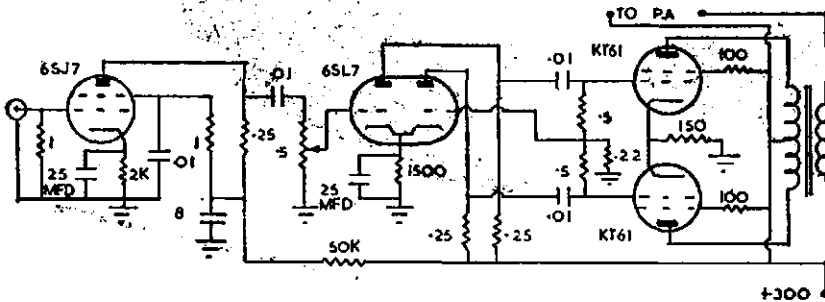
Low voltage relays are easily obtained from motor accessory suppliers in the form of head lamp and horn relays. These will easily handle the current involved.

The best position to mount the transmitter depends on the type of car and the available space. Some positions worth considering are the luggage boot, under the dash, in the glove box, under the front seat (usually plenty of room here) and on the bulkhead.

The transmitter and power supply can be easily constructed on an 8 inch by 10 inch chassis. The writer has constructed his in a medium-sized amplifier cabinet. This makes a neat unit that takes up little space.

THE ANTENNA

A mobile installation depends on its antenna. No matter how good the transmitter may be, it will be useless unless the antenna is doing its job. This, of course, applies to all types of stations, but more particularly to the mobile station. As we must work under diffi-

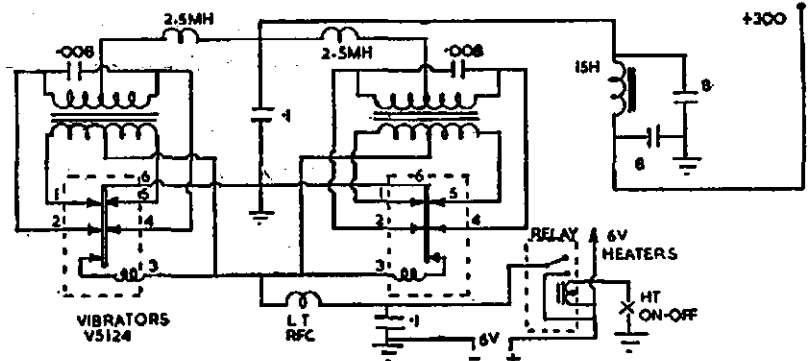


MOBILE TRANSMITTER MODULATOR

either increasing or decreasing the value of the h.t. dropping resistor. The circuit specifies a 3,000 ohm resistor which should give about 3 milliamperes drive. The final is quite straight-forward in design. It uses plug-in coils to change to the various bands. With a 1½ inch diameter former, wind on 10 turns for 20 metres, 20 turns for 40 metres, and 35 turns for 80 metres. The plate tuning condenser can be an ordinary close-spaced receiving type.

The modulator is designed to have ample gain for any crystal or high impedance dynamic microphone. A 6SJ7 or 6AU6 preamp. drives a 6SL7 or 7F7 parphase inverter, which in turn drives a pair of KT61 in Class AB1. These tubes were used in preference to 6V6s as they take less plate current. As it is they are slightly over biased and the pair draws about 60 milliamperes. Some care should be used in the layout of the modulator to avoid r.f. feed-back. This is especially important with the 6SJ7 stage. Return all earth leads of this stage to a common point and then experiment for the best earthing position.

The power supply uses two transformers and two vibrators. As shown in the circuit, they are wired as two separate supplies, and their input and output are connected in parallel. The transformers are rated at 300 volts 75 milliamperes. These are standard items and easily obtained. The vibrators are 6 volt standard synchronous units. The low tension chokes consist of 15 turns of 18



MOBILE TRANSMITTER VIBRATOR SUPPLY

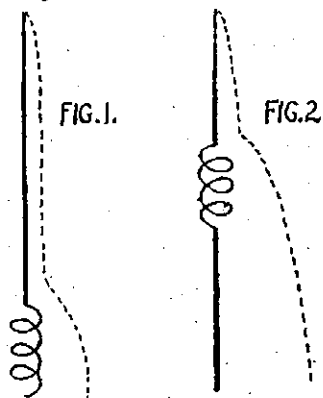
* 81 Neerim Road, Glenhuntly, S.E.S., Victoria. 1—"A.R.," September, 1955.

cult conditions with a short antenna of relatively low efficiency, it is essential that we use every watt of power in the best possible way.

The design of the mobile antenna is often looked upon as being the most exacting part of putting together a complete mobile set-up. In actual fact, its construction is probably the easiest part of the whole thing.

DESIGN FACTORS

Let us start with a description of just how a short whip antenna works on the lower frequencies. Its operation is, of course, based on a quarter wavelength antenna working against ground, the ground in this case being the car body. On ten and fifteen metres this can be done, as a quarter wave on these bands is eight and twelve feet; it is possible to feed a whip of this length with fifty ohm co-ax as it stands.



Current flow Bottom & Center loaded

As the frequency is lowered it becomes impractical to put an antenna of the required length on a car and if we continue to use our ten or fifteen metre whip a considerable amount of negative reactance will appear. On forty metres this amounts to 1,200 ohms. It is therefore necessary to add enough positive reactance to cancel this out, in other words we must tune our whip to the required frequency. To do this a loading coil is added to the whip, and tuned until the inductance is just enough to cancel out the negative reactance.

An important point is the placement of this inductance as it will effect the

radiation resistance of the antenna to a great extent. With the loading coil at the base of the antenna, the radiation resistance will be approximately 4 ohms. With the coil in the centre, this is raised to about 10 ohms, and as a higher radiation resistance will give higher efficiency, the centre position is to be preferred. Top loading will give even higher efficiency, but this may be mechanically difficult to achieve.

See Figs. 1 and 2 for the current distribution on a bottom and centre loaded whip antenna. As the centre loaded antenna has more current flowing in it, it follows that this will have a higher field strength than the one with bottom loading.

The feeding of whip antennae will be covered in the following paragraphs.

CONSTRUCTION DETAILS

Now for details of an 8-foot centre loaded antenna for use on the 40 metre band. It is designed to have very low loss. The centre coil former is constructed from a piece of tubular polystyrene $1\frac{1}{4}$ inches in diameter and about 4 inches long. Firstly, drill the ends as shown in Fig. 3. Sizes have been omitted as the diameter of disposals whips seems to vary quite an appreciable amount.

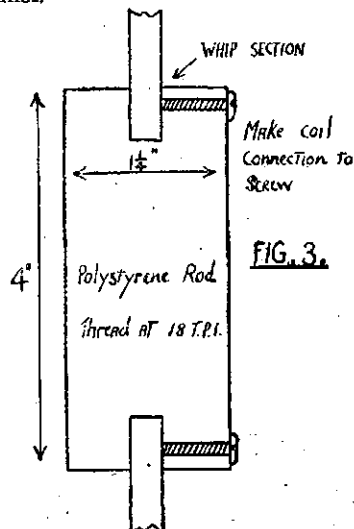
Next tap in the holding screws. This is best done by drilling a hole slightly under the size of the screw to be used. Then force the screw in, heating it every so often with a soldering iron.

When this is done, the thread for the winding can be cut in. This job must be done on a lathe of course, and it is best to have the other holes drilled at the same time, to ensure that they are all straight.

The coil is wound with 18 gauge tinned copper wire. About 52 turns at 18 turns per inch will be needed, the exact size must be determined by experiment, with the following procedure.

Fix the whip in place on the car and connect to transmitter through a length of 50 ohm co-ax cable. If the length of cable needed exceeds about six feet, it will be advisable to connect two pieces in parallel. Make sure that the co-ax is properly earthed at both ends. Couple the co-ax to the final tank coil of the transmitter with a two-turn link. Turn the transmitter on and note the loading. This must be done with the boot lid of the car down as far as possible.

Next, connect a length of stiff wire around the whip at the top of the coil and tapping it down a turn at a time until maximum loading is reached. Remove the number of turns shorted out and the job is done. To weather-proof the coil, give it one coat of clear enamel.



For 80 metres the procedure is similar except that approximately twice the number of turns will be required on the coil. It would be possible to construct an antenna which would cover both 40 and 80 metres by arranging a tap on the coil for 40 metre operation.

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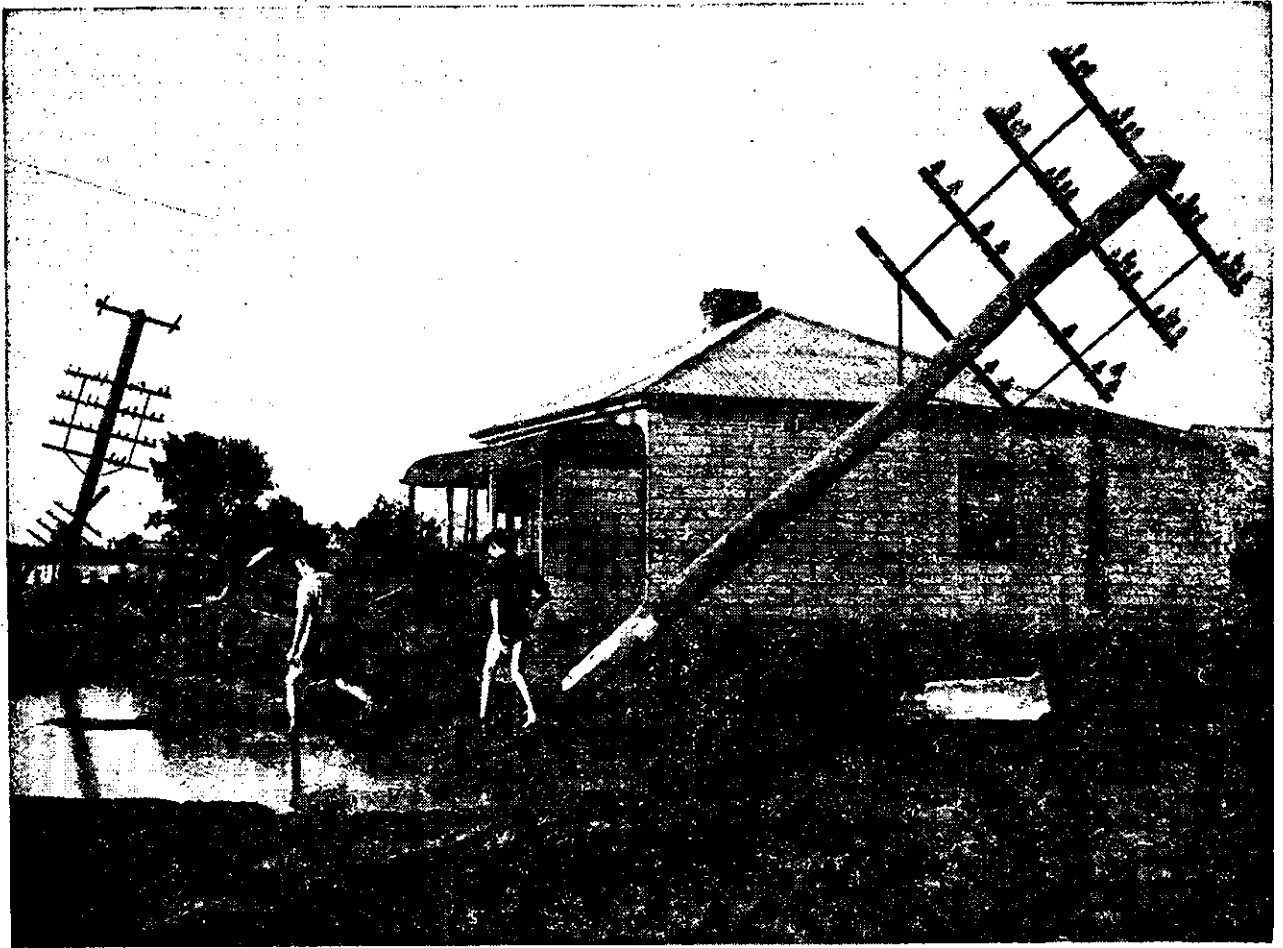
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DX ACTIVITY BY VK3AHH†

PROPAGATION REPORT

8.5 Mc.: During the month, conditions were not as reliable as they used to be. However, some DX can be reported. Times were for North America: 1100-1300z; and for Europe: 1600-1800z.

7 Mc.: This band displayed the usual openings to all continents, although some deterioration has to be mentioned. The American continents and the Far East were represented between 0800z and 1400z. Openings to Europe and Africa occurred around 1200-2000z, and 0700-0930z.

14 Mc.: Band conditions were reasonable to all continents. Nevertheless, openings appeared to be somewhat unreliable as far as quality and times were concerned. Best periods were for the American continents: 0800-2300z; for Africa and Europe: 0700-2100z.

21 Mc.: This band showed openings to all continents. The American continents were workable between 2100 and 0400z, while Europe, South East Asia, and Africa were represented between 0700z and 1400z.

27/28 Mc.: These bands allowed some contacts with North America and the Pacific Islands around 2200-0400z.

NEWS AND NOTES

Touring round this old globe, Danny VP2VE/P, has now been operating as F08AN for some weeks, and expects to leave for VR1 (British Phoenix) possibly on 15th March (from W6YY).

Doug VK1IJ did not waste much time with getting used to the somewhat cooler QTH, and has been one of the most consistent stations on the 14 Mc. band. His and VK3YS' efforts to establish 50 Mc. contact between Macquarie Island and the mainland are highly commendable. Keep up the good work! VR3B and VR3C keep Fanning Island on the Amateur Radio map after Ray VR3A has left. (from W6YY).

It looks as if we are getting some competition from the 50 Mc. boys after all! VK4NG worked JA1AHS on 50 Mc. Congrats! (Thanks 3YS for info.)

Another report on commercials on 7 Mc. has been received from 3AWS. Thank you!

Would you like to work Italian Somaliland? I5AAW is active on 14165 Kc. on c.w. (from W6YY).

Some VQ9 activity can be expected. (from 3ATN).

The good old 80 mx band is in the news again! F8DA is looking for VKs between 1600 and 1800z on Saturdays and Sundays.

Another call sign has been issued for Macquarie Island: Dick VK1RD (from 1IJ).

QTHS OF INTEREST

(from 2QL, 4SE, 5WO, 7LZ, BERS195 and Rod de Balfour)

I5AAW—Carlo Bortoloni, Box 85, Mogadiscio, Italian Somaliland.

OQ5PE—Box 40, Kindu, Belgian-Congo.

I1BLF/Trieste—Box 50, Relat, Trieste.

CR8CV—Box 3078, Luanda, Angola.

Y1A1AM—Via R.S.G.B. or A.R.R.L.

HL9AA—Alpine Club, Seoul Engineering College, Seoul, Korea.

AP2M—110 Mujl St., Karachi, Pakistan.

VPIEK—"The Doctor," Cayo, British Honduras.

SUIAS—P.O. Box 2034, Cairo, Egypt.

HP1EH—P.O. Box 189, Panama City, Panama.

HZ2AEH—S.F.C. Wm. E. Brester, R.A. 142944, 8888th D.V., U.S. Army Section, A.P.O. 616, New York, U.S.A.

PZ1BS—A. N. Soeperman, Box 848, Paramaribo, Surinam.

VP8AL—A. F. Lewis, C/o. Postmaster, Port Stanley, Falklands.

V5SAS—Box 1245, Aden.

KM6AX—Navy 3080, Box 19, F.P.O., San Francisco, U.S.A.

HZ1AB—A.P.O. 618, New York, U.S.A.

ACTIVITIES

8.5 Mc.: Frank 2QL heard G, OZ, DL, ON, followed by Fred 3YS who worked VK9XK*. 8AHH adds Ws.

7 Mc.: 2QL heads the list with VQ6LQ*, ET2AB* and Europeans. The next in line is Laurie 2AMB with VS1B*, KL7AZS*, DU7SV*, VQ4AQ* and ZD6RM. Dave 3ADW keyed with VQ4AQ* and JA*. Tim 3AZV adds VE* and JA*. Eric BERS195 heard Europeans, JAS, VQ4CC, YU1EMN. Dave Jenkin heard Europeans, DU7SV, KL7AZS, JAs, YV1AD. 8AHH worked JA*.

14 Mc. C.w.: Doug 1IJ: 4X4BX*, KA/JA*, LU3EX*, 2QL: FY7YE*, FY7YF*, VP5DC*, VQ8AG*, FB8ZZ*, CR7CI*, ST2AR*, ZEGJZ*, ET2LB*, EA8BF*, OQ8BT*, OQ5PE*, 3V8AN*, ET3LF*, MD5UK*, MP4QAL*, CN2AZ*, CR6CV*, Y1A1AM*, I1BLF/Trieste*, HL9AA*, HK4BD*, VP6UN*, PZ1BS*, and VP4TR, KT1EXO, HL3L, ET2AG, S7C, SV0WU, SV0WL, HP1EH, HL2AA, I5AAW, FG7XK, 2AMB: VQ4AQ*, VQ4FQ*, ZD6BX*, TI2PZ*, ZE2JC*, VQ6LQ*, 4ZMR*, Z58AJX*, FB8BR*, FB8BS*, KP6OB*, VS2DW*, Europeans*, YV5FV*, LU2MC*, FB8ZZ*, VU*: FY7YE*, CESDZ*, and CO1AH, CO3YP, 3W8AA, F08AD, 4X4BT, 41BK, ZEG, JX, DU, 457NG, CR9AI, VS1G, V58CV, LU2RD, YV5BJ, ZEGJZ, Y2AM, Ken 3KE: Y1ZAM*, VP9BM*, LU5ABL*, VK1AWI*, Z55ND*, KA/

VQ8CB, VS1, VS2, VS6, VU, YJ1DL, YV5AM, ZS2BC, 3W8AA, 4STMG, 4X4DK, Europeans. Dave Jenkin: DN, 3W8AA, JA, CR0AE, KV4, VS2, 457NX, OAJJ, PJ2AA, 457BW, Europeans. 3ARR: VK1EM*, F8DA*, Europeans*.

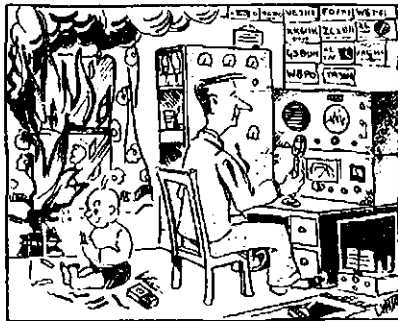
14 Mc. Phone: 1IJ: DU*, KA/JA*, 4X4DK*, Europeans*. 2AMB: VP2DA*, VP2DC*, VP7NS*, HP1EH*, YS1MS*, F08AN*, HP3FL*, and F08AB, F08AD, ZP4GC, XE2NT, KZ5CS, KT1WX, HH2JK, T12LD, HZ1TA, Z58CV, Z58NE, CR7AH, VS1, VS6, COSLF, ET2US, Y1ZAM, HP1CC, OA4AW, Europeans. 3KR: KA*, VU*, CE3PV*, YV5AB*, 8ADW: KP4WD*, Ray 3ATN: VQ8AC*, HL9AA*, EA6AR*. 3AZY: MP4KAB*, MP4BBW*, ST2DB*, HP3FL*, CN8MM*, ZE2KR*, Z5S*, Europeans*, XZ2AD*, ET2IC*, 4X4DK*, 4X4GS*, HZ1TA*, YV5BS*, VP2DA*, V55AT*, VS1*, VS2*, T13LA*, Y1ZAM*, TG9AL*, HZ1AB*, KP4ADK*, HK4DP*, 4RW: VQ2NA*, ZS8CF*, ZM6AT*, Europeans*. 5HI: ZS1BB*, ZS*, YV5BF*, CR7CS*, HP1CC*, KZ5IF*, 5WO: VQ5FQ*, ST2DB*, I5AAW*, CR7CZ*, VQ2ST*, ZE2JJ*, HZ1TA*, SUIAS*, I5I-EHM*, VP1EK*, HP3FL*, ZP5CC*, TG9AL*, VP2DC*, YV5BD*, LUB8D*, ZK1BL, VC9AD*, CO2BL*, Europeans*. 7LZ: ODSAB*, HE2EH*, VU*: HZ1TA*, YV5BS*, 457SR*, TG9AL*, AP2U*, HK3PV*, Pat 7PM: KA*, HP1CC*, ET2MZ*, ST2DB*, XE2KW*, T13LA*, VP2DC*, HK3FV*, YV5DL*, TG9TU*, Y1ZAM*, YS1MS*, CO2GU*, CO2CT*, YV5AU*, F08AD*, F08AB*, OA4AW*, Europeans*. Rod de Balfour: ET2MZ, VQ4AQ, XE2KW, 5A2TZ, ST2DB, XZ2SS, CT3AN, VQ8CB, and Europeans.

21 Mc.: Bert SHE: ZB1TD* and other Europeans*. 3ADW: VP8GT*, ZS*, Europeans*. 8AZY: Europeans*. HC1FS*, HC1ES*, LX1SI*, AP2L*, VP6WR*, HC1PL*, LUB8D*, KL7AZN*, 4X4FQ*, Z5S*, VS2*, ZS1*, VP8GT*, ZC4BA*, 5WO: 4X4FQ*, VS1*, KP4AZ*, Europeans*. 7LZ: Y1ZAM*, LUB8AD*, CES3Z*, HC1ES*, 7PM: MP4KAC*, FK8AC*, HC1PL*, HC1ES*, CR9AH*, VS6*, CESDZ*, KZ5CF*. Dave Jenkin: JAs, Europeans. Rod de Balfour: LUB8AD, CR9AH, 8AHH: Europeans*, VS6*.

27/28 Mc.: Don 2RS spoke to Ws*. Les 4XJ contacted the following districts: W1*, W2*, W3*, W4*, W5*, W6*, W7*, and VE7AFA*. 7LZ adds W9*. Dave Jenkin heard W6.

Rare QSLs were received by: 2AMB: VS4RO, 3KR: VP7NI, 3ARV: VS5KU, CRTBN, 3ATN: ZS8I, 5WO: CX2AX, CE3PV, KP4ABD, ZD4BZ, T12DLM, CSSAC, 4X4CK, 7LZ: HZ2AEH, BERS195: PY1BFR, PY5VF, VK1DJ, VQ4AQ, Rod de Balfour: HK3PC.

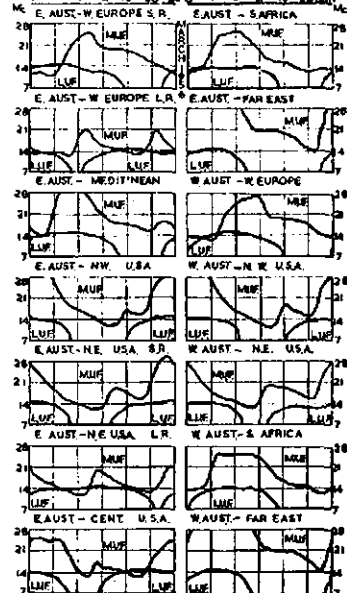
Thanks to W8YY and VKs 1IJ, 2QL, 2RS, 2AMB, SHE, 3KR, JTE, 3XK, SYS, 3ZA, 3ADW, 3ARV, 3ATN, 3AWS, 3AZV, 4RW, 4SE, 4XJ, 5BY, 5HI, 5JO, 5QR, 5RK, 5RX, 5WO, 7LZ, 7PM, and s.w.l.'s BERS195, Dave Jenkin (VK3) and Rod de Balfour (VK7).



"Please QRX a sec. OM! I think I can smell a resistor burning."

JA*. YV5DE*, 457KH*, Europeans*. Stan 3TE: CESER*, CX2AM*, F8DA*, F8ARJ*, LU6ZB*, VP8DG*, VP6LN*, QG4DT*, 3V8AN*, 3V8FA*, Europeans*. Ivor 8XB: OQ5PE*, TI2PZ*, YV5-AE*, SV0WL*, VP6PJ*, Europeans*. 3YS: FK8*, YN1PM* (0910z). Lance 3ZA: ZC4P*, ZD6-BX*, VS1BJ*, VQ4AQ*, PY2ANV*, ST2NG*, 457BW*, 457PT*, KZ5KA*, JAs*, VE*, Europeans* and FQ8AY, CR5JB, YJ1AA, F08AA, HZ1AB, ET2PA, AP2M, VQ9CB, KG4AO, 3W8AA, 3ADW: OD5L*, ZC4P*, VS1*, VS8*, Europeans*. VQ4AQ*, MP4BBE*, 45T*. Ron 8ARV: VQ6LQ*, VQ3CF*, 457NG*, 457AM*, ZC4IP*, KP4JE*, VQ4FM*, 457PT*, 457MR*, ZS1JA*, Z55ND*, ZS1BK*, Z52X*, LU3EG*, HC1LE*, T12MAR*, CO2EM*, VP9BM*, CES-DZ*, KE1MB*, KV4*, FB8BS*, FB8ZZ*, VS1*, VU*, MD5UK*, ZD6BX*, ZE2JC*, ODSAV*, JAs*, Europeans*. 3AZV: F08AN*, VU*, Z54-GF*, KA/JA*, Europeans*. Bob 4RW: FY7YF*, YJ1DL*, FB8BR*, Z58AP*, Europeans*. Syd 4SE: TI2PZ*, ET3LF*, VP8DG*, VS1*, JA*, 5A2TG*, FY7YF*, KV4*, CO2OM*, ZS4MG*, Z55OD*, Z56*, VQ4FQ*, OQ5PE*, 4X4RE*, SV0WL*, VE*, Z52X*, YV5FV*, YJ1DL*, VS9-AS*, MP4QAL*, VS4NW*, HL9AA*, LU3MC*, LU7*, LU5*, VS2*, FB8BR*, 457KH*, ST2NG*, AP2M*, VS8*, Europeans* and HC1XD, FD4BD, VQ8CB, CM9AA, KZ5GH, 4X4FQ, FB8BS, CN2-AN, HC4MK, Y1A1AM, Y1ZAM, ET2PA, ZE2JD, VP7NS, XZ20M, CX1BZ, F08AB, CN8MM, F8A-IH, HS1VR, HK3FN, VP3YG, 3W8AA, KP4AC, PJ5AN, ZD3A, Doug 6BE: VP7NG* (regular sked). John 5HI: YV5AE*, KP4WW*, VP9BM*, CR7IZ*, F8AN*, ET3LF*, VS4NW*. Joe 5JO: CN8NM*, VE*, Europeans*. Reg 5QR: ZD6BX*, OQ5BT*, FQ8AY*, Y1A1AM*, AC5PN*, VQ8AB*, ZB2GZB*, MD5UK*, F08AN*, ZC5SF*, 3W8-AA*, FB8XX*, VQ6LQ*, VP8BD*. Ray 5RK: VS1*, KA*, Europeans*. George 5RX MP4QAL*, IT1ZGY*, SV0FY*. (The above VK5 reports were forwarded by 5RK, thank you Ray!). Austin 5WO: FB8BS*, FY7YF*, YV1AD*. Col 7LZ: ZC4IP*, ZC4VP*, VU*, I1BLF/Trieste*, VP7NG*, YJ1DL*, YV1AD*, PJ2AA*, 4X4DH*, MP4QAL*, MP4BATJ*, Europeans*. BERS195: AP2M, CN8MM, CR9AI, DU, F8AII, FK8, 15-AAW, JA, K1EXO, MP4QAL, ST2NG, VQ6LQ,

IONOSPHERIC PREDICTIONS FOR AMATEUR BANDS, MARCH, 1956



SHORT WAVE LISTENERS' SECTION*

Well boys, I'm warning you that you'll have to spark yourselves up, or be shown up. That's right, and by a YL, too, S.w.l. Lola Burton has only been listening on the Amateur bands for a few months, but has already picked up most of the lingo, and as evidenced by the list of reports, quite a few stations too. We welcome you to the S.w.l. Group, Lola.

Greetings are extended to another S.w.l., Alan Holmes, who read about our Group in some copies of "A.R." loaned to him by a friend. Alan tells of his disappointment at not receiving a good percentage of returns to his reports. Well, cheer up Alan, we have all been through the same trouble at some time or other.

It may be well worthwhile to make a few suggestions on sending reports to short wave stations. When forwarding reports, the following information is a MUST: The call sign or other identification sign of the station heard, if an Amateur station, the call of the station being worked, the frequency, at least approximate, on which the station was heard, date and time, preferably G.M.T. The readability, signal strength, and if a c.w. station, tone, should be given. It is always a help to send a short resume of the conversation heard, or if a broadcasting station, brief details of the received programme should be given. If there are any aspects about the transmission which appear peculiar, mention should be made of these together with as accurate a description of the effects as you can give. Most important of all, make your reports genuine. If a station is perfectly readable he need not necessarily be strength 9. I might also point out that a station, say in the United States, possibly may not appreciate a report from an Australian s.w.l. on a contact with an Australian Amateur. As is obvious, he will have already received a report from the station contacted at least days before your report can reach him.

It is usually the station whose signal strength is down who would like to know just where their signals are going. Most of the S9 signals

may therefore be disregarded as far as sending reports are concerned. Of course, if it's a rare one you hear, send him a report by all means.

One more don't. Do not send a report to a local station who is working DX unless you consider that you can really make the report useful.

VICTORIAN S.W.L. GROUP

The January meeting of the Group was held in the rooms on Tuesday, 31st. The evening proved very interesting, the highlight of which was an attempt to operate equipment on 288 Mc. under the direction of Ian Woodman. Ian is one of the L.A.O.C.P. holders who regularly attends our meetings. Unfortunately no communication was established with any station.

Len Poynter did a very fine job organising the set-up, and appeared quite blown out at the finish. The meeting ended with everybody happy despite the lack of success, and a discussion on transmission lines would have provided quite good entertainment had not the time been running on. Another attempt may be made from the rooms in the near future.

For the benefit of any person interested, the S.w.l. Group meets on the last Tuesday in every month at the Institute Rooms, 181 Queen Street, Melbourne. Any person at all interested in radio is welcome to attend our meetings.

The Group would like to hear from any Amateur who would be willing to come to one of our meetings and give a lecture or short talk on some aspect of Amateur communication. If you do not feel at your ease attempting something of this nature, perhaps a visit of about five or six members to your shack could be arranged. If you can help us in any way, please contact the Secretary of the Group, John Wilson, 37 Rayment Street, Alphington, Vic., or ring Ian Hunt at FB 0261 Ext. 387 during the day.

We hope to hear more of the exploits of Groups in other States. Come on you boys in VK2, VK4, VK6, VK8 and VK7. Let us hear a lot more from you.

REPORTS OF AMATEUR BANDS

Ladies first, as always. YL S.w.l. Lola Burton reports hearing the following stations: 21 Mc.—WKCC, VR2CG, LX1SI, 14 Mc.—HK3-FV, YV3BD, VS2UW, OD5EY, HZ1TA, CE3CO,

VP1EI, W5BJH, VS2EY, W4HKJ, CE7VS, ET2-US, PY4YC, YV6DL, KP4WD, MP4BDW, LU6-GD, W4GL, KA5CL, E15Y, W6GIZ, G3CQE, W3BUC, W4MZK, KA2LZ, VQ2AG, OH5PE, HP3FL, KA2DB, KX6BU, KA2LG, W6GPK, FO8AB, Y12AM, W6TIZ, CN8MM, VP1JH, LU5-DES, KC4WD, KZ2SS, T13LA, DLARP, VE7JB, GW4CP, G4MJ.

WIA-L3023 made available a list of stations but did not indicate the bands on which these stations were active.

WIA-L3015, Michael Ide, submits the following list of stations: 28 Mc.—KH6BS, W6VAD, 14 Mc.—JA6AV, GM3CDL, VS8CG, TG9AL, KA2WW, HZ1TA, VU2SS, ZM6AT, KP4WD, OD5-AS, YV5AG, KX6BU, VS1CZ, ZS5JM, KR6QI, VS2ER, 457SR, KV4BB. Michael has also received cards from GM6MN, SM6SA and VS1EW.

WIA-L3007 has managed to make his receiver perk long enough to receive the following: 14 Mc.—KH6IU, KH6AOX, KA8AUT, K4CKZ, W4MZK, VK6MK, Z6JL, ZS5NO, KZ5AD, WADPI, K2CAK, HPIEH, VK1IJ, EA7GW, VR2-AK, ZM6AT, KX6ZB, KH6BSK, KH6AHG/P, G3BTG, E12W, GW3IHN, KA5CN, JA6AV, VU2-SS, ZS5JM, CT1PK, E13S, HB9ET, FY2CK, KP4ABD, ZK1BS, W1QPN, VK8MG, VS6CH. Cards have been received from ZS1SW and ZS2BC.

Other cards being held for members of the S.w.l. Group are from FY6BP, DL1JV, W7KT, W2FLD and W6DI. Keep those reports coming in together with any other dope you may have on hand. More material is what we want. Station descriptions, reports, or hints and kinks you think someone else may be able to use, any of these details are welcome. Address your correspondence to John Wilson, whose address is given above, or to Ian J. Hunt, 101 Robert Street, Northcote.

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."

* Compiled by: Ian J. Hunt, WIA-L3007, 101 Robert Street, Northcote, Vic.

AN OPEN LETTER

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FIFTY-SIX MEGACYCLES AND ABOVE

V.h.f. DX has been excellent lately. On the 50 Mc. band openings have occurred to VK2 and VK4 from VK3. On 10/1/56 the VK4s worked VKs 2, 3, 6 and 7. On 12/1/56 ZL2DS broke through to VK3 for a short period. On 10/1/56 at 2010 hours E.S.T., VK1IJ of Macquarie Island reports hearing VK4GG and VK4BT at R5 and S8. On 22/1/56 VK4NG reports working JAIJHS at 1440 to 1447 hours E.S.T. The JA reported VK4NG at R5 S9 and he gave the JA R5 S8. VK4NG also heard JAIJAEW.

VICTORIA

Athol 3CP has built up a new converter using a 6BQ7A as a neutralised p.p. triode, 6AM4 grounded grid, triode 6J8 as mixer, with cathode coupling in the output. The xtal is on 11.5 Mc., 6AG5 xtal osc. is on its fundamental and the plate circuit is tuned to the fourth harmonic with a second 6AG5 trebling to 138 Mc. The AR88 is tuned from 6 to 10 Mc. It is working very well and Athol is happy with the results he has been obtaining.

The programme for the last V.h.f. meeting included two short lectures, the first by Bob 3OJ on "An interference unit of disposals vintage," and the second by 6ZAA and 6HK, who gave a short talk on the v.h.f. activity in VK6. The result of the first v.h.f. field day for this season was announced, first place and winner of the certificate being George 3GM, second Len 3LN and third Reg 3ZAD. Following the second field day on 12th Feb., which coincided with the National Field Day, it was decided to hold a further field day on 18th Mar. This date coincides with the VK2 V.h.f. Autumn Field Day. For full details and rules governing v.h.f. field days for this season, see copy of "A.R." for Jan., 1956, p. 14.

The v.h.f. meeting in April, to be held on Wednesday, 18th, will be the city-country get-together and will be held at the rooms, 191 Queen Street.

V.h.f. DX has been excellent lately. On 144 Mc. 7PF and 7LZ have been worked by several of the VK3 gang. They are on most nights looking for VK3 contacts, calling on the hour at 8 and 9 p.m. Beam direction from Melbourne is approx. 150 degrees. The VK3 country stations have been coming through into Melbourne at very good strengths and a couple of comparatively rare ones in Gippsland have been audible. They are 3TY of Sale and 3ZAB of Traralgon. Stan 3ZAB had his first contact into Melbourne some weeks ago when he worked 3ALY at Essendon. Other stations that have been on from the Gippsland area are 3VL, 3US and 3DI of Leongatha, and 3ZD of Warrigul. George 3GM is still maintaining his skeds on Thursday and Sunday nights with unremitting enthusiasm and has now placed a beam on the top of a 100 ft. steel poppet tower on the site at Mt. Bunningyong. He has been very successful from this location; he calls VK7 on the hour and has got through on a number of occasions. On 144 Mc., look for 2WH on Thursday and Friday nights. Skeds are kept with 3GM who calls 2100 to 2135 hours, then listens for 2WH from 2135 to 2140 hours.

During the holiday week-end Laurie 3ALY, with Bob 3OJ and Len 3LN, went portable on top of a hill at Portsea. While tuning his rig, Laurie heard 3TY at Sale working 3ZD at Warrigul and he used the standard low frequency technique of giving a short break when 3TY was transmitting and Len and Bob nearly fell out of the car with amazement when 3ZD gave a short break acknowledging 3ALY's call. Then followed a 100 per cent. three-way contact between Sale, Warrigul and Portarlington.

If you're after a VK2 contact on the 144 Mc. band, keep a check on approx. 144.1 Mc. for 2RS at Albany, who calls each evening at 8 p.m. with the beam towards Melbourne. The bearing of Albany from Melbourne is approx. 40 degrees.

6HK and 6ZAA operated mobile whilst on a holiday trip to Melbourne and were eagerly sought after by the VK3s for contacts and contest numbers.

Stations with gear for the 56-60 Mc. band include 3XM, 3AHL, 3YJ, 3YS, 3CI, 3OF, 3VL and 3US. 3VL and 3US, who are located in Leongatha, operate on 56.50 Mc. and are looking for contacts after about 8 p.m. each evening.

It is very pleasing to hear the familiar voice of Max 3BQ on the air once again. Max is looking very well after his convalescence and is the friendly, congenial personality down at

the low end of the band that we have all missed so much during the past few months. It is also very pleasing to hear the long absent voice of Jim 3BA back on the band again, even if he had to borrow his brother's jortable gear to do it. Herb 3JO, President of the V.h.f. Group, is making steady progress on the way to recovery after a major operation. Laurie 3ALY will have to curb his radio activity (nothing to do with uranium) during the next few months as he is planning to build a caravan. Maybe this will be good news for some of the other chaps, as with Laurie out of the way, there'll be more DX for others to work. A familiar whining sound of long standing is now missing from the 2 mx band. Ian 3ALZ now has the a.c. connected and has been able to dispense with his hand generator.—Phyl Moncur,

SOUTH AUSTRALIA

Last month was a very busy one for the v.h.f. boys in this State; we were very pleased to meet in person and entertain (we hope) Don 6HK and Wally 8ZAA from Perth. Don had mobile gear for 144 Mc. and together with mobiles 5GL, 5KC and 5MT, much fun was had by all, as they say.

From Mt. Lofty all the mobiles QSOed 5BC on 144 Mc. with signals varying from S4-S8 on phone. At Mt. Lofty it is no trouble to work Hughie with a 10 watt mobile tx and a car radio aerial adjusted for a quarter wave on 144 Mc. as a vertical radiator. Sigs vary from S4-S8 at both ends. Many mobile to mobile tests have been carried out between Ken 5KC and your scribe and in future issues I propose to give some details of the tx's and rx's which are in use in the hope that they may be of some help to any others who are perhaps interested in going mobile.

Reg 5QR with renewed vigour has erected a 16 el. phased array for 144 Mc. and is very pleased with the results so far. He has also constructed a xtal locked converter for 288 Mc. and with similar gear to be constructed by George 5GB they hope to "shatter" the existing Australian one mx record; best of luck chaps!

There has been little activity in the country on 144 Mc. except of course for the very reliable and consistent signal of 5BC in Denmark. I believe 5EN has been on only a couple of occasions and 5ER in Gawler has also been very quiet. The city boys however have been quite active and one can now call CQ even while mobile and generally succeed in having a contact. Neil 5ZAW, Phil 5ZAD and Ian 5ZAA have been on 2 mx fairly consistently over the past month.

The DX season on 50 Mc. has been extremely poor as far as VK5 is concerned. Col 5RO, Hugh 5BC and Reg 5QR have been active, but few contacts have been had, due mainly to a general lack of stations and not necessarily poor conditions.

Bob 5PU has built a nice xtal converter for 288 Mc. and this, used in conjunction with a planned xtal tx to be built by 5MT, should be instrumental in extending the 288 Mc. record distance of 106 miles.—5MT.

WESTERN AUSTRALIA

The February meeting of the V.h.f. Group heard an informative lecture from Don 6ZAV on his experiments with skeleton slots. Don came complete with models of the arrays and from the many questions asked it was very evident how interesting his talk had been. John 6ZAG was welcomed to the meeting and an apology was received from another new member, 6ZAJ, who is in National Service.

144 Mc.: Event of the month has been the Dawn Patrol activity. Wally 6WG in Albany has been heard consistently at 0615 hours in Perth over the 240 mile path. He has been worked by Rolo 6BO, and Don 6ZAV has heard Wally and been heard in Albany, but no reports have been exchanged to date. Ralph 6ZAD and Cecil 6ZAZ in Perth and Don 6DW in Bruce have also heard Wally. Signals have been heard from Wally every morning over a period of 14 days, but not always at a workable strength. Of interest is the fact that the signals at 0615 hours are consistently better than those at 1700 and 1900 hours. It appears that you must really earn your DX!

Another item of interest was the copying of Don 6HK's mobile tx (10w. to a halo) from outside Northam (50 miles) through hilly terrain. With a beam and higher power, what would signals from Northam be like?

Tom 6ZAH in Brunswick intends joining in the V.h.f. Group's next fox hunt. Tom looks as though he will be in a nice net with 6XI in

Dardanup and 6ZAL in Bunbury. Checks between 6ZAH and 6XI have been very successful with mod. osc. type gear.

Also promising well is the news that Frank 6FB found much interest in v.h.f. in Geraldton. At least one person has taken the exam, and likely to obtain a Z call. Jim 6JH is also interested. Ralph 6ZAD has been temporarily shifted to Forest on the Trans. line and hopes to have checks with Perth over the 400-mile path. Best wishes to you, Ralph!

The news of this country activity is very encouraging. It appears that with at least 25 watts and a good beam—say a stacked yagi or phased array—and a good converter—cascode or 6J6 type—distances up to 60-100 miles should be consistently good. For longer hauls, however, higher power would be desirable.

Again the offer of the V.h.f. Group is repeated. If you would like a demonstration of v.h.f. gear at your QTH or any help at all to get gear going, then contact your scribe—Wally Howe, 53 Ellen Street, Fremantle (phone L 1203), who will arrange for the resources of the Group to help you.—6ZAA.

TASMANIA

January has seen a lot of activity on 144 Mc. in Launceston. VK3 stations have been worked by 7GM, 7LZ, 7PF on eight days, the best opening being on the 22nd when 7PF worked 15 VK3s, 7LZ managed 4 VK3s, and 7GM missed out entirely. This made 7GM suspect his new five over five, but later openings make it seem as if it was just bad luck. Much has been learnt from these openings. Signals usually did not become much good until 2100 and then the band stayed open until at least 2400 hours.

Often the hardest part of working into VK3 is getting someone to hear you. Some VK3s sure can natter. 7LZ is all set for ulcers after hearing stations rag chewing for hours with strengths up to S9 and this with the VK3s beams side on. The openings apparently were due to mainly local inversions, no subsidence inversion being around.

The scoring system in the Ross Hull Contest does not take into account Interstate working on 144 Mc. as the Launceston gang can double their points for working a local three miles away, making 10 points for a first contact, while VK3, 300 miles away, only rate 5 pts.

With the increased activity beams seem to be the main subject. 7GM has put up a new five over five and 7BQ and 7LZ are going to try a five over five also. 7LZ is changing beams since finding that the feeder to his present 12 el. array gets hot every half wavelength. 7PF is working on beam theory for a beam to end all beams.—7PF.

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. ries	Call	Cer. Cnt- No. ries
VK4FJ	21 181	VK3JD	1 155
VK3BZ	3 178	VK4KS	9 152
VK4HR	12 176	VK6KW	4 150
VK6RU	2 170	VK4LN	11 141
VK3ATN	26 165	VK4RW	23 141
VK3EE	10 163	VK3AWW	14 140

C.W.

Call	Cer. Cnt- No. ries	Call	Cer. Cnt- No. ries
VK3BZ	6 222	VK5BY	45 181
VK3FH	15 210	VK3CX	26 180
VK4FJ	29 206	VK4EL	9 175
VK4HR	8 200	VK3CN	1 163
VK3EC	10 200	VK6RU	18 161
VK2BO	2 183	VK5RX	23 159

Amendments

VK3UM .. 13 120

OPEN

Call	Cer. Cnt- No. ries	Call	Cer. Cnt- No. ries
VK3BZ	4 231	VK2NS	16 195
VK3CX	6 225	VK3FG	3 181
VK4FJ	32 217	VK4EL	10 175
VK4HR	7 214	VK6KW	13 171
VK6RU	8 204	VK3DI	2 170
VK3JE	12 198	VK4DO	15 168

FEDERAL, QSL, and DIVISIONAL NOTES



FEDERAL

Fed. President: W. T. S. Mitchell, VK3UM.
Fed. Secretary: L. D. Bowle, VK3DU, Box 2611W, G.P.O., Melbourne.
QSL Bureau: R. E. Jones, VK3RJ, 23 Landale Street, Box Hill, E.11, Vic.
DX C.O. Manager: A. O. Weynton, VK3XU, 30 Park St., West Brunswick, N.10, Vic.

NEW SOUTH WALES

President: Jim Corbin, VK2YC.
Secretary: Harry Hickin, VK2ACH, Box 1734, G.P.O., Sydney.
Meeting Night: Fourth Friday of each month at Science House, Gloucester Street, Sydney.
Divisional Sub-Editor: Ted Whitling, VK2ACD, 18 Loudon Street, Five Dock.
QSL Bureau: J. B. Corbin, VK2YC, Box 1734, G.P.O., Sydney (Inwards and Outwards).

Zone Correspondents: North Coast and Tablelands: Noel Hanson, VK2AH, Ryan Ave., West Kempsey; Newcastle: Hon McD. Stuart, VK2ASJ, 88 Dunbar St., Stockton; Coalfields and Lakes: Harry Hawkins, VK2YL, 9 Comfort Ave., Cessnock; Western: W. H. Stitt, VK2WH, "Cambriowa," Forbes; Sth. Coast and Southern: Eric Fisher, VK2DY, 2 Oxlade St., Warrawang; South Western: J. W. S. Edge, VK2AJ, Wallace St., Coolamon; St. George: Chas. Coyte, VK2YK, 84 Carlton Cres., Kogarah; Western Suburbs: Barry White, VK2AAB, 33 Flavelle St., Concord.

VICTORIA

President: G. Dennis, VK3TF.
Secretary: D. L. Robinson, VK3ALD.
Administrative Secretary: Mrs. May, C.O.R. House, 191 Queen St., Melbourne.

FEDERAL

INTERNATIONAL GEOPHYSICAL YEAR 1957-58

Federal Executive has been happy to receive from Professor H. C. Webster, of the Queensland University, a letter in which it is suggested that Australian Amateurs may play an important and interesting part in the scientific investigations of the International Geophysical Year 1957-58.

Quoting from his letter, Professor Webster says: "One of the phenomena which is to be especially examined is the 'aurora polaris'. As you know, the aurora australis is sometimes seen in Tasmania, and the southern parts of continental Australia, and is regularly seen in the Australian antarctic dependencies.

"Dr. Gerson, of the U.S.A., has pointed out to me that Radio Amateurs operating in the 66-80 Mc. band can assist in the investigation of aurora by reporting evidence of freak reception on this frequency, particularly when the great circle joining the transmitter and receiver goes well south. Such freak transmissions can arise from reflections of the radio waves from the auroral discharge itself and thus add to our knowledge of the phenomenon."

The Professor goes on to say that he is most anxious to find out if any of our members would be willing and able to co-operate in such an enterprise. Federal Executive has replied to the Professor stating the matter will be put before members and they will supply him with the names of those interested.

In the past, Amateurs in Australia have had but little opportunity to be included in scientific investigations of such a high order. This therefore constitutes a challenge to the efforts and enthusiasm of members generally, be they v.h.f., u.h.f., or DX. A chance such as is offered by Professor Webster (who, incidentally, is Convenor of the I.G.Y.) should be seized upon by all. This is the time when we must take our place along with other Amateurs in the Southern Hemisphere in some worthy scientific research.

In order that organisation shall be on a Divisional basis, members are requested to send their names into their Divisional Headquarters at the earliest possible moment so that Professor Webster can be informed and plans prepared. This is a real opportunity.

DX CONDITIONS AND SUNSPOTS

With the rapid improvement in DX conditions the following information, kindly made available by the Amateur Administration, is of great interest and augurs well for the next few years.

Meeting Night: First Wednesday of each month at the Radio School, Meib. Technical College. Divisional Sub-Editor: Phyl Moncur, 235 Union Road, Ascot Vale.

QSL Bureau: Inwards and Outwards—W.I.A., 191 Queen St., Melbourne, C.1, Vic.

Zone Correspondents: Central Western: W. J. Kinsella, VK3AKW, Magdala, Lubbeck; South Western: W. Wines, 43 Cranley St., Warrnambool and W. Zimmer, VK3AWZ, 70 Skene St., Newtown; North Eastern: A. D. Buchanan, VK3FD, "Booroodind, Wairing; Far North Western: M. Folle, VK3GZ, 101 Lemon Ave., Mildura; Eastern: K. V. Scott, VK3SS, Johnston St., Maffra; North Western: C. Case, Cumming Ave., Birchip.

QUEENSLAND

President: Frank Bond, VK4ZM.
Secretary: W. J. Rafter, VK4PR, Box 638J, G.P.O., Brisbane.

Meeting Night: Fourth Friday in each month at the Royal Geographical Society Rooms, Ann Street, City.

Divisional Sub-Editors: F. B. Bond, VK4ZM, and W. J. Rafter, VK4PR.
QSL Bureau: Inwards—J. Files, VK4JF, Wanda St., Buranda; Outwards—Miss Clair O'Brien, 83 Jardine St., Stafford.

SOUTH AUSTRALIA

President: G. M. Bowen, VK5XU.
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: J. M. Coulter, VK5JD, 89 Conmurra Ave., Ackland Gardens.

The forthcoming Sunspot Maximum is likely to be Unusually Early and High

"As is well known, different astronomical observatories throughout the world keep a constant watch on the sun in order to determine the daily occurrence of the number of sunspots. The latter exert a very pronounced influence on the ionisation of the ionosphere, which in turn determines the propagation conditions of radio waves. As is also well known, the approximate length of a cycle is about 11 years.

"The Secretariat of the C.C.I.R. constantly follows, with great interest, the results of these astronomical observations and the predictions made by several radio organisations of the expected values of the sun's activity in the months to come.

"We wish to draw the attention of all users of radio waves to the unexpected very rapid rise of the observed 'provisional sunspot numbers' which took place during November, 1955. Indeed this rapid rise far superseded all predictions known to us.

"There is an empirical rule, deduced from many earlier observations, stating that a forthcoming sunspot maximum will be the higher the faster the sunspot numbers increase during the beginning of the build-up of a new cycle. The last minimum occurred during the middle of 1954, and at present we are in the build-up phase of a new cycle. This build-up is now occurring at an exceptionally rapid rate so that, in all probability, the next sunspot maximum will be of outstanding intensity. Professor M. Waldmeier, Director of the Zurich Astronomical Observatory, the well known expert in this field, expects the highest 'smoothed monthly relative number' to be about 180, or even larger. Moreover, he expects the coming sunspot maximum to surpass all the sunspot maxima so far observed, and he predicts that this maximum will be reached as early as the middle of 1957.

"If the above extrapolations prove to be accurate we may expect the change to higher frequencies for long distance radio communications to be necessary much sooner than might have been generally thought. It is for this reason that we herewith draw the attention of all concerned to this unexpected phenomenon."

—Prof. Dr. Balth. van der Pol,
Director, C.C.I.R.

T.V. TEST TRANSMISSIONS

Those Amateurs who are interested in preparing and testing t.v. receivers will be interested to know that a signal is available in Adelaide and Melbourne. These are low power, but are of such type as to be suitable for receiver checking.

The Adelaide transmission is on Channel 6, 188-195 Mc., while in Melbourne it is Channel 10, 209-218 Mc.

QSL Bureau: Geo Luxton, VK6RX, 27 Belair Rd., West Mitcham, S.A. (Inwards and Outwards).

WESTERN AUSTRALIA

President: F. A. T. Tredrea, VK6FT.
Secretary: J. Mead, VK6LJ, Box N1002, G.P.O., Perth, W.A.

Meeting Place: Perth Technical College Annexe, Mounts Bay Road, Perth.

Meeting Night: Third Tuesday of the month.
Divisional Sub-Editor: R. H. Atkinson, VK6WZ, P.O. Box 127, Geraldton.
QSL Bureau: Jim Rumble, VK6RU, Box F319, G.P.O., Perth, W.A. (Inwards and Outwards).

TASMANIA

President: F. J. Evans, VK7FJ.
Secretary: W. G. Tait, Box 371B, 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: V. F. Dore, VK7JD, 29 Brent St., Glenorchy.
QSL Bureau: K. A. Johnston, VK7RX, 34 Tower Rd., Newtown.

Zone Correspondents: Northern: M. A. Chaplin, VK7CA, 58 Trevallyn Rd., Launceston; North Western: S. H. Pattison, VK7UW, 36 Mark St., Burnie, Tas.

PAPUA—NEW GUINEA

President: F. M. Nolan, VK9FN.
Secretary: D. F. Lloyd, VK9OQ, C/o. O.T.C. Receiving Station, Port Moresby.

Divisional Sub-Editor: W. Holland, VK9BW, C/o. P.O. Box 76, Rabaul.
QSL Bureau: D. H. Beadell, VK9DB, C/o. P.O. Box 107, Port Moresby.

FEDERAL QSL BUREAU

RAY JONES, VK5EJ, MANAGER

Divisional QSL Managers and others are requested to note the changed address of the U.C.A.R. QSL Bureau which now is OQ5AO, G. Patigny, Box 2696 Elizabethville, Belgian Congo.

Clouet, FA8DA, writing under date of Dec. 25, states he has just received from FA8RW a bundle of VK QSL cards dating back to 1949/51. He has hastened to reply to them all. The Asociacion Radio Ecuatorian, whose QSL Bureau is Box 289, Quito, Ecuador, has supplied an up to date list of addresses of all HC Amateurs. Any QTH is available on application to the Federal Bureau.

The D.A.R.C. QSL Bureau, Box 99, Munich 27, Germany, advises that they will handle cards for DL2, DL4, DL5 and 9S4 in addition to DLI, 3, 6, 7, 9, 0 and DJI, 2, 3 and DI call signs.

Alan Perriman, VK5PO, ex-VK1PN, advises under date of 1st Feb., that he has been exceptionally busy since returning from the far south. Alan has moved six times in the two years since his return, got married and spent a lot of time in travel between Adelaide and Woomera. He is firm in his intention to send out all cards and hopes to achieve this in the near future. His present QTH is 17 Newton Terrace, Enfield Heights, South Aust. Alan has heard nil from Jim Carr, ex-VK1JC, who was with him at Heard Island.

KK8ZB is operated by Pappy Stoughton on Majuro Island in the Marshall group and is the former KC8ZB of Yap Island in the Western Carolines. Pappy nowadays is mostly on 14 Mc. phone with a Viking tx and a long wire antenna and will QSL all contacts for both call signs.

David Johns, who operated VK1DJ at Macquarie Island in 1954, has sent out 300 cards through the various Bureaux. Anyone who has missed out should contact David at 28 Waterworks Road, Hobart, Tasmania.

Tarry Knofflock, VR2AG, ex-ZL3PY, who operates from the R.N.Z.A.F. station at Laucala Bay, Fiji, has a nice card portraying local scenery. Card is available for all contacts.

ISAAW, ex-IAAW, of Box 85, Mogadiscio, Italian Somaliland, is currently active on 14 Mc. c.w. around 1530z and has a strong signal, but is monopolised by the powerful D stations.

FEDERAL AWARDS

NEW COUNTRIES

The following additions have been made to the DXCC Countries List: Laos (XW8), Cambodia (3W6) and Viet Nam (F18) and credits will be given starting 1/3/58 for confirmation of contacts made on or after 20th July, 1956.

As of 19th July, 1955, credits will no longer be made to listing shown as French Indo China (FIC). Credits for French Indo China contacts must show the contact date prior to 20th July, 1955.

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

Certificates have been issued to ON4AU, ZL2GX, VE8AW, SM5CO, G2MI, W2QHH, and ZL2AFZ. A total of 26 certificates have been issued to 31/1/56.

G. Weynton, VK3XU, Awards Manager.

VICTORIA

The first general meeting for the year was very poorly attended, in fact the worst attended general meeting in post-war years. Possibly the reason for this was the cancellation of the scheduled lecture. This was a great pity as Fred 3YS went to an enormous amount of trouble to arrange what turned out to be a most enjoyable programme. It took the form of short lectures appertaining to field days and with the National Field Day imminent, the choice of subject was most appropriate. Fred 3YS started off the lectures by giving a resume of the rules and conditions of field days in general. This was followed by Harry 3GU who gave an illustrated description of a simple modulator for cathode modulation of the Type 3 Mark 2. This in turn was followed by Hans 3AHH who spoke on a battery operated v.f.o. controlled c.w. tx. Hans also illustrated his lecture with blackboard diagrams. Then Len 3LN gave his experiences and advice on what to do and particularly what not to do on a field day. Len's experiences are very wide and very varied as he has participated in every field day in the post war period. This was then followed by David 3ADW who gave a description of an all band v.f.o. controlled portable piece of equipment. At the conclusion of these lectures, Bill 3TX, who has recently returned from a trip abroad, gave a very amusing and interesting talk on his experiences in the U.K. with special emphasis on his visit to the R.S. G.B. Headquarters and to the Radio Show conducted by the R.S.G.B. Bill, with his very dry humour, mentioned that he had no language difficulties whatsoever while travelling through the U.K. He gave us lots of laughs and those present enjoyed his wit and also hearing of his experiences.

The following were welcomed as new members to the Institute: Full members—Messrs. R. Scott (3OS), W. Carlyle (3JP), E. Gillies (3AGG), G. Macfarlane (3AYM), W. Michie (3ZCM), and N. Kay; Associates—Messrs. J. McEwen, R. Ruse, D. Norman, J. Manton, M. Lawton, H. Hargrave, J. Shaw, R. Owen, R. Davis, N. Henderson, J. Murray, J. Dunne, J. Pitman, R. McEwen, and A. McKeane.

The next general meeting of the Institute, to be held on Wednesday, 7th March, will be the postponed lecture on t.v. which will be given by Mr. Kempson, a member of the Melbourne Technical College staff, and will be based on the new t.v. operators' commercial license.

80 METRE TRANSMITTER HUNT

A good crowd attended the last 80 metre tx hunt, which was held in perfect sunshine. The tx was hidden by Len 3LN at Campbell's Cove, which is in a very inaccessible position from the Melbourne direction. It is on the coast at the back of Point Cook R.A.A.F. station. Here 3LN found the topk set-up where a

farmer had laid out nearly a mile and a half of nicely insulated electric fences around his property. Len bridged them all together and took a fine wire some 400 feet over a road to the tx hidden in box thorn bushes.

Laurie 3ALY was first on the location but took nearly an hour to find the tx by unbridging the various sections and narrowing down the position of the hidden tx. He was followed by Roy 3ARY and Reg 3ZAD. The harmonics made the most of the beach and enjoyed a swim and all had a picnic tea together on the beach to finish off a pleasant afternoon. The next 80 mx tx hunt will be held on Sunday, 25th March, when the tx will be hidden by Len 3LV.

BI-MONTHLY SCRAMBLE, DEC. RESULTS

The second Bi-Monthly Victorian Scramble was held on 8th December, 1955. Although a total of 36 stations participated, only eight logs were received! The winner was 3ALY with 19 points, all earned on 144 Mc.

Section C: 3ALY 19, 3ADW 15, 3AKR 15, 3ZAG 12, 3ADL 11, SWI 8, 3OJ 7, 3ZD 5. Checking: 3HE and 3AHH.

The results of the February Scramble, held on 8th February, 1956, will be announced in the next issue. Transmitting Amateurs resident in the State of Victoria and Short Wave Listeners resident in the Commonwealth of Australia are reminded that the next Scramble will take place on 2nd April, 1956 (Easter Monday). How about making it a complete success? Remember, there is more than one section, and the top scorer in each section is entitled to a very attractive certificate! OK, send in your log by the 30th April, '56! Rules of this Scramble can be found on page 12 of "A.R." September, 1955. Send your log to the Divisional Contest Manager, W.I.A., Vic. Div., 191 Queen Street, Melbourne, C.I. Good luck!—3AHH.

SOUTH WESTERN ZONE

The zone generally sounds to be very busy lately, quite a lot of activity on the various bands although there is not much to report. One of our zone members, G. Munday, has now commenced a new job with Les 3DX in radio, so looks as though he will be guided on the air in time with a little of 3DX's tuition. 3EQ has been mobile in VK5 using one of 3AGD's 8 ft. whips. 3EQ and Bill Wines spent a few hours with the Type 3 at 3AGD's QTH before 3EQ went to VK5. 3AKR has been heard again, keep it up Kev. Brian 3UT is on now and again. Harry 3XI has a new shack for the radio, also a new beam approx. 100 ft. high, so should go places.

Bill Wines is starting to get busy for the Convention which will be held in Warrnambool on the week-end, 17th and 18th March, so hope to see quite a lot of chaps turn up as it will be a good show. Also anyone who requires accommodation must let Bill Wines know before 3rd March as it is hard to get booking otherwise we will be able to make arrangements for caravans if required. Hope to see the XYLS come along.

Chris 3AXU has sent the following: Ron 3KX has been away on holidays. Gordon Eason has been busy locating hum troubles, while Mart 3AKU has been busy on 20 mx with his AT5/AR8 combination. 3AGV seems to have a good score in the Ross Hull Contest; he is also keen on 288 Mc. Chris 3AKU has been inactive as he is busy shifting to new QTH and getting the AT5 going. During January 7AC called on 3AGV and 3AXU. Gordon was having a QSO with Col 3FO and Col couldn't believe his ears when 7AC chipped in, he thought he was hearing things, but soon woke up that David was in 3AGV's shack. Well chaps hope to see a lot of you in our city for the Convention.

NORTH EASTERN ZONE

Stan 3AGT seems to be in quite an impenetrable stronghold for a news collector. George 3GD received quite an issue of cards from his 21 Mc. folded dipoles. Tom 3TS is thought to have been in on it too. Col 3WQ passed out the cards as one of his last jobs in this zone. Les 3ALE is coming back on the air a bit now. Bruce 3AGG and Brian 3ASF are on 20 mx. Johnny 3ACK is returning to Radio when business permits. Murray 3EZ was seen in Wangaratta a while back. There is nothing of Alex's (3AT) activities. Peter 3AFF is in with Alan 3UI and Syd 3CI on the 5 mx skeds. Keith 3JC is not back on Radio yet. According to Des 3CO, Doug 1IJ said that the temperature at Macquarie Island was up around 43 degrees during the day. That was at the beginning of the year though.

Unfortunately the Euroa VL3 frequency that Associate Jim Harrington works on is a bit too low for standard Amateur equipment. Des 3EP was away on holidays on last advice. Henry 3HP is working hard on his VL3 skeds with assistance from Howard 3YV. Jack 3AKC and his XYL, now at a new address, are receiving congratulations on the arrival of a son on 4th Dec. Jim 3JK has a new Collins 76A type 3 rx now. Bruce 3QC has loaned Bill 3AWQ a tx. 3AMZ is now in-Wangaratta. 3IZ was up that way on a trip back to Maryborough, and Doug 3PO was up here with a Type 3 portable. Ron 3AQQ was to get some help from Associate Ken Mercer putting up his antenna. 3QL has been heard operating in Bright. Secretary Earle Scoones is on shift work now. Ray 3FT is not ready to go on the air yet. Ken 3KR reports DX on 20 mx is quiet.

EASTERN ZONE

A welcome voice on the 80 mx hook-up was Bill 3WE who has not been heard for some time. Very pleased to hear the old sig again. Ron 3FR comes on regularly; has grid leak bias in now and a clamper tube; talking of

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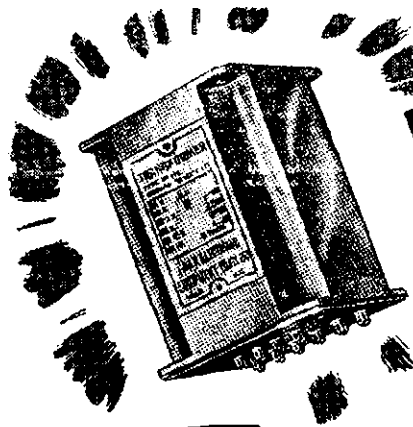
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 Leakage Inductance: 1/2P/1/2P: 18 mH. maximum.
 Prim/Sec: 20 mH. maximum.

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 For VALVES: 6L6, EL37, KT66, etc.
 See "Radio and Hobbies" of February, 1955, 17 watts U.L. Amplifier.

20 WATTS: 30-30,000 o.p.s.
 Primary: 4,500 ohms.
 SCREEN TAPS: 10% of Plate Z.
 F.R.: Plus or minus 1 db 10-60,000 c.p.s.
 Leakage Inductance: 1/2P/1/2P: 15 mH. Maximum.
 Prim/Sec: 15 mH. maximum.

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 Type 2506—12 watts.
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 Sec.: As below.
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getting a new rx. Rex 3VL and Gwen 3US are on 2 and 5 mx. Jim 3DI also on 2 and 5 mx, so Leongatha is well represented, which is more than we can say for some places. Cliff 3AJA working DX on 7 Mc. c.w. Joe 3TO is off 2 mx due to an 832, but if I know Joe he will be on again soon. Ian 3AAV has broken the ice on 20 mx with a KA and 5/7 too; also a consistent station on the hook-ups.

Jack 3AKJ has not got the big rig built yet. Peter Thorne, a second-op. at 3AJK, is studying for his ticket and hopes to sit for it in April; we wish you luck Peter. Terry Phefey, s.w.l. from Moe, is still awaiting cards from overseas; patience is a virtue, Terry. Another chap who borrowed some books from me to study is Max Cherry, so Moe is looking up.

Graham 3QZ still consistent; his XYL, who has been sick for a long time, is progressing well. Hope this progress continues Graham. Graham also operates on 2 mx. Bill 3TY is active on 2 I believe, but we have not heard him on 80 mx at all for some time. Bert 3BB has not been on for some time, but I hear he has been on holidays. Jim Quig, who holds a Z call in Morwell, has just gone into a new house there and expects to be on 2 mx soon. Gordon 3TH is on 2 mx at the moment, the wind blew down the 80 mx aerial, so get it up again Gordon and let's hear from you.

The Balrnsdale boys are very quiet, would like to hear from you chaps down there. Gilbert 3AYM is re-building the rig; don't be too long Gilbert. Martin 3AMV is still off with burnt-up tranny; surely you can find something to do the job Martin and put Warragol on 80 mx again. Ron 3ZD is on 2 mx regularly and working local and distant stations. The 2 mx boys hold a hook-up every Sunday night at 8 o'clock. A couple of visitors who called on Graham 3QZ, were John 3AKJ and Peter 3IZ who, with their respective wives, were on their honeymoon. I am sure that all the boys in the zone wish you both a very happy life in your new sphere. Also the State President, Gordon 3TF, called on Graham and passes his 73 to all the boys.

GEELONG AMATEUR RADIO CLUB

Chas 3KH recently gave enthusiasts a talk on the use of navigational aids in aircraft. The speaker was very conversant with his subject and gave some interesting highlights on the precision of radio navigation in the most modern aircraft. Members also had a discussion on the subject of Noise Limiters and 5 Meters, and some interesting information was tabulated. (How about an article on the subject, Editor?)

Peter 3ZAV, our most enthusiastic 2 mx member, has successfully worked Tasmania and is whooping with delight; our congrats. Some interesting Sunday afternoons have been spent at the various beach resorts in our district and this has afforded the C.D.E.N. members an opportunity to work their gear with members in Geelong. Jim 3ZBR and Bill 3AWZ recently visited the disposals sales and are still kicking themselves over some fine bargains missed! Ted 3AEH has built a new mobile rig which will cover all Amateur bands. 3BU and 3WT (both Bills) are experimenting with the TZFD with good results. Peter 3APK is active again and has been seen carrying around a large bundle of "CQ" magazines. Alf 3AJF is plagued with the club's new tx which is being built round a Geloso.

Jack 3SY is to be congratulated on obtaining his commercial t.v. licence at the recent exam. Arch 3BW is bowling over the DX judging by the QSL cards arriving from distant climes. We all hope that the large envelope will arrive for Jim 3ZBR soon so as we can listen to his crisp c.w. on the lower frequencies—then the old Z call on 2 mx will be replaced by VK3A--.

QUEENSLAND

The first general meeting for 1956 was well attended though it was held in darkness. The flickering light of the three candles gave the meeting a "high class continental restaurant lit by candlelight" atmosphere without the normal cover charge of said establishments. The results were amazing—a voice from the body of the meeting would say "VK4 so-and-so moves that . . ." to which another voice would add "VK4 so-and-so seconds the motion." Yes, the meeting had a nice atmosphere. One suggestion received for consideration was that when a man called CQ on DX bands and hooked up with a local, the stations should QSX to the top of the band which was not usually well populated and leave the middle open for DX QSOs, at the same time keeping all the band populated.

Visitors to the January meeting were Bert 4AO and Harry 5HO.

The Annual General Meeting will be held on 23rd March and the Annual Dinner date has been fixed for 24th March. All country mem-

bers who can attend please advise the Secretary not later than 10th March so that catering can be attended to. The subscription is 17/6 per head.

The financial year ends with March and subscriptions are due for the new year. The subscriptions are 35/- city members and 30/- for country members.

Personal pars are a bit scarce this month. Vince 4VJ has taken XYL and harmonics for a spell on the South Coast and has ignored the long range weather prophets' predictions of wet conditions. Al 4PA is also on holidays and the long campaign of propaganda by 4ZM has almost persuaded Al to come back on the air.

Jim 4XL has a new modulation transformer and it really sounds nice. Jim is also re-building his rig in spite of the fact that he already has an all-band affair with 829B in the final. Bill 4WD is back on the bands at Sandgate after quite a spell away from Brisbane, north of the tropic of Capricorn (just a couple of miles north). Nice to see Evan 4EF at the January meeting and hope to hear signals from him now that he is back in Brisbane.

It looks like Council will have to scout around for new rooms for the general meetings as the R.G.S. rooms are probably being booked permanently by another group. If anything does crop up we will let you know in "QTC." 73 from 4ZM and 4PR.

T.A.R.C. NOTES

The Annual General Meeting of the above club was held at the residence of 4BX and all present paid their dues, which was quite a welcome lift to the club's finance. The following members were duly elected for the ensuing year: President, 4RW; Vice-Presidents: 4JH and 4BX; Secretary, 4WH; Asst. Secretary, 4PS.

A box containing radio parts for disposal to members at nominal prices was promised by 4TQ, proceeds to go to club exchequer. Many thanks in advance OM.

Quite a lot of discussion was held on proposed 144 Mc. inter-city link and eventually it was decided upon and prototype to be built. Various ways to raise the necessary were put forward and the old stand-by—a raffle—was decided upon for next meeting.

Do not know just what has happened to the boys locally over the past few months, very few of them being heard on the air, unless they chase the DX while I am not around. 4EJ returned from Magnetic Island full of vim and vigor; down came shortened beam to be replaced by ZL Special and still trying to obtain mythical forward and backward ratio. Rex 4LR had a tour of the Tablelands and called on most of the Amateurs in the far north. Andy 4BW spent a holiday at Cooktown and took rx only, now growing because not much heard on 7 Mc. Norm 6NT quite happy with new call sign and spends most of the night chasing DX or talking to the exclusive gang in Sydney!

Alan 4PS tried to get on 14 Mc., no dice, so went back to 7 Mc. and struck trouble with the rig. Hope to see you on 7 Mc. soon. Vern 4LK getting an odd call on 50 Mc., spends most of leisure time waiting for the band to open. John 4DK quite happy working 14 Mc. and getting more contacts than on 7 Mc. Herb 4JW on 7 Mc., still puts in appearance on sked times—1.30 p.m. Tuesday and Thursday. 4RW looking for ways to prize cards of DX worked. Any comments favourably received.—4RW.

MARYBOROUGH

4AI re-built his broad-band converter, using a xtal controlled oscillator. Now drags in DX on 21 Mc. Alan is experimenting with all-band tuning units for his driver and final. Had both halyards break within a day or two, so some of the local lads helped him down and up with the 40 ft. poles. 5BG found he had to earth his metal beam pole to prevent it radiating all around. Ron is chasing 20 mx DX on phone and c.w. Recently re-wired his rig for separate heater transformers.

4CB still determined to make the first Maryborough-Brisbane contact on 2 mx. Arch spent most of the long week-end at this job, so far without success. Spending some time welding his 50 ft. tower and won't operate on the "DC" bands until the tower is up. 4GH talks about building a separate workshop. This should enable him to sort things out and find his tx and rx.—4BG.

SOUTH AUSTRALIA

Having had a spell from journalistic duties for the past month or so, I find it quite difficult to get started. One gets out of touch with local affairs. It seems that young and old enjoyed the annual picnic at Birdwood. The cricket match was an outstanding success. Members were divided into teams under the titles of "Phone" and "C.w." I regret to report that the "Phonies" won the match. Council would

like to express thanks to all those who helped to make this picnic such a good show. Fellows deserving special mention are our old friends, Arch, Joe and Frank.

The Mount Gambler boys all appear to be busy on a variety of projects from re-building rigs to preparing the car for holidays. 5CH is on leave and is rumoured to have heard a VK3 on 144 Mc.; pity a contact did not result. OM. 5ZAG is building a converter for this band also. John 5FD is inactive, unless working on one's car can be regarded as activity. Stuart reports that 15 mx is most disappointing at the moment. Erg is equally hopeful on 20 mx. He is also hoping to make DXCC if only the verifications were not so slow in coming along! 5TW is said to be conserving his energies for the coming RD Contest. That could be called long range planning! During the past few weeks I have had the pleasure of visiting Tasmania where I renewed some old acquaintances in 7OM and 7BJ.

This Division's membership is on the up and this year, for the first time, I believe, we are in full strength on the Advisory Committee. Yes, sir, all A.C. personnel are members of the Institute! It was pleasing to note the list of candidates for Council this year. Members are taking a little more interest it seems to me. A ballot will have to be taken! This is all to the good, in my humble opinion. New blood is good blood in an organisation.—5JD.

PRESIDENT'S REPORT

Extracts from the President's Report are submitted for members' perusal.

Membership.—The membership in the Division has improved slightly over the last 12 months with a gain principally in full members. The figures at present are: Full 220, Associate 138. Of the total of 358 there are 93 Country Members divided into 59 Full and 34 Associates.

The Council has worked faithfully and very hard in the interests of the members of this Division and I am very grateful to all of its members for their continued guidance throughout my term of office. The interest of our younger members in the affairs of the Institute and their willingness to accept office on the Council is a heartening sign to those who have helped build the Institute into its present healthy state since the post-war reformation.

Finance.—The finances of this Division reflect the very careful budgeting by our most able Treasurer, Jim Vivian. The fact that Council has not found it necessary to raise the subscriptions for the coming year should please all members as it has pleased councillors. Funds have been conserved in many ways quite often by members offering to do the work for pay. The Institute would normally have had to pay. A careful study of the Treasurer's Report will show members that though we have nothing to spare each year, Council has not been sparing in its efforts to provide members with what they require.

Technical Committee.—It is hard to assess the value of such a Committee to members because contact is usually made through individual members. However from personal experience there is still a need for such a committee to whom members may go for assistance. As the personnel of the committee varies from time to time enquiries should be made to the Secretary.

T.v.I. Technical Executive Committee.—This committee has only just been formed with an inaugural meeting on 31st Jan. Its functions will be to advise Council on the ways of assisting the Institute to combat t.v.I. Members are sure to see and need more of the works of this committee as the days go by.

Lectures.—These ranged from Film Evenings to Technical Papers and Demonstrations. A departure from the usual was the members' display which was accompanied by lectures on the construction and operation of the equipment shown by the owners. Suitable prizes were donated by the Trade and Council members. This type of evening was so successful that it will again form part of the programme this year. Mr. R. W. Lee, assisted by Mr. Ian Wall (5ZAA) and Mr. Denzil Kelly (5DK), provided members with a real evening of Television and its intricacies. It was certainly the only time that 5PS could thumb his nose at the Chairman and get away with it! To Philips Industries at Henden we are very grateful for the demonstration of, what was to many, their first view of a working Television Camera, Transmitter and Receiver. To all those who assisted to make the meetings a success I tender my thanks as Programme Organiser.

Hobbies and Models Exhibition.—The Institute was invited by the Organisers to set up a typical Amateur Station in the Adelaide Town Hall Annex on 22nd March to 24th March inclusive. As there was little time available for any major construction, equipment was borrowed from Messrs. Austin, Bowen, Paris and Sapplatzer. Although there was little

chance of good outside contacts due to very bad electrical interference, the display was impressive and did a lot of good to improve the public's ideas on Amateur Radio as a hobby. The excellence of the display was due to the time which Mr. Jim Paris was able to give during the days of preparation. To those who tried hard to make contacts with 5WI, the Institute is grateful. The Organisers were very thrilled with the co-operation that they received from the Institute and have asked again that we assist them during March, 1956.

Tape Recordings and Technical Data.—In order to hold the interest of the country members, Council has continued its policy of supplying tape recordings of technical lectures to centres where a recorder is available. In order to supplement those already made, a new series is to be made of technical topics which should interest members.

Official Station 5WI.—Mr. C. J. Othen (5ON) found that he would have to relinquish the office of operator early last year and since that time the station has been operated by the President. Sometimes Council have wondered if the Sunday morning broadcasts to our country members are fulfilling a real need, but I can assure everybody that these broadcasts are looked forward to in the shacks of our distant friends.

Magazine.—Following an appeal for technical articles earlier this year, the sub-editor has received four already with a promise of two more. The honours are shared equally by country and city members. More are still needed to pass our previous record and I am sure that there is plenty left to write about.

Social Entertainment.—General Motors Holden provided members and their wives and friends with an evening's entertainment in the Assembly Hall at Prince Alfred College. The highlight of the evening was the remarkable display of scientific progress demonstrated in "A Preview of Progress." Our thanks are due to Mr. A. J. Gibbs, of Holden's, for arranging the evening for us and to the Headmaster of the College for allowing the use of the fine hall. As a token of its appreciation for the assistance that the Institute receives from the College, Council presented on behalf of the members, a very fine Chemistry Text Book for use in the Memorial Library.

The Christmas Social was held once more in the usual meeting place and the entertainment was in the form of films. As a simple function designed to bring members together at Xmas time it again succeeded. As our official guest we had Mr. Geoff. Clarke, M.P., who, old-timers will remember, was a Foundation Member of the Institute. Mr. Clarke was very happy to express his personal thanks for the invitation, and also to thank the members of the Institute for their offer to the Government to assist in the formation of a communications network. Mr. Jim Sullivan was particularly mentioned for his capable handling of the scheme.

Silent Key.—It is with sorrow that I have to record the passing of an old-timer in Charlie Cheel (5CR). He was a fine OM of Amateur Radio.

General.—I wish to express the gratitude of the Institute to the QSL Officer, Mr. George Luxon (5RX). He has done a ten-year period so quietly and efficiently that George and QSL cards are synonymous.

In the background, but always punctilious in keeping schedules, is the Communications Officer, Mr. Joe Kilgariff. He has handled Federal messages this year.

In March of 1955 a councillor of long and valuable service retired from office. As a token of their esteem for Joe McAllister, the members presented him with an electric clock. Council had earlier honoured him with Life Membership of the Institute.

And now as I retire from the Presidency of this Division, I wish to tell you that my term of office has been a wonderful experience. I have enjoyed every moment of the two years' term which has made quite heavy demands on my time at home and I must pay a sincere tribute to my wife and family for the way in which they have assisted me to carry out my duties as President. I am more than ever convinced that our strength lies in the fact that all our members work towards a common goal, the betterment of their fellow Amateurs and Amateur Radio.

I am sure that you will support your new President in the coming year and I wish him the best of good fortune in his term of office.

(Signed) Gordon Bowen, VK5XU.

WESTERN AUSTRALIA

The January meeting of the Division was held in the Tech. School Annex. The names of the Divisional representatives on the Advisory Council were re-elected for publication, and are as follows: 6AW, 6OR, 6ZAA, 6MK, 6NF

and 6RU. An important item of agenda was the election of the Federal Councillor. 6GM had resigned the position, as he would be unable to attend the Federal Convention proposed to be held this year. The election resulted in the appointment of Ron 6KW as Councillor. A vote of thanks to George was recorded, in appreciation of his long term of service.

6OR moved that certain action be taken re solving the present position of limited licenses under the Constitution of this Division. He proposed that a sub-committee be formed to make enquiries and submit recommendations to the general meeting. The motion was carried and 6MK and 6BO were elected to form the sub-committee. We believe Tom and Rollo are at work and are making good progress.

6MK rounded off the evening with a lecture on t.v.i. and the t.v.i. proofing of transmitters, illustrating his lecture with a piece of American equipment—a band-switched 50w. tx 3.5 to 144 Mc.

Tom also promised a film evening in the near future; films of his recent tour of England and the Continent. This should be very interesting.

Don 6BK and Wally 6ZAA recently returned from their tour of the VK5-VK3 shacks. We believe they had an interesting trip, also the VK6 call on 144 Mc. caused some near heart failures in certain VK3 shacks!

A new call has bobbed up on 7 Mc.—6EE, Bob, late SASH. Glad to meet you Bob and hope you make many friends in VK6.

Incidentally, 7 Mc. c.w. DX has been very good lately. UA3, UC, UI, YU and JA coming through at good strength. How are you making out Dave?

An opportunity, rare in Amateur Radio, will shortly take place. VK6 will be providing radio communications for the Narrogin Car Club Trial—the local Redex. Full details are not yet to hand, but tentative arrangements re equipment and men are being made. This should be very good publicity for Amateur Radio in this State. For those who wish to listen, the frequencies are 3.34 and 5.77 Mc. The date is week-end ending March 5.—6BE.

TASMANIA

The general meeting for February was held on the 1st of the month, with President TFJ in the chair and Secretary Bill Tait in attendance. A representative gathering turned up and in the general business section of the meeting, several suggestions in connection with the Olympic Games came under discussion.

Federal Executive approval has been given to a suggestion emanating from Mark TMH that a relay be arranged conveying greetings from Greek Amateurs near Mt. Olympus in Greece to the Australian Olympic Games Committee. The relay to be handled this end via Amateurs operating on or near Mt. Olympus in Tasmania.

Other suggestions discussed, and under consideration are (1) That this year's VK-ZL Contest be held to coincide with the opening of the Olympic Games, and (2) That world wide greetings be relayed to the Games Committee from Amateurs in all parts of the world.

A committee was also appointed to investigate the equipment and operator angles of the Emergency Network, the immediate aim being co-operation with the Search and Rescue Section of the Bush Walking Club.

At the conclusion of business, Mr. Tas. Fehlberg delivered a lecture on his recent trip around the world. Mr. Fehlberg used coloured slides to illustrate his lecture and his effort was greatly appreciated by all present.

Athol TAJ is convalescing and hopes to be active again soon. Better stoke up the old rig Athol and let's hear from you. Doc 7LL has gone on a jaunt to England and will be away for about a year, so doubtless he will entice some new equipment home with him when he returns. Lon 7LJ is in the middle of a rebuilding campaign, but is taking time off now and then to think about possible sites for a National Field Day venture. Lon and Ken 7KA anticipate running a Geloso plus 807 for the portable 7 Mc. tx and at the time of writing are seeking a generator power supply for the job. I understand also that Ken will shortly come to light with a brand new tx, complete with all mod. cons. and t.v.i. proof. This, plus a recently acquired AR7, should make Ken a force to be reckoned with in the next R.D. Contest. That reminds me also that Peter 7PA is sitting pretty with a Superpro rx. What about it, Peter? Reach for that send switch and let's see what happens.

7CH has been holidaying in the Sandford area, but I am not sure whether Snowy took any equipment with him, or whether it is a holiday in the complete sense of the word. Len 7LE has been camping, but is now back in harness again.

Doubtless all members are by now aware that the Annual General Meeting and Dinner will take place at Bronte Park on 10th March.

Organisation is in the capable hands of Beg 7WN and colleagues, and everything seems set for a really good function. Harry 7BR told me that he would probably be in a position to handle any mobile work that any of the visitors contemplate on the journey to Bronte, so if any of you mobile-equipped gentry are interested, you had better get in touch with Harry, pronto, if you have not already done so.

Greetings are extended to 5ZAH, who will be living down this way for some time. Unfortunately, I do not know the name at the time of writing, but we won't let that detract from the welcome. I guess that VK5 call will soon be changed to one with a VK7 prefix. Tom 7AL has been subjecting himself to the rigours of annual Army camp life, but has bought a nice new sky-blue Zephyr as compensation. Who is going to keep the dust off the rig now Tom? It is bound to collect with such a counter attraction. Nicky 7RY is operating crystal control, but a new v.f.o. is under way and should be in operation in the near future.

PAPUA—NEW GUINEA

As a sub-editor has not yet been appointed for this year, 9RM was asked to supply notes.

This was our first year as a fully-fledged Division, and at year's end I am pleased to say that nearly all Amateurs in the Territory are within its ranks. Considering the peculiar conditions prevailing up here, whereby most residents go south for leave every two years, there are usually several of the fraternity away enjoying the fruits of past labours. At times it becomes quite a problem to make up a quorum of councillors to deal with Divisional matters. That we have been able to do this with such a small Division speaks well for the interest and activity of its members and we all look forward to continued success and growth in the ensuing year.

On leave at this moment is our first President 9FN, who needs no introduction here or in VK4 land and who will be away for the next three months. Also others taking the same treatment are 9AU from Wewak and 9DT of Moresby, both very active members.

The purchase recently of a large rig for the use of 9WI for local hook-ups on Sunday morning throughout the Islands should go a long way to welding the Division even closer, as the topography in the Territory is not exactly conducive to 7 Mc. QSOs. Rabaul has always been a tough one to contact, and with quite a few members located there on the rim of a submerged volcano, we look forward to, at least, putting some added r.f. in their direction.

We welcome two new members in 9AS at Wewak and 9TZ near Mt. Hagan area, who have been active in the hook-ups since joining up. Also leaving us for keeps is the oldest member, namely Ron 9RC, after 35 years in New Guinea—any contenders to dispute this? Ron has always been active over the years and now looking forward to a well earned rest among the VK3 gang. Incidentally, he has held a call since 1910 and has seen it all from slop jars and cage antennae, right up to the t.v. era coming up and no doubt will shortly be conversant with t.v.i.

As your scribe is holding the fort until a new sub-editor for local notes is duly elected for this year, I would welcome anything of interest for inclusion in these notes.—9RM.

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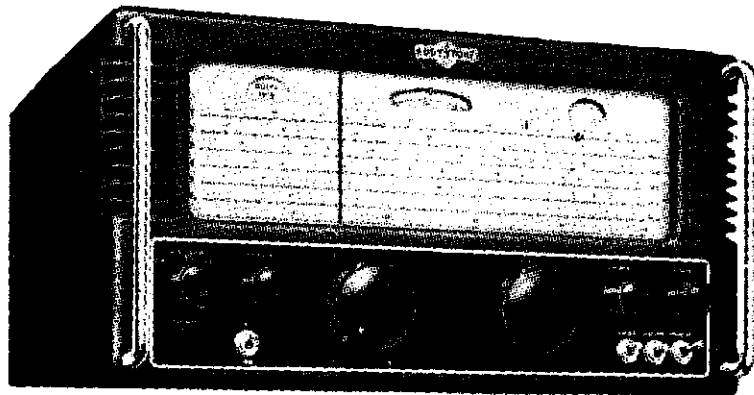
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Power Transformers, 40 Ma., 250-0-250., 6.3v. 3 amp., new, 15/-

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2208.1 Kc.	6450 Kc.	7032.6 Kc.	7120 Kc.	8171.25 Kc.
2218.7 Kc.	6850 Kc.	7035 Kc.	7121 Kc.	8176.923 Kc.
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3600 Kc.	7010.7 Kc.	7047 Kc.	7134 Kc.	8320 Kc.
3625 Kc.	7011.5 Kc.	7050 Kc.	7140 Kc.	
4265 Kc.	7011.75 Kc.	7053.5 Kc.	7145 Kc.	10.511 Mc.
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AMATEUR RADIO

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EDITOR:

T. D. HOGAN, VK3HX.

MANAGING EDITOR:

J. G. MARSLAND, VK3NY.

TECHNICAL EDITOR:

K. E. PINCOTT, VK3AFJ.

TECHNICAL STAFF:

J. C. DUNCAN, VK3VZ.
D. A. NORMAN, VK3UC.
R. S. FISHER, VK3OM.
A. E. MORRISON, VK4MA

COMPILATION:

R. W. HIGGINBOTHAM, VK3RN.

CIRCULATION:

I. K. SEWELL, VK3IK.

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EDITORIAL



INTRUDERS IN THE AMATEUR BANDS

There is no need to ask the Amateur Service in Australia whether it has listened to the interference on the 20, 40 and 80 metre bands—and even the 15 metre band—during the period since the re-licensing of Amateurs after World War II! The commercial intruders into the portions of the frequency spectrum specially allocated to the Amateur Service on a world-wide basis by decisions reached at the International Telecommunications Conference held at Atlantic City in 1947 and subsequently ratified by all signatory Nations at a Conference in 1952, is enough to drive the DX Amateur and Short Wave Listener—and even the 40 and 80 metre rag-chewer—to the proverbial drink!

The Wireless Institute of Australia, along with other member societies of the International Amateur Radio Union, has consistently brought the matter to the notice of the country's Administration—in Australia, the Postmaster-General's Department, in the United Kingdom the British Post Office, in the United States of America the Federal Communications Commission and many other Authorities in various countries of the world whose official representative signed the agreement to the Frequency Table laid down at Atlantic City. What a futile effort it has turned out to be!

The Amateur Service has a mere slice of the relatively vast frequency spectrum available to short wave broadcast. Manual A1, Automatic A1 and other transmissions, yet the encroachment into the meagre Amateur bands has to be heard to be believed. Why is it that these Commercial vagrants can on the one hand sign an agreement to a Frequency Table based on world-wide requirements, and on the other hand violate the agreement insofar as the Amateur allocations are concerned? The Amateur Services of the world would like to know the answer to that question!

However, the Amateur Service can do something vital about it and it is high time they did. The Atlantic City Convention set up one clear channel for complaints of violation; the user of a Service being interfered with must register his protest with his own national administration, which in turn files a notice of violation of the treaty with International Telecom-

munications Union and with the administration having jurisdiction over the illegally-operating stations. There is no alternative procedure. While international organisations may be invited to take part in discussions of I.T.U. committees and study groups, they have no other official status with I.T.U. Only signatories to the treaty—Governments—can demand action of any kind.

The International Amateur Radio Union states emphatically that member societies should repeatedly protest the presence of intruders to their own telecommunications authorities. Reports should be as complete and correct as possible, and should demonstrate that the Amateur Service is being interfered with; the presence of a non-Amateur station in the band does not constitute violation of the treaty in itself.

The Amateur Service has as much right to preserve its domain as any other Service. If the Amateur strays from his allocated frequency bands he is dealt with by his Administration in no uncertain terms. Yet fifty confirmed foreign transmissions have encroached on the Amateur bands and simply nothing is done about it. The Australian Amateur is strongly recommended to forward in those complete reports and the W.I.A. will take stern steps this time to see that something is done about it.

Next month "Amateur Radio" will print the first official listings extracted from the documents of the International Frequency Registration Board at I.T.U. Headquarters in Geneva of known "foreign" transmissions in the Amateur bands. These are only for the period November, '54, through to July, '55. What a deplorable sight it is too!

Of course it must be remembered that some of the interfering stations—all of which have not been confirmed in this list—originate in countries who were not signatories to the Atlantic City Frequency Table. Little assistance can be hoped for from the Administrations of these countries, but if half of those in the list were removed our bands would be more habitable. It's up to each and every Amateur to do some real logging, screening out image reception, unconfirmed reports and reports of stations operating legally under the treaty. Go to it!

FEDERAL EXECUTIVE.

The "2YY" Transmitter

(VK2YY is the call sign of the Radio Section of the Leichhardt Petersham Technical College)

BY N. S. BEARD,* VK2ALJ

AT the first full-scale meeting of the Television Interference Committee of the N.S.W. group of the W.I.A., under the chairmanship of Dr. R. Black, VK2QZ, it was determined that with the advent of t.v. it was necessary to design a suitable transmitter to replace the older type rack-and-panel or assorted bread-board types said to be still in use. It was therefore moved, and seconded, that the two technical officers of the group—VK2OT and VK2ALJ—be requested to design and produce a transmitter to the following specifications:—

- To operate on all licensed Amateur bands, 80-40-20-15-10 metres, the input to be the full licenced power of 100 watts at maximum loading.
- To be capable of either c.w. or modulated output.
- V.f.o. controlled, with calibrated dial on all bands, to conform to present-day Amateur practice.
- Entirely self-contained in the one "dust-cover," fully screened and shielded so that the harmonic output was negligible (especially above 30 Mc.), and therefore suitable for use in close proximity to any t.v. receiver and, if possible, near any standard broadcast receiver with zero interference.

After a short conference, the "2YY" transmitter was designed, laid out, and built to its original design, with one minor modification—that is, the addition of a heavy duty handle at each end, one for the op. and one for the XYL.

It was decided to develop the rig around the readily available "Geloso" v.f.o. unit, which seems to fill the bill nicely as a reliable compact driver, and to use either a single 6146 or two parallel 6146s in the p.a. stage. For harmonic suppression, the p.a. tuning is a pi-network, which avoids plug-in coils and can be band-switched.

Output is taken through a suitable aerial coupler, via a low pass filter when required, and loads into either an end-fed long wire or feeders at practically any impedance.

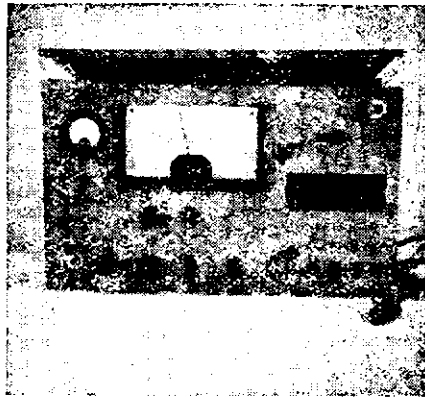
To avoid radiation of p.a. harmonics, or oscillator fundamental, the whole r.f. section, including the v.f.o. unit, is totally screened in a perforated metal enclosure, giving ample ventilation but a complete blockage of radiation except through the output co-axial cable. The v.f.o. cannot be heard in the receiver for "netting" unless a section of hook-up wire is pushed through a convenient hole in the screen and brought over to the receiver.

V.F.O. UNIT

The Geloso unit consists of a band-switched Clapp oscillator using a 6J5, followed by a 6AU6 isolator and a 6V6 buffer-doubler—on 21 Mc. it is a tripler.

With 350 to 400 volts supply, the 6V6 develops up to 8 Ma. drive on the p.a. grid—provided it is lined up after installation.

The only modification found necessary was on the 7 Mc. band. It was reported from various sources that the original layout gave trouble, having the oscillator on 7 to 7.45 Mc., the 6AU6 as an aperiodic amplifier, and both 6V6 buffer and output stage also on 7 Mc. It was



decided to shift the L2 jumper on the oscillator selector switch to place the oscillator on L3 (3.5 to 3.6 Mc. as for 14 and 21 Mc. range), doubling in the 6V6 to 7 Mc.

This necessitates a recalibration of the 7 Mc. dial scale to match up with the 14 and 21 Mc. markings. Some hand cleaning compound on a well-

chewed match stick removed the original scale, which now reads 7.0 to 7.2 Mc., giving better bandspread on our most crowded band.

POWER AMPLIFIER STAGE

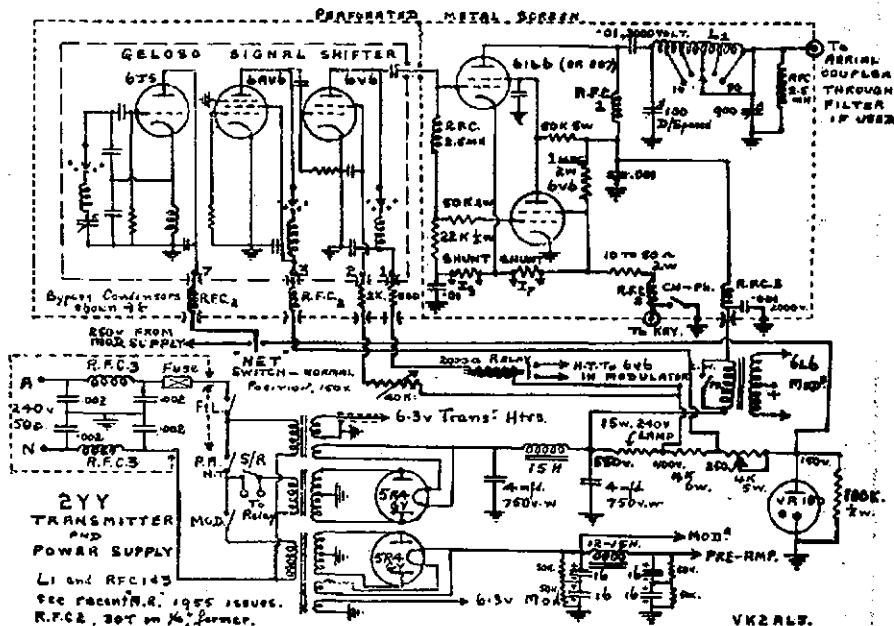
The grid circuit was wired to take paralleled 6146s with 25,000 ohms of grid resistance. The 6146s loaded to at least 99.5 watts for c.w. work, but for phone work one 6146 was removed (after it cooled down!) and the remaining tube loads to about 85 watts input—a slight overload—but was backed off to about 75 watts after checking the price of the tube.

The stage works into a band-switched pi-network, similar to that described in December, 1955, "A.R.," tuned with 90 pF. (max.) input and about 1050 pF. (max.) variable condensers. The input condenser needs to be double spaced to avoid arc-over, as the r.f. peak here on modulation is probably up near 2,000 peak volts.

The output condenser can be a three-gang b.c. receiver type (all sections in parallel), and does not arc over when aerial is connected and properly adjusted, but will do so without load.

For c.w. work, the oscillator and buffer run continuously and the screen of the p.a. is held down by a 6V6 clamper tube. The circuit used is from "Radiotronics," October, 1951—with a modification as the 6146 screen current is about 12 Ma. per tube, against about 8 Ma. with 807s.

The keying is clean and no back wave is audible with the key up.



*4 De Chair Road, Dee Why, N.S.W.



MODULATION SYSTEM

The rig is plate and screen modulated using a conventional speech amplifier, crystal mike to 6SJ7 pentode, 6SJ7 triode amplifier, 6V6 driver, transformer coupled to push-pull 6L6s in Class AB2. Bias for the 6L6s is taken from a simple bias pack using a disposals output transformer, with the "secondary" connected across the 6.3v. speech amplifier heater supply. This gave about 95 volts a.c. on the primary at about 50 Ma. loading. The bias rectifier is a 6X5 (a 6H6 will do), with the potentiometer set to give about -28 volts on the 6L6 grids. With this type of bias, it is necessary to run the speech amplifier heaters continuously and to warm up the rectifier before switching in the modulators.

In the "2YY" rig, the modulator power supply is on at all times when "phone" is in use and 6L6s draw current continuously. However, the 6V6 and pre-amplifier h.t. is switched by a relay actuated by the driver current of the v.f.o. so that the modulator is inoperative unless p.a. drive is on. The modulator current during stand-by periods was set to about 60 Ma. by adjustment of the bias, to keep the speech amplifier circuit "warmed up."

A "netting" switch was then cut in to take h.t. for the Clapp oscillator, off the modulator h.t. without switching in the p.a. supply. This allows the v.f.o. to be put on any desired spot frequency without the final coming in, using about 250v. from the speech amplifier h.t. supply. No frequency shift was noticed when the oscillator reverts to its 150v. supply when the p.a. is on.

POWER SUPPLIES

One power supply for p.a. using 5R4GY rectifier, 600 volts per side, 200 Ma. transformer. The filter consists of 4 uF. 750v. d.c.w. oil-filled condenser, 150 Ma. choke and another 4 uF. condenser, delivering 560 volts d.c. on full load. To drop this h.t. to 400 volts for the 6V6, a 3,000 ohm 20 watt resistor was placed under the chassis. After noticing the blistered paint on the cabinet, it was replaced by a 25 watt, 240 volt lamp in a socket placed inside the cabinet at the rear, above the chassis, giving reflected illumination to

the dial and leaving the heat in the top of the rig, in the ventilation stream. The resistors left under the chassis have lower heat dissipation, dropping the h.t. to 250 volts for the 6AU6, then to 150 volts at the socket of a VR150-30 regulator tube, giving 150 volts for the 6J5 oscillator.

The transmitter heaters and the rectifier heater are from a separate filament transformer, so that the p.a. h.t. is switched on-off in the 240 volt supply to the p.a. power transformer.

The "S-R" switch operates in series with this switch except when using a separate relay, which can parallel this "S-R" switch.

The modulator power supply is standard, 400 volts per side, 200 or 250 Ma. power transformer, plus 6.3v. and 5v. windings. Rectifier used is a 5R4GY, electrolytic input and reservoir condensers, using two 16 uF. 600v. condensers in series for a safety margin. Since the modulators are in push-pull, h.t. for 6L6 plates is taken direct from the rectifier socket at 380v. d.c. and a

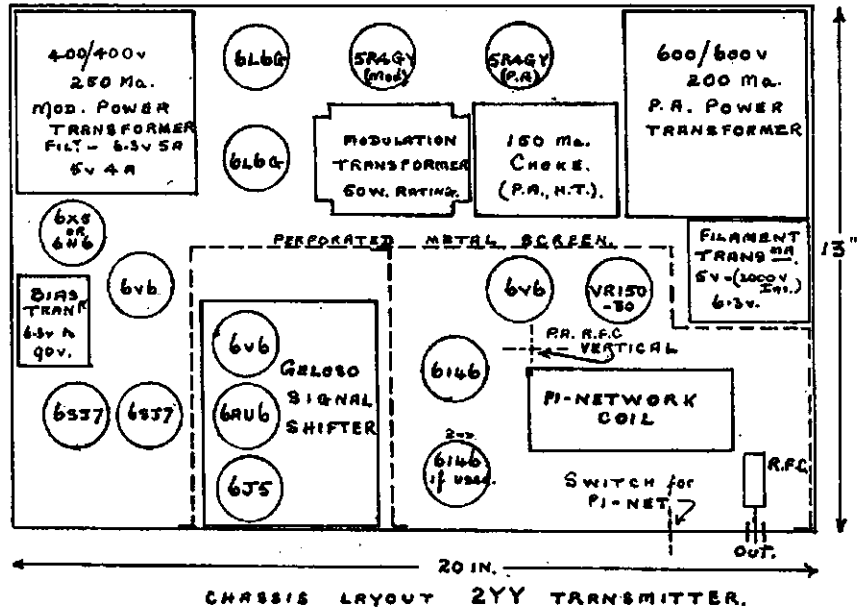
small 60 Ma. choke is sufficient to smooth out h.t. for 6L6 screens and the pre-amplifier driver stages.

Bias for the 6L6s is developed by a separate 6X5 bias pack as previously described.

LAYOUT

The chassis used is a welded sheet-metal box chassis of 20 gauge mild steel bent to a shape 20 inches long, 13 1/2 inches wide, and 4 inches inside depth, with a lip 1/2 inch wide underneath, all round. In our rig, the chassis was laid out, punched and drilled for assembly, and then cadmium plated.

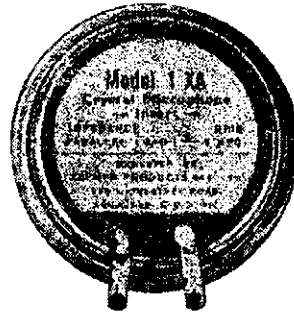
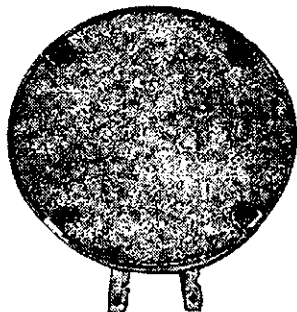
The chassis layout, as per diagram, places the two power transformers at the rear, one at each end, with rectifier sockets and p.a. choke along the back. A slightly different layout may be necessary if the transformers are not of the same make as the "2YY" version. This layout keeps the rectifier and modulator heat away from the exciter and allows ventilation past these heat-producing components. The modulation trans-



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This crystal microphone requires to be terminated with a high value parallel load of the order of 1 to 5 megohms for best results.

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Light gauge solder lugs are provided so that excessive heat in soldering will not be transmitted to the crystal element.

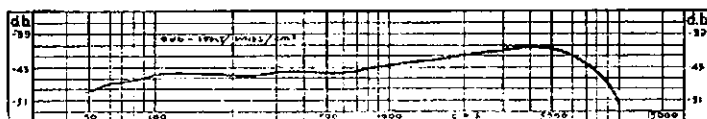
When mounted in a microphone cage, it is recommended that the insert be suspended in rubber, to eliminate shock and vibration.

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, $1\text{-}13/16$ " overall diameter (front) with filter fitted.

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former is necessarily placed against the modulators in a position which allows short leads to the modulator plates, and to the h.t. input to the p.a. enclosure.

A depth of 4 inches allows the audio driver transformer, our modulation relay, and all filter condensers to be placed below the chassis, without crowding or obscuring connections, but no space is wasted.

The signal shifter and the p.a. compartments are formed of perforated mild steel, bent to make a "meat-safe" around the section, with a partition between exciter, and p.a. section. This allows through-ventilation, but seems a good r.f. shield. The lid over the r.f. section is also perforated metal, all fastened with self-tapping screws.

Under the chassis, a single r.f. shield covers the connection, buffer output condenser to p.a. grid, all the p.a. grid wiring, meter shunts, and clamper tube circuitry, with a single entry for the modulated h.t. from the modulation transformer. This lead enters through a feed-thru type condenser, and through an r.f. choke right against this condenser.

All heater wiring into this enclosure is in shielded cable, and is by-passed at the sockets.

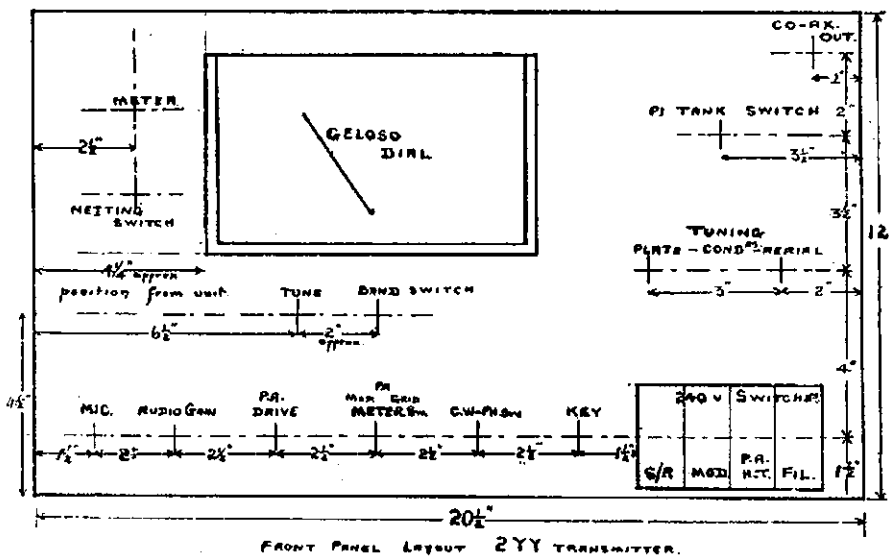
The meter selector switch is in this enclosure, but leads leaving the enclosure are passed through small r.f. chokes and by-pass condensers at the point of entry. The same precaution is taken on the key outlet, the "hot" lead is by-passed and has an r.f. choke in its short connecting lead. By-pass condensers should be of sufficient voltage rating to prevent breakdown with keying surge voltage.

The control switches are small 240v. a.c. architrave switches, fitted into a shielded enclosure with a mains filter fitted behind them. The conductors leaving this enclosure, taking 240v. a.c. to power transformer primaries, need not be by-passed or shielded since no r.f. is likely to give trouble here.

Since the outer cabinet is 12 inches high, the p.a. and exciter enclosure is made 7½ inches high to give as much space as possible for p.a. tube and the pi-filter components. If an 807 had been used, a Gelo tuning unit could have been used here, with the pi-filter coil and its switch as high as possible to allow room for the tuning condensers.

Audio wiring is normal, and forms a straight-through section at one end, working back from the microphone input, to the 6L6 modulators, but leaving room here for the bias transformer. The modulator filter condensers, using two 16 uF. electrolytic condensers in series, each in parallel with 50,000 ohms, are tucked neatly under the rear lip of the chassis.

In the audio wiring the only precautions taken were to see that heater wiring was secured against the chassis, well away from grid and plate leads, and also that the input connection between mike socket and the 6SJ7 grid pin, which is, after all, only a half watt resistor plus its leads, is covered with spaghetti tube, and then pulled through a section of copper braid, earthed at each end. It is surprising how this precaution reduces hum in the modulator output.



FRONT PANEL LAYOUT 2YY TRANSMITTER.

CONSTRUCTION SEQUENCE USED

1. Layout and fabricate the main chassis.
2. On this chassis, place the power transformers, p.a. choke and modulation transformer, signal shifter, bias transformer and the filament transformer.
Check the spacing and mark off their positions. Place the necessary sockets on the chassis near their final positions, spaced to allow room for the tubes, and mark these positions.
Cut out or punch the necessary holes. On the front of the chassis mark out and drill, or cut out, the openings for control switches and potentiometers.
3. Cut the front panel to size, 20½" x 12" high. In our transmitter we bent a lip ½" wide top and bottom to give rigidity, and to form a point for securing the bottom cover and to rest the lid.
Brass is easy to work and can be polished or sprayed. Lay it in place against the chassis and mark out the clearance holes for potentiometers and

- control switches. It may be secured to the main chassis using the potentiometer and switch shaft, but a separate panel behind it gives better shielding.
4. Mount all sockets and components except the two large transformers and the p.a. choke, and you may proceed with the wiring, etc. If the power transformers are bolted in place it becomes a two-man job to shift it.
5. The Gelo is mounted on a vertical panel bent to shape behind the main front panel, measuring about 16" x 7½" high. This panel is a separate shield, but the main panel bolts to it so that all tuning condensers and most shafts bolt the two together.
6. Mount the pi-network coils and condensers, and then the power transformers are bolted on and wired up. It now weighs about 1 lb. per watt.
7. Finally, fabricate and fasten on the cabinet, lid and bottom cover, at which time the rig is nearing completion.
[Next month the testing and alignment procedures will be featured.—Ed.]

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A Home-Built DX Receiver

BY H. F. RUCKERT,* VK2AOU

IN "Amateur Radio" for April and May, 1954, there was a general discussion of DX receiver problems under the heading "Short Wave Receiver Selectivity Problems and the Double Crystal Filter as the Answer." The author described the different stages of a receiver and the characteristics of these stages as far as sensitivity and selectivity is concerned.

A further article, "A Discussion on Receiver Performance," "A.R.," May, 1955, makes it clear why the different stages of the receiver front end have to be so carefully designed to give the expected performance.

The third article of this series may now demonstrate how the theoretical thoughts and planning have been used to design a modern DX receiver. Since the problems have been discussed in the two abovementioned articles in detail, a fairly brief description of the practical work may give enough information to the interested Amateur who still prefers to build his own receiver.

LAYOUT AND MECHANICAL CONSTRUCTION

Three independent chassis are used for the r.f., i.f., and a.f. plus power supply part of the receiver. These chassis are in a shielded cabinet which has a frame of welded angle iron for stability. This method has several advantages. Each chassis does not become too bulky or heavy, and it is easy to get to any component for measurements, aligning work, or repairs. There is also a lot of front-panel space which allows the placing of components at the desirable spots. Each chassis is held by only four screws in the frame. They are interconnected by a six-contact cable so that they can be operated outside the shielded cabinet—important during the developmental time or when repairs may be necessary.

The lowest chassis includes the cascade pre-amplifier, the two r.f. stages, the first mixer and first oscillator, a voltage regulator and the 1 Mc. crystal frequency marker. Looking from the side at the chassis, we see a cross-like section of chassis behind the front panel.

The shielded valves are mainly in the upper front section in the same sequence as the circuit is drawn. The other half of the top section is divided by shields in such a way that a shield is always between the pins of each valve holder so that grid-1 and plate circuits are separated. These small compartments contain only the resistors and most of the ceramic disc-type by-pass capacitors. The r.f.-free end of these small components and leads are soldered to resistor strips. From here a string of cables go down to the other part of the chassis. The solder lugs provide handy measuring points.

The lower front section of this chassis accommodates the two turrets, each of which has three sections for six bands. Each turret has six strips which hold

three coils, ceramic disc-type trimmers, ceramic disc or tubular padder or parallel capacitors of suitable temperature coefficient. It is very easy to take the tuning section strips out to change inductance or capacity. The coils have iron dust slugs with a slotted bakelite screw for screwdriver adjustments. The turret contacts are Berillium plated and have given trouble-free service for three years.

The turrets are installed in such a position that the coils and trimmers, which are switched to the circuit, can be reached through a slot in the bottom of the receiver cabinet to allow re-calibration without taking the receiver out of the cabinet. Behind the turrets are the two shielded four-gang air capacitors of 6 to 18 pF. capacity, in one of which only two sections are used. Stators and frame are machined out of two blocks of a light alloy. The rotors are machined too, but they are shrunk on a precision-ground low-loss steatite spindle held by ball bearings.

All the r.f. leads from the valves, the coils and variable capacitors meet at the centre of the chassis cross with very short leads. There are two dials, but the one for the preselector needs only tuning in certain cases. The bands are spread to cover 330° to 350° of the tuning dial. A fine steel cable does the transmission. The tuning knob makes 20 turns to cover the bands and on 14 Mc. about 3/8" on the dial represents 10 Kc.

In the middle is the i.f. chassis which also includes the "S" meter. Underneath this sub-chassis there is only space for small components and the wiring.

The upper chassis carries all the stages which dissipate a lot of heat, like the power supply and the a.f. amplifier, to keep the heat-sensitive tuned circuits cool. There is also a small loudspeaker.

It may be mentioned that all components, except some valves, are of German origin. All coils have been wound by the author because there is no difficulty in doing so as long as one has suitable formers with iron cores.

THE CIRCUIT

A switch allows the connection of the aerial on the cascade pre-amplifier and connects the two 6AK5s (triode connected) to the following superhet. This pre-amplifier is used only if very weak signals on 28, 21 or 14 Mc. have to be received. There is about one S-unit gain in signal to noise ratio with the amplifier on, which is a help in difficult cases. The r.f. gain of the following superhet. can be reduced to prevent cross modulation if strong local stations are near the receiving frequency. If there is heavy QSB the a.v.c. can be adjusted to have control on the two r.f. stages with or without the pre-amplifier connected. These adjustments can be carried out with a 10,000 ohm cathode resistor and a 1 megohm a.v.c. control grid resistor.

One small neutralising coil was found to be satisfactory on all three bands

between the two pre-amplifier valves, preventing oscillation and to give good gain.

The five sets of coils of the two pre-amplifiers, the two r.f. stages, and the mixer grid tuned circuits are identical with taps at each coil to provide a transformation of the valve input impedance, to reduce oscillation tendency, and to get the desired band spread for each band. Valve electrodes and the sections of the variable capacitors are on the same taps of the coils.

The tracking of the oscillator was calculated with the slide rule using a method which may be published later in "A.R." The alignment of the tuned circuits can be done with a calibrated grid dip meter. The 1 Mc. crystal frequency marker gives strong harmonics even on 28 and 29 Mc., due to the crystal diode working as non-linear harmonic forming device.

The 150 volt regulator controls the plate voltage of the first two oscillators and that of the "S" meter valve and the mixer screen grid voltage. The standby switch has connections to take the B plus off the pre-amplifier and the two r.f. stages when the transmitter is working. This allows me to listen to my own transmission and to see how much of the frequency spectrum my modulation band is covering.

The first i.f. is near 5.3 Mc. and a shielded link line goes to the i.f. chassis from the mixer valve (similar to an EF50 with separate grid No. 3). One valve on the first i.f. is used to separate the two mixer stages and the seven tuned circuits which form a 10 Kc. wide bandfilter with very steep flanks, thus preventing strong signals, which may be twice the second i.f. away from the incoming frequency or first i.f. after mixing, getting through. If these points are overlooked the double conversion superhet. may have more images than a single conversion superhet. Tests with a signal generator have shown that only one frequency is getting through.

The receiver is free from cross modulation if the signals received are not stronger than 3 millivolt or 30 db. over S9 on the 14 Mc. phone band. With an additional cathode resistor the i.f. gain of the first i.f. and second i.f. amplifier can be set to such a value that the mixer noise can just be detected with different settings of the second i.f. selectivity control. This is an important point not often achieved with Amateur receivers.

The tuning of the second oscillator can be adjusted to bring the megacycle marks of the receiver dial always on the dot when checking with the calibrator. It is wrong to use crystal control here because the second oscillator is much more stable than the first oscillator, unless crystals are used as in the Collins 75A receiver.

It is not necessary to repeat here the description of the double crystal filter because all details are given in the April and May, 1954, "A.R." The bandwidth of the flat top of the response curve

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

can be continuously varied from 0.5 to 3.5 Kc., which allows the desirable reception of the carrier and one sideband of the phone transmission. The carrier has to be tuned to one side of the i.f. pass band. At 60 db. down the bandwidth is 7 Kc., which is equal to the Collins mechanical filter. One side of the response curve is steeper and the other one is not as steep, as the curve of the Collins filter. A four-gang 7 to 14 pF. capacitor is used for bandwidth control. The single side c.w. reception is very good. S.s.b. reception is also possible without difficulty (switch a.v.c. off, use full a.f. gain, regulate r.f. gain, switch b.f.o. on and adjust carefully to one side of the i.f. passband).

There is a special "S" meter valve. The calibration of the "S" meter is such that 100 microvolts from a signal generator parallel to 70 ohms gives half scale meter reading and is called S9. The step for each "S" unit is 6 db., which is a voltage ratio of 1:2.

The b.f.o. frequency is adjustable. This is more flexible in s.s.b. or c.w. work than the crystal control first used.

A 6H6 has the usual function, rectifying the i.f. voltage to get a.v.c. and a.f. voltage. There are three valves of low gain together with nine tuned circuits and two series crystals in the second i.f. amplifier working on 352 Kc. All coils are of the iron dust shell type permeability tuned and wound by the author. Here again only ceramic capacitors, which have a very low power factor of better than 0.04%, have been used. A sketch (shown above the first crystal filter stage) shows the turn

percentage ratio for the taps on the i.f. coils of the double crystal filter.

The noise limiter is quite effective, reducing the circuit noise without effecting the audio gain. It is a series diode circuit with automatic adjustment of the level, depending on the modulation percentage (valve is a 9004).

The top chassis accommodates the two stages of audio amplification, the power supply and the loudspeaker. The output valve can be switched off if headphone reception only is desired. The a.f. output valve is capable of delivering 4 watts of audio at 10% distortion. A second speaker can be connected. There is also a tone and a.f. volume control.

PERFORMANCE

With the used carrier plus one selected sideband receiving method, one can hear DX signals without trouble when other local stations were complaining about QRM. With this receiver the internal receiver noise is always less than the noise picked up by the aerial when no signal or static is present. I could always hear the DX stations other local Amateurs copied with similar strength, the only difference is due to various aerials used.

Due to the small capacity of the variable air capacitors of 6 to 18 pF. a very high L/C ratio had to be used, which is much more difficult to stabilise than others with 50 to 100 pF. in the oscillator circuit. But still the warm-up drift is only a few kilocycles, which can be compensated with the second oscillator and the drift changes in direction after 30 minutes of operation.

The "S" meter is calibrated for an r.f. and i.f. gain which reads S1 on receiver noise when the antenna is switched off.

An a.f. output of a monitor may be connected to the a.f. amplifier. The audio response of the a.f. amplifier is so adjusted that low frequencies are attenuated to give the right ratio of low and high a.f. response because the highest a.f. tone allowed to go through depends on the i.f. bandwidth or on the way of tuning in the station.

This receiver was built with no more facilities than the average Amateur has. The only difficulty may be in obtaining the turret. (One should be available soon. Watch for advertisement in "A.R." —Editor).

VALVE DETAILS

The valves used are in some cases German Telefunken types, which can be easily substituted by those locally available.

Type EF14 is similar to the 6AC7 (7 Ma./V. gm., but 5 watt).

Type ARP35 is similar to the EF50 (g3 must be separate).

Type 4671 is a Philips acorn triode.

Type RV12P2000 is a miniature valve with 2 Ma.V. gm.

Type RV12P2001 is similar, but with variable gm for a.v.c. operation.

Type RL12P10 has 9 Ma./V. gm, but is similar to a 6V6.

The RV12P2000 can be used with a.v.c. if g2 has a high resistor.



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BRIGHT STAR RADIO

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



SIMPLE AMATEUR MICROWAVE EQUIPMENT FOR TERACYCLE FREQUENCIES*

Whilst studying the derivation of the cavity resonator from the simple parallel tuned circuit (A.R.R.L. Handbook, 1953 Edition, page 425) the writer was struck with the possibility of a different development of the parallel tuned circuit, and considered theoretically what might be done with it.

In the ordinary tuned circuit there is both lumped capacitance C, and the distributed capacitance of the coil L. If the coil be made small enough the distributed capacitance, though itself small, may be such in relation to the inductance of the coil that the L/C ratio of the coil approaches optimum for a tank circuit for extremely high (teracycle) frequencies.

Now consider the application of direct current to such an inductor. Almost instantaneously, a counter E.M.F. is developed, which opposes the flow of the applied current. If the coil has some resistance, a sufficiently small in-

ductance, and the correct L/C ratio, such that the time interval between the application of the direct current and the development of the back E.M.F. is of the order of the time of a half-cycle at the resonant frequency of the coil, electromagnetic oscillations will be set up and will continue while the original current is applied. C.w. transmissions can be achieved merely by keying the applied d.c.

Experimental work with such an arrangement led to ultimate success, although it was found necessary to mount the coil in an inert atmosphere (or in vacuo).

A simple parabolic reflector was found to give a good beaming effect.

No experiments with modulation have yet been conducted by the writer.

With two such transmitters, and using simple receiving apparatus which followed conventional practice for such frequencies, two-way Amateur communication has been established over more than one mile.

Communication is, however, restricted to line-of-sight.

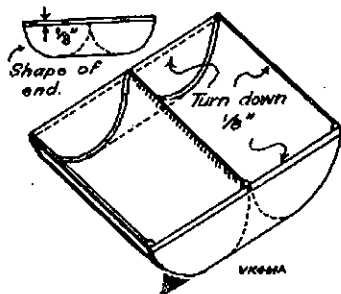
* Specially contributed to this number of "A.R." by a VK6 Amateur, whose name has become detached from the mss. during transit.

HINTS AND KINKS

HOLDER FOR NAILS, NUTS, BOLTS, ETC.

XYL! Spare that jam tin! The OM will make a handy holder for it while he reads his neighbour's mail.

Use a patent opener to remove both ends of a jam tin or a fruit tin. Draw a line directly opposite the folded seam to mark the position of the new fold. Now cut along one side of the seam, smooth the thick side with a file, and turn down about one-eighth of an inch along the other side. Fold the halves outwards at the marked line and, standing the whole thing vertically on another piece of tinplate, mark a boat-shaped outline, leaving an extra one-eighth inch along the top, for turning outwards. Using this as a template, make a duplicate for the other side.



Now solder up the job as shown. This is more easily done if you "tack" the two ends and the pointed middle section first. For tin-plate, resin-cored solder is ideal, and finally, a coat of enamel will prevent rust.

Several of these units could be joined together side by side to make a sectioned tray, their round shape proving a decided advantage when picking up small nuts or quarter watt resistors.—VK4MA.

V.H.F. BY-PASS CAPACITORS

Do not throw away Atlas 30-40 watt fluorescent light starters. Open them up and remove the 0.006 uF. disc mica condensers. These are ideal for v.h.f. by-pass capacitors.—VK5ZAD.

FOOT SWITCH

For that "break-in" foot switch on your transmitter use a dip-switch from the automobile to operate the change-over relays. Since it is a double acting single pole double throw, it is a cinch.—VK5LL.

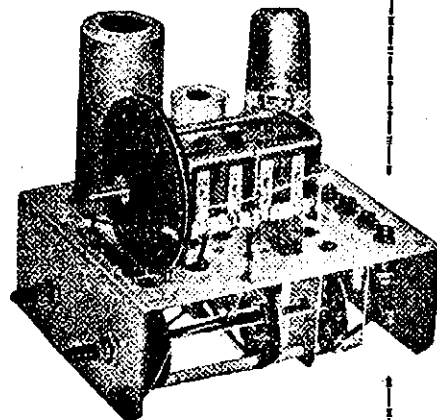
RELAY RECTIFIER

If you are looking for a rectifier for your relay supply use that 83 mercury vapour tube that you have discarded from the h.t. supply. The voltage drop is about 15 volts across the tube, so make allowances in the transformer winding. A 16 uF. electrolytic used for smoothing will also provide an initial high current surge to close the relay. The 83 will pass an ampere at the low voltages used without blushing.—VK5XU.

FIXING BEAM WIRE ELEMENTS

For fixing the wire elements into beam supports drill oversize holes and pour in molten sulphur and let it harden. Sulphur melts a few degrees above the boiling point of water (at 114°C.) into a straw-coloured liquid. It has very good insulating properties.—VK5XU.

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VOLTS, AMPS. AND MAN

MAN'S CONTACT WITH HIS ELECTRICAL ENVIRONMENT

PART ONE

BY ROBERT H. BLACK,* M.D.

In this article an attempt has been made to sketch the various ways in which man may come into contact with electricity in his environment.

In the first place, early man was much impressed by lightning and fear of this phenomenon is still widespread in modern times. Although lightning has now been explained in physical, in place of supernatural, terms its targets appear to be chosen in a somewhat promiscuous fashion. The accompanying thunder does much to heighten the fear and uncertainty of those who are affected by this natural phenomenon: the victim of the lightning stroke cannot find much comfort in the explanation that the stepped leader came near to the earth in his vicinity. Again in nature, the electric fish and rays are interesting curiosities rather than a serious threat to human life.

The deliberate application of electric currents to man are exemplified by judicial execution in this way and by its use to treat mental illness. These two uses have provided some information for the understanding of the phenomena which occur when man accidentally comes into contact with industrial supplies of electricity.

It is surprising that the number of deaths from accidental contact with industrial supplies has not increased in step with the increased use of electricity in the home and factory. Much of the credit for this is due to the awareness of the problem on the part of manufacturers of electrical equipment. But the number of deaths is not inconsiderable and there is much room for improvement of preventive measures, such as the use of low voltages for electric hand tools and early education and supervision to prevent those deaths due to carelessness, ignorance and overconfidence.

MAN'S CONTACT WITH ELECTRICITY IN NATURE

Lightning

Man's first contact with electricity in nature was probably his experience with lightning. Some of the oldest records of this contact were found in the ruined cities of the Tigris and Euphrates dating back to 3,000 or 4,000 years B.C. and in these the destructive nature of lightning is portrayed.

In many parts of the world lightning has been attributed to a supernatural origin. The ancient Greeks regarded it as an activity of Zeus who, however, would sometimes lend a thunderbolt to a member of his family—as when Pallas Athene borrowed some of her father's lightning to transfix Ajax. The Romans considered that death from

lightning was a punishment from Jupiter and the victims were buried without their just funeral rites.

In ancient Egypt the god Seth hurled the thunderbolt; in Norse legends it was the god Thor. Early statues of Buddha show him carrying a thunderbolt with prongs at each end. David the psalmist called upon Jehovah to use his lightning to scatter and destroy the enemy.

In France there was a superstition that people who had been struck by lightning and recovered had for 40 days the power of curing all kinds of diseases by touching the body of the afflicted person. It is also recorded that during this period they touched his pocket as well.

Amongst the Bantu tribes of South Africa the belief is held that lightning is produced by a magic thunder-bird, Umpundulo, which dives from the clouds to earth and whose vivid plumage and beating wings give rise to the flash and thunder. Damaged trees are the evidence of its claw marks.

In Europe and England it was for many centuries the general practice from the time of Charlemagne to supplement prayers for protection against lightning by the vigorous ringing of church bells to ward off the demons of the air. The bells were consecrated for this purpose—among others. Whenever a thunderstorm threatened, the bell-ringers were called to the church to ring peals. Before they were equipped with lightning conductors churches were, of course, frequently struck by lightning and the mortality amongst bell-ringers was high. It was reported in 1874 that in 33 years lightning had struck 386 church towers and killed 103 bell-ringers at the ropes.

With the development of artillery in the 18th century there arose the need to store large quantities of gunpowder in vaults and magazines. The vaults and crypts of churches had long been used for the storage of weapons and food and, naturally, were used to store gunpowder. Their tall steeples and explosive content made churches very dangerous places in thunderstorms, and a number of disasters occurred. In 1769 one hundred tons of gunpowder in the vaults of the church of St. Nazaire, in Brescia, were exploded by a lightning flash. The resulting explosion destroyed one-sixth of the city and killed 3,000 people.

Lightning also struck wooden ships at sea and in 1798 the "Resistance," of 44 guns, was blown up by a lightning flash.

In modern times some apprehension may be felt by passengers in aircraft flying through a thunderstorm; however, all evidence goes to show that the extent of the material damage from a lightning stroke to aircraft made entirely of metal is not usually serious if the metal is well bonded together. Nevertheless, an all-metal aircraft may be placed in difficulties by the effect of

the flash on its navigating instruments. The radio communication and direction finding equipment is readily put out of action by the discharge unless it has been well earthed to the main frame of the plane. It is also not unusual for the magnetic compass to become unreliable, either through the direct action of the discharge on its magnet or through magnetisation produced by the heavy current passing through or near steel in the aircraft. At night the brilliance of the flash may temporarily blind the pilot, generally only for a few seconds but sometimes for several minutes. Since the air is very turbulent, there is a risk that the aircraft may be in danger during the period of the pilot's disability and the automatic pilot should be ready for engagement in these circumstances.

The infant colony of New South Wales met with early misfortune when several sheep, brought by the first fleet, were killed by lightning while sheltering under a tree during a storm. The first residents in the colony were very much impressed by the large number of thunderstorms. In Australia during the five years 1946-1950 lightning killed 19 males and 2 females, and, in the last few years, we have seen cricket again deteriorate into a blood sport when several players have been struck by lightning in the field as a change from a sharply rising ball on the leg stump.

Many more people are struck by lightning than are killed. On one occasion a church was struck with 300 people in it; 100 were injured and mostly made unconscious, 30 had to take to their beds, but only six were killed.

With lightning stroke the victim usually falls unconscious at once. If he recovers he often suffers from loss of memory for recent events so that he may not remember any impact or, indeed, anything of what has happened. Thus Pliny said that "the man who sees the lightning flash and hears the thunder, is not the one to be struck." Sometimes, however, memory of the blow is retained and the recovered victim may speak of a flash of light or colour, a feeling of a rush of wind, or a blow in the back. Whichever is the case, he frequently discovers a loss of power and sensation in the lower half of the body; he is unable to walk or stand. This effect is only temporary and passes off within about 12 hours.

Lightning often deals violently with its victims and the result may resemble that of an attack by thugs. The clothes may be completely torn off and the boots ripped, bones may be broken and burns inflicted. Metal articles of the person become magnetised and may cause impressions of their outlines to be formed on the skin. A forked or arborescent pattern often appears on the skin.

Nothing was known, or even guessed at, as to the true nature of lightning until 1708 when Wall called attention

* VK2QZ, 2 Yerton Ave., Hunter's Hill, N.S.W.

to the similarity between it and the sparks drawn from rubbed amber. In 1752 d'Alibard and also Franklin drew sparks from aloft during thunderstorms. In this way it was proved that a flash of lightning was merely a particularly large and powerful electric spark, and nothing so romantic as a bolt from Jupiter or Thor.

The nature of lightning has prevented the making of experimental observations of its effects on animals. In the middle of the 18th century some experiments were made with the electric discharges brought down from the heavens during thunderstorms, using kites and lightning conductors. But experimentation of this kind came to an abrupt end when, in 1763, Professor Richmann, of St. Petersburg, was killed in his laboratory by a lightning stroke a foot in length which he had brought into his room by a lightning rod mounted on the roof of his house.

Franklin's work resulted in the use of lightning-rods for the protection of buildings. The first of these was installed in Philadelphia in 1753 and in the following year they were installed widespread throughout America; their use spread slowly to England and to the Continent in the following decade. Franklin's work having been received with scepticism by the Royal Society, there was by no means a universal adoption of his method of protection against lightning.

Modern investigation of lightning received a great stimulus with the development of the Boys' lightning camera, invented by Sir Charles Boys in 1902. By a system of rotating lenses equivalents of exposures in the order of microseconds were made possible. Investigations have also been made by using free and captive balloons, aircraft, radar and ground instruments and observing the effects on electrical transmission systems. The mechanism of the lightning flash has been largely elucidated but the method of generation of the charge is not fully explained.

Some quantities may be mentioned to give an idea of the power involved in the lightning stroke which occasionally includes man in its path. The potential difference between the base of the thundercloud and earth just before a flash occurs lies between a hundred and a thousand million volts. The most frequent value for the quantity of electricity discharged in a complete flash is 20 coulombs. Values as high as 160 coulombs have been observed. (A coulomb is the amount of electricity which flows when a current of one ampere flows for one second.) The most frequent peak value for the current in the return stroke (usually from earth to the cloud) is 30,000 amperes, but values as high as 200,000 amperes have been observed. The average value of energy spent in a flash to ground is 5,000 million calories; a cloud giving one flash per every 20 seconds is dissipating electrical energy in the form of lightning at an average rate of a million continuous kilowatts. One flash vaporised the cable of a captive balloon.

This energy is mainly spent in heating up the six inch wide channel of air along which the flash passes. In a few ten millionths of a second the air temperature rises to about 15,000°C. The air in the channel expands explosively, creating very powerful sound waves.

The length of the flash varies from about one half to two miles or more.

These quantities make it somewhat doubtful if a direct hit with a lightning stroke is compatible with human survival. The subject who has been described as surviving a stroke, lying bewildered on the ground wondering how his pants and boots were torn off, may have been the victim merely of a near miss.

Indoors in a properly protected building there is little lightning hazard to man if he avoids the telephone and water taps, and earths the radio aerial during a thunderstorm. The most dangerous places out of doors are small sheds, isolated trees, wire fences and hill tops; the safest ones are depressions in the ground, deep valleys, the foot of steep cliffs or a grove of trees.

The Electric Eel

Man also encounters electrical shock in nature from a number of electric fish and rays. The most powerful of these is the electric eel of South America. Although resembling an eel in shape, this fish belongs to an order which includes the carp and catfish. In size it attains a length of three feet and the thickness of a man's thigh. It is a sluggish fish given to lying still in shallow water, rising to the surface from time to time for a gulp of air; it will drown if denied access to air for more than fifteen minutes. The electric organ of this fish develops a shock powerful enough to stun the largest animal.

The fish are eaten by the Indians and Humbolt described their method of fishing for these dangerous creatures. Horses were first driven into the pools to exhaust the fishes' electric power—a process which nowadays might be frowned upon by the A.J.C. if not by the R.S.P.C.A. You can imagine a jockey galloping down the straight whipping the favourite with a nice specimen of *Electrophorus electricus* (the Electric Eel).

In 1841 a live specimen was seen in London by Schonbein. It had lived there for more than a year. When the end hands of a chain of people holding hands were placed in the water containing the fish they all received a heavy shock which made them leap into the air. A spark could also be drawn, indicating the nature of the shock.

Faraday made observations on the electric eel, but it was not until comparatively recent times that accurate measurements were made on the voltages and the power output developed. Peak voltages as high as 650 have been recorded, although 400 volts was about the average reading for specimens 50 cms. in length, at which size they generated their maximum voltage. Eels 11 cms. long, however, only generated 50 volts. The voltages were measured with the fish out of water using an oscilloscope. The discharge occurs in pulses and the whole electric organ does not discharge simultaneously. The power output out of water was determined by measuring the voltage developed across a resistance: the maximum external power was found to be about 40 watts; it may be somewhat higher. An exhausted eel may have its voltage reduced by as much as one-third and will not discharge as frequently as a fresh one. Even exhausted eels are

handled carefully with thick rubber gloves in the laboratory.

The electric generator of these fish is made up of a large number of units. If the organ acts like a set of batteries in series, it is calculated that each of these units produces 100 millivolts per cell or an electromotive force of 10 volts per centimetre of electric organ.

The structure of the electric organ represents modified muscle tissue. The average electrical power which it can continue to deliver over any considerable length of times does not appear to be greater than the mechanical power developed in a muscle of the same size. The speed with which the peak power is obtained is doubtless much greater in electric than in muscle tissue.

THE DELIBERATE APPLICATION OF ELECTRICITY TO THE HUMAN BODY

No electrical apparatus capable of producing currents strong enough to kill animals was invented before about the middle of the 18th century.

Priestley in 1767 killed kittens and dogs with the discharges from condensers and tried, without success, to resuscitate a kitten by artificial respiration, distending the lungs by blowing with a quill into the wind pipe.

In 1775 Abildgaard killed cocks and hens by passing the discharge from a Leyden jar through their heads. He resuscitated fowls, which would otherwise have died, by discharging a second Leyden jar through their bodies. One such cock, resuscitated by this counter shock, recovered with such rapidity that it flew away, scattering apparatus and Leyden jars in its flight.

Brodie, 1828, spoke of restoring to life guinea pigs apparently killed by electric discharges by means of perseveringly inflating their lungs by bellows.

Richardson used a large induction coil, in 1869, which gave sparks up to 29 inches in length, but these could produce no fatal effects unless reinforced by the use of Leyden jars.

Many experimenters have tried, unsuccessfully to electrocute frogs. The frog survives electric shocks and the prolonged passage of 10, 100, 1000 volts and more. On the other hand the dog can be killed by an alternating current of 15 volts or 60 milliamps applied so as to pass largely through the heart muscle for a few seconds only.

It is quite apparent that the results of animal experiments cannot be applied directly to man. Nevertheless, having regard to some of its remarkable manifestations it is not surprising that electricity became to be regarded as a "vital" force and it has been used on numerous occasions in an attempt to cure many of the ailments of man. A great deal of charlatanism has been associated with this use of electricity, as in the case of electric belts in connection with which the public was informed that electricity is life; any beneficial effect from these belts was due to faith and warmth. More reputable uses of electricity in the treatment of disease have been in the stimulation of nerves to secure muscle contraction, and indirectly as electromagnets, x-rays and diathermy.

More recently, electricity has been used very extensively in the treatment of mental diseases; but, before this sub-

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ject is examined, the use of electric currents for the deliberate killing of man deserves some attention, even if it merely serves to emphasise the fact that electric currents can be lethal.

Judicial Electrocution

Electrocution is a portmanteau word coined in the United States of America in 1892 to describe execution by electricity. This form of judicial execution was introduced with the intention of making death more instantaneous and more merciful than hanging on the gallows. It first became lawful in the State of New York in 1888 after 19 animals, including bulls, horses, calves and dogs had been killed in the presence of an Advisory Commission appointed by that State. One William Kemmler was selected as the first criminal to be executed by this means and, after the validity of the law had been upheld in the State and Federal courts, he was executed in 1890.

The introduction of this method of execution resulted in a great deal of controversy, both in America and the United Kingdom. Electrocution was held to be a cruel and unusual punishment violating the constitution. It was frequently stated that the shocks merely stunned the criminal who then suffered death at the hands of the doctor performing the post mortem examination which the law required to be carried out immediately after the execution. Thomas Edison was amongst those who considered that this method of execution was no more humane than hanging. This controversy lasted for 20 years or more, but the method was adopted by other States in America and is in use at the present time.

There may have been no doubt about the effect of the first fall of the guillotine blade, but there was probably some experimentation required before the technique of hanging was perfected.

Certainly with electrocution the early executions were of an experimental nature although four which were reported from Sing Sing prison at New York in 1891 were described as being a "triumphant success."

It was one thing to kill a horse or a bull or a calf with electricity and another to ensure that a human had been painlessly and effectively brought to the end of his days. Various suggestions had been made about the voltages and currents to be used, and the methods and sites of application to the body of the criminal. There was some difficulty in killing the first criminal, Kemmler, but even three years later, difficulty was still being experienced in obtaining the desired result. On July 27, 1893, W. G. Taylor was placed in the electric chair and 1260 volts were applied for 52 seconds. Taylor was apparently dead for the next 20 seconds; then he gasped. An attempt to turn the current on again failed; the victim's circulation and breathing recovered and he began to move. He was taken from the chair, given a large dose of morphia (three quarters of a grain), and then chloroform and ether were administered. When anaesthetised he was returned to the chair and the further application of 1220 volts for 40 seconds proved to be effective on this occasion.

Eventually the execution machine came to consist of an alternating dynamo capable of developing 2,000 volts, a "death chair" with an adjustable head rest, binding straps and adjustable electrodes. The criminal to be executed was firmly strapped into the chair and electrodes were secured to his head and the calf of one leg. The voltage, current, time of application, and number of applications were subject to variation, but in one reported case 7 amperes were passed at 1500 volts for a total of 70 seconds. This is a somewhat large quantity of electricity and it is esti-

mated to be sufficient to raise the temperature of a 10 stone man by 5°F., apart from the heat generated by muscle contraction. Indeed, the temperature of the bodies executed in this fashion often rises to near 130°F. within 20 minutes and there is in many cases coagulation of the muscle protein: the "hot seat" has apparently been truly named.

Electroconvulsive Therapy

In 1935 von Meduna reported his attempts to treat one of the mental disorders (Schizophrenia) with artificially induced epileptic convulsions. His reasons for using this method were, firstly, epilepsy and this mental disorder were usually antagonistic to each other, and secondly, the symptoms of the mental disease disappeared at least temporarily after spontaneous convulsions. Drugs were first of all used to cause the convulsions but more recently these have been replaced by the use of electrically induced convulsions. Electroconvulsive treatment is now widely used for other mental disorders. It may be stated here that the mode of action of this treatment is apparently as little understood as is the cause of the mental disorders themselves.

The machine used to induce these convulsions consists of a source of current alternating at 50-60 cycles with means for measuring and regulating it, together with a time switch calibrated in tenths of seconds. The electrodes, well moistened with saline, are applied to either side of the head using electrode jelly to reduce the resistance.

The effects produced depend upon the applied voltage and, naturally, the current flowing between the electrodes. Potential differences below 50 volts applied for one tenth of a second may not lead to unconsciousness, but rather cause violent giddiness and nausea. The application of between 50 and 70 volts for one tenth of a second leads to unconsciousness without producing convulsions. By increasing the voltage the stage of unconsciousness is followed by a convulsion. If the voltage is increased still further the period of initial unconsciousness is progressively shortened and finally becomes unmeasurable.

It is usually possible to produce a convulsion with a voltage of between 70 and 130 applied for from 0.1 to 0.5 second. By using a surge current recorder the actual amount of current passing during this treatment was found to range between 200 and 1600 Ma.

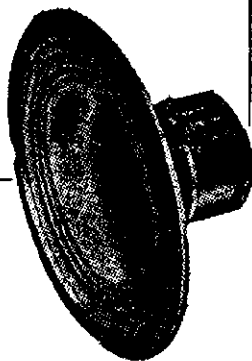
When this treatment was being developed preliminary measurements of resistance were made with a 1 milliamper current passing through the head. The readings ranged from 200 ohms to several thousand ohms, varying with the patient and in the same patient on different days. This measurement has since been discarded as it gave no useful indication of the current which would subsequently produce a convulsion.

Naturally, a preliminary examination is made to ensure that the subject is physically fit for this form of treatment and there have been but few fatal casualties—the death rate being about 6 per 10,000 treatments in a series collected in the United States of America.

(Concluded next month)

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6252 (QQE03/20) DOUBLE TETRODE

The 6252 (QQE03/20) is an indirectly heated r.f. double tetrode for use as Class C amplifier at frequencies up to 600 Mc.

GENERAL DATA

Cathode: Indirect, oxide coated.
 Heater sections in Parallel Series
 Heater voltage 6.3 12.6 V.
 Heater current 1.3 0.65 A.
Capacitances:
 per system in push-pull
 Ca = 2.0 pF. Co = 1.3 pF.
 Cg1 = 6.5 pF. Ci = 4.0 pF.

Amplification Factor (each unit):
 Grid No. 2 to grid No. 1, 8.5.
Mutual Conductance (each unit):
 At anode current of 40 Ma., 2.4 Ma./V.
Mounting Position: Arbitrary.
Cooling: Temperature of seals, 180°C., max. Generally natural cooling is sufficient with—

Va = 600 V. up to 150 Mc.
 Va = 400 V. up to 250 Mc.
 Va = 300 V. up to 400 Mc.

Above these limits or with high ambient temperatures, it may be necessary to direct an air flow of about 15 cu. ft. per min. on top of the bulb to keep the seal temperature within the stated limit.

Size:
 Overall length 79 mm. max.
 Seated length 70 mm. max.
 Diameter 47 mm. max.

Base: Septar.
Socket: 40202.
 Pin 1—heater.
 Pin 2—control grid of unit No. 1.
 Pin 3—screen grid (both units).
 Pin 4—cathode and beam plates.
 Pin 5—heater mid-tap.
 Pin 6—control grid of unit No. 2.
 Pin 7—heater.

H.F. CLASS C TELEGRAPHY

Operating Conditions (two units in p.p.)				
Frequency	200	200	200	200 Mc.
Anode voltage	600	400	300	200 V.
Screen voltage	250	250	250	200 V.
Cont. grid bias	-60	-50	-40	-30 V.
Anode current	50*	50*	50*	50*Ma.
Screen current	4	4	4.5	4 Ma.
Control grid current	0.7*	0.3*	0.3*	1*Ma.
Anode input	30*	20*	15*	10*W.
Anode dissipatn.	9*	7*	5.5*	4*W.
Screen dissip.	1.0*	1.0*	1.1*	0.8*W.
Driving power	1.5*	1.15*	0.75*	0.5*W.
Output power	42	26	19	12 W.
Efficiency	70	65	63	60 %
* Per Section.				

Frequency	400	400	400	600 Mc.
Anode voltage	400	300	200	300 V.
Screen Voltage	250	250	200	250 V.
Cont. grid bias	-50	-40	-30	-40 V.
Anode current	50*	50*	50*	50*Ma.
Screen current	3.0	3.0	3.3	2.8 Ma.
Control grid current	1.0*	1.0*	1.2*	0.6*Ma.
Anode input	20*	15*	10*	15*W.
Anode dissipatn.	9*	7*	5*	9*W.
Screen dissip.	0.75*	0.75*	0.66*	0.7*W.
Driving power	2*	1.5*	1*	W.
Output power	22	16	10	12 W.
Efficiency	55	53	50	40 %
* Per Section.				

H.F. CLASS C FREQUENCY TRIPLER

Operating Conditions (two units in p.p.)		
Frequency	66.7/200	133/400 Mc.
Anode voltage	300	300 V.
Screen grid voltage	250	250 V.
Control grid bias	-180	-180 V.
Anode current	2 × 45	2 × 45 Ma.
Screen grid current	2.5	2.8 Ma.
Cont. grid current	2 × 1.0	2 × 1.2 Ma.
Anode input pow.	2 × 13.5	2 × 13.5 W.
Anode dissipation	2 × 9.5	2 × 10 W.
Screen grid dissip.	2 × 0.63	2 × 0.7 W.
Driving power	2 × 1	2 × 2 W.
Output power	8.0	7.0 W.
Efficiency	42	35 %

5894 (QQE06/40) DOUBLE TETRODE

The 5894 (QQE06/40) is an indirectly heated double tetrode for use as an h.f. amplifier, oscillator, frequency multiplier and modulator.

GENERAL DATA

Cathode: oxide coated, filament indirect.
 Heater sections in Parallel Series
 Heater voltage 6.3 12.6 V.
 Heater current 1.8 0.9 A.
Capacitances:
 Ca = 3.2 pF. Co = 2.1 pF.
 Cg1 = 10.5 pF. Ci = 6.7 pF.
 Cag1 = 0.08 pF.

Amplification Factor (each unit):
 Grid No. 2 to grid No. 1, 8.2.
Mutual Conductance (each unit):
 At anode current of 30 Ma., 4.5 Ma./V.

Mounting Position: Vertical with base up or down, horizontal with anode pins in one horizontal plane.

Cooling: Radiation. When the tube is used at frequencies above 150 Mc. it may be necessary to direct a low velocity air flow on the bulb and the anode seals. Temperature of bulb and anode seals, 200°C. max.

Size:
 Overall length 105 ± 4.5 mm.
 Seated length 100 mm. max.
 Diameter 49 mm. max.

Base: Septar.
Socket: 40202.
 Pin 1—heater.
 Pin 2—control grid unit No. 1.
 Pin 3—screen grid (both units).
 Pin 4—cathode and beam plates.
 Pin 5—heater mid-tap.
 Pin 6—control grid unit No. 2.
 Pin 7—heater.

H.F. CLASS C TELEGRAPHY

Operating Conditions (two units in p.p.)				
Frequency	200	250	430	500 Mc.
Anode voltage	600	600	520	500 V.
Screen voltage	250	250	250	250 V.
Cont. grid bias	-80	-80	-80	V.
Grid resistor				20 K.
Anode current	100*	100*	100*	100*Ma.
Cont. grid cur.	2.5*	2.5*	2.8*	3*Ma.
Screen current	16	16	18	20 Ma.
Peak grid-to-grid driving volt.	200			V.
Screen dissipat.	4	4	4.5	5 W.
Anode input	60*	60*	52*	50*W.
Anode dissipat.	15*	17.5*	19*	20*W.
Output power	90	85	66	60 W.
Efficiency	75	71	64	60 %
* Per Section.				

H.F. CLASS C ANODE AND SCREEN GRID MODULATION

Operating Conditions (two units in p.p.)			
Frequency	200	200	400 Mc.
Anode voltage	500	300	300 V.
Screen grid volt.	250	250	250 V.
Control grid bias	-55/-100	-40/-60	-40/-60 V.
Anode current	40*	40*	40*Ma.
Screen grid current	4	4	3 Ma.
Cont. grid current	0.5*	0.5*	1.0*Ma.
Anode input power	20*	12*	12*W.
Anode dissipation	6.5*	4.5*	5.5*W.
Screen grid dissip.	1*	1*	0.75*W.
Driving power	2.5*	1.25*	W.
Output power	27	15	13 W.
Efficiency	67.5	62.5	54 %
* Per Section.			

H.F. CLASS C ANODE AND SCREEN GRID MODULATION

Operating Conditions (two units in p.p.)			
Frequency			200 Mc.
Anode voltage			450 V.
Screen grid voltage			250 V.
Control grid bias			-100 V.
Anode current			2 × 75 Ma.
Screen grid current			16 Ma.
Control grid current			2 × 2.5 Ma.
Peak grid-to-grid driving voltage			120 V.
Anode input power			2 × 34 W.
Anode dissipation			2 × 9 W.
Output power			50 W.
Efficiency			73 %

L.F. CLASS B AMPLIFIER AND MODULATOR WITHOUT GRID CURRENT

Operating Conditions			
Anode voltage	600	450	300 V.
Screen grid volt.	250	250	250 V.
Cont. grid bias	-27.5	-27.5	-26 V.
Load, plate/plate	12.5	10	6.5 K.
Peak grid/grid driving voltage	55	55	52 V.
Anode current	62*	58*	56*Ma.
Screen grid current	23	27	30 Ma.
Screen grid dissip.	5.8	6.7	7.5 W.
Anode input power	37*	26*	16.8*W.
Anode dissipation	12*	8.5*	5.6*W.
Output power	50	35	22.5 W.
Total distortion	2.4	3.1	2.9 %
Efficiency	67.5	67.5	67 %
* Per Section.			

L.F. CLASS B AMPLIFIER AND MODULATOR WITH GRID CURRENT

Operating Conditions			
Anode voltage	600	450	300 V.
Screen grid volt.	250	250	250 V.
Control grid bias	-25	-25	-25 V.
Load, plate/plate	8.0	6.0	4.0 K.
Peak grid/grid driving voltage	78	76	75 V.
Anode current	100*	97*	94*Ma.
Screen current	26	28	30.5 Ma.
Control grid cur.	2.6*	2.6*	2.6*Ma.
Driving power	0.1*	0.1*	0.1*W.
Screen grid dissip.	6.5	7.0	7.6 W.
Anode input pow.	60*	43.5*	28.2*W.
Anode dissipation	17*	13.5*	9.7*W.
Output power	86	60	37 W.
Total distortion	5	5	5 %
Efficiency	71.5	69	65.5 %
* Per Section.			

Helvetia 22-Contest

Once again the well known Helvetia 22-Contest is coming up. The Swiss Union of Shortwave Amateurs has scheduled its annual contest for the following date: 1500 G.M.T., 12th May, to 1500 G.M.T., 13th May, 1956.

The Swiss Society will combine all efforts to give this year's contest a successful progress and invites all Amateurs to take part.

Object: Stations outside Switzerland will try to work as many Amateur Stations in each of the 22 Swiss Cantons as possible.

All Amateur bands between 3.5 and 29.7 Mc. may be used for c.w.—c.w. or voice-to-voice contacts. The serial exchange consists of the usual five-digit (phone) or six-digit (c.w.) numeral, representing the signal report and the number of the contact (RST001, RST-002, etc.). Entrants will use the call "CQ HB" or "CQ H22".

Scoring: Three points are earned for a contact with any Swiss station on each band. The total points earned on all bands are multiplied by the sum of all worked Swiss-Cantons on c.w., voice or both together, on all bands. The maximum multiplier possible, per band, is 44 (22 on c.w. and 22 on phone).

Entries will only be accepted if submitted on separate sheets for each band, using only one side of the paper, and with the declaration: "I certify that my station was operated strictly in accordance with the rules and spirit of the contest, and I agree that the decisions of the Council of the U.S.K.A. will be final in all cases of dispute." (Signature).

Reporting: Reports must be mailed not later than 31st May, 1956, to—U.S.K.A., Box 1203, St. Gallen (Switzerland).

HOSPITALITY OFFERED

Upon returning to Malaya from leave, Jim Pershouse, VS2DQ, found the Australian Army all around. He will be very glad to offer hospitality, particularly to any who are Amateurs or sons of Amateurs in VK. Perhaps if required, personal contacts could be arranged. He will also help any of the Forces there who would like to apply for an Amateur licence in Malaya. If wishing to visit, etc., please write to J. C. Pershouse, VS2DQ, Baling Estate, Kuala Ketil, Kedah, Malaya.

AMATEUR CALL SIGNS

FOR MONTH OF JANUARY, 1956

NEW CALL SIGNS

VK— New South Wales
 2ZBQ—N. R. Fenton, 500 Cabramatta Rd., Cabramatta.
 2ZCJ—J. V. Smith, Farm 937, Griffith.
 2ZCL—L. T. McLoughlin, Hunters Valley, Ellerton, via Scene.
 2ZCT—K. A. Thomson, 28 Alton Rd., Coorabong.

Victoria

3ZCH—J. M. Howden, 21 Green St., Burwood.
 3ZCO—C. J. Waterlander, William St., Ouyen.
 3ZCP—A. D. Pridgen; Station: "Gretna Green," Nepean Highway, McCrae; Postal: C/o Telephone Exchange, Dromana.
 3ZCT—D. R. Town, Flat 4, 1235 Hoddle St., East Melbourne.
 3ZDJ—D. G. Johns, Johnson's Rd., South Warrandyte.

Queensland

4ZAG—J. C. E. D'Alton, M/s. 1562, Redcliffe.

South Australia

5ZAY—G. P. Yelland, 19 Lynington St., Tusmore.
 5ZBE—R. B. Connor, 60 Matthew's Ave., Seaton.

Western Australia

6ZAH—T. H. Talbot, "Wedderburn," Brunswick Junction.

Tasmania

7AR—A. Doodson, 53 Campbell St., Launceston.

CHANGES OF ADDRESS

VK— New South Wales
 2GM—G. McDowell, Lot 2, Campbell Hill Rd., Chester Hill.
 2AAD—R. Hodgins, Donald St., Nelson Bay.
 2ABT—B. Ash, Dalgarro St., Coonabarabran.
 2AGM—W. C. Berry, 3 Irvine Place, Lismore.
 2ALJ—N. G. Beard, 4 De Chair Rd., Dee Why.
 2ASO—A. R. Simpson, Box 6, Cremorne.
 2ATA—P. A. Tavares, 20 Milford St., Randwick.
 2ZAS—S. D. Russell, Lot 14, Dunblair Ave., Lurnea, via Liverpool.

Victoria

3AC—R. Cameron, 54 Hawthorn Gr., Hawthorn.
 3AKY—K. W. Young, 179 Ormond Rd., Elwood.
 3ALN—A. S. W. Taylor, C/6 L. R. Schultz, 8 Victoria St., Nhill.
 3CY—C. Yeoman, 136 Haldane St., Beaumaris.
 3EW—E. C. Wheller, 31 Coghlon St., Keilor East.

South Australia

5AF—A. S. Little, Ashbourne Rd., Strathalbyn.
 5CT—C. F. Hewitt, 39 Stanley Ave., Blair Athol.

Western Australia

6AY—A. V. Treslader, 176 Coode St., South Perth.
 6KX—H. T. Simmons, 143 Bateman Rd., Mt. Pleasant.

Tasmania

7JP—L. J. Durkin, Counsel St., Queenstown; Postal: C/o P.O., Queenstown.

Territories

1GA—G. L. Apps, Mawson, Antarctica.

CANCELLED CALL SIGNS

VK— Western Australia
 6AR—A. Doodson. Now VK7AR.
Tasmania
 7ZAT—K. A. Thomson. Now VK2ZCT.

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FIFTY-SIX MEGACYCLES AND ABOVE

Jim Pershouse, VS2DQ, is anxious to receive letters from any Australian Amateurs, particularly in North Western Australia and Cocos, who would be prepared to try 50 Mc. tests with Malaya. One small snag is that in Malaya they are still authorised for 50-54 Mc., so cross-band working would be necessary. He is arranging beam aerials for both bands, but no doubt a single skeleton slot could easily be arranged to cover both. Those interested are requested to write direct to Baling Estate, Kuala Ketil, Kedah, Malaya, and letters will be much appreciated.

NEW SOUTH WALES

The monthly meeting of the V.h.f. Group was held on 2nd March at the Petersham Technical College with 37 in attendance. An interesting lecture was given by Keith 2ZAU on meters and their application. Keith dealt with meters from their earliest form up to the latest types.

Another test was carried out with the Speleological Society during the month to establish whether the signals coming out of the Caves come through the limestone or through the openings. Quite a large number of the Group proceeded to Jenolan for the week-end. The tests were very successful again and much valuable information on the behaviour of 144 Mc. signals in and out of the caves was obtained.

On the week-end of April 14 and 15 the V.h.f. Group are carrying out another test in conjunction with the Search and Rescue Division of the Bushwalkers' Association on 144 Mc. in the Weeny Creek area at Kurrajong. This should prove a very interesting week-end with the walkie-talkie gear much improved since the last bushwalking exercise some twelve months ago. Crystal controlled walkie-talkies have replaced the mod. osc. now.

During the month Ken 2ANU was holidaying at Terrigal and took along his 2 mx portable gear and was heard making several Sydney contacts.—2LG.

VICTORIA

Approx. 30 attended the last fox hunt, this included three from the Geelong Radio Club in Ted 3AEH, Vic Clarke and Les Rice. They made the journey to get some inside information with the idea of starting a similar hunt in the Geelong area. The hunt took the usual form of a tour through the suburbs and the first catch was not made until about a half an hour after the fox 3LN had set off on the run. It was on a very rough track beside the Yarra River near Richmond in a spot in which the fox had been feeling very secure. However, a rough track doesn't mean a thing to a hound car as was proved several times during that evening. The second stopping place was beside the Albert Park Lake where several catches were made. The last stopping place for the evening was a little unorthodox. Len had found that the gate had been left open in the pound yard at Marbyrnong so he drove in, shut the gate and impounded himself; after all, it was probably the proper place for a fox on the loose. What fun Len and the Geelong chaps had watching through the pickets as the hounds drove up and down. Eventually 3ARY discovered him.

All then proceeded to the final location at the home of Roy 3ARY for the post-mortem and supper. The chaps all enjoyed seeing Roy's shack, he has an exceptionally nice set-up. 3ALY was the winner, 3ZAA second, and 37BU and 3KD third. Many thanks Roy and Glad for your friendly hospitality in inviting us to your place. We believe Bill 3ZCM and Rolfe McKellar are planning on building gear for the fox hunts and entering as a team. Leo 3XO also is getting interested and we hope to see him at the hunts in the near future. We would like to see lots more new starters, the fox hunt is a jolly good night's entertainment and well rewards the effort of building up some gear.

Recently members of the fox hunt and V.h.f. Group visited the S.E. Zone to demonstrate the fox hunt to the members of that Zone. A party of about fifty went down from Melbourne. Two short hunts were run and as usual, in the form of a competition. Ray Price, one of our very enthusiastic hounds, was the winner, and for his success was presented with a very nice car cushion by the S.E. Zone. On the return trip to Melbourne most of the chaps worked mobile to complete a most enjoyable outing for the V.h.f. Group and their families.

The second V.h.f. Field Day for the season was not very well patronised as only five stations went out portable. 3ZAD went to Mt. Donna Buang, 3GM was at his usual hunting ground at Mt. Bunninyong, 3LN went to Kellor, 3ZBU went to Mt. Macedon, and 3ARY to Mt. Hickey. 3ARY had a bit of trouble with his gear, but the rest all made plenty of contacts.

The lecturer at the last v.h.f. meeting was Jack 3AZK, who gave some practical demonstrations on commercial v.h.f. mobile equipment. He brought in several taxi radios from various makers and pointed out the advantages and difficulties with each piece of equipment. He also added to the interest of his lecture by giving many blackboard illustrations of the wiring up of various sections and it was noticeable that many of the members were busily copying down the sketches for future reference.

Keep in mind the city-country get-together of the V.h.f. Group to be held on 18th April at the W.I.A. rooms. The V.h.f. Digest is still available to any who are interested, if you would like a copy contact 3LN.

Exceptional conditions have been prevailing on the 144 Mc. band. The VK7s have been coming in very excellently and all stations regularly on the band have been making contacts. Also Fred 3YS has made a contact with 2RS at Albury. A new signal to the Melbourne V.h.f. Group is 3ZCW, who has been working mobile while on a trip to the city. He soon hopes to put up a bigger beam at his home location in Ouyen when he expects contacts with Melbourne will become within the realm of possibility. He has managed to work into Colac and Ballarat. David 3ZAT was very pleased with his mobile rig when he took it with him while spending a holiday at Maffra recently and had many enjoyable contacts. He reports that he heard, from Maffra, 3AKR at Westmere, 3AEB at Macedon and 3RK in Melbourne. Glen 3ZBJ is now on the air from his new QTH in North Essendon, his frequency is 144.23 Mc.—Phyl Moncur.

288 Mc.: Seems that a strange silence has descended on 288 Mc. since the contest closed. George 3GM and Ron made their last visit to Mt. Bunninyong on 12/2/56, stations worked were 3ZAI, 3QQ, 3ZBN, 3MB. Conditions were quite good as 3QO had a two hour contact with Ron, who was using usual 676 rig, but had his new xtal rig almost ready, this uses 6AC7 triet to 16 Mc., 6AG7 to 32 Mc., 2E26 to 95 Mc., and a QQ/20 to 288 Mc. George, 3ZCG, of Leongatha, is a newcomer and has mobile 288 and 144 Mc. gear, he expects to be portable from some of the high spots round Leongatha and also when in Melbourne.

Others on band are 3ZAQ, who has 98 QSL cards and still that 3QO bloke won't come across with a card! 3AUX, who says there are more 2 mx harmonics than real 288 Mc. sigs round his way. 3AAB, who is using a xtal locked 288 Mc. convtr. into a xtal locked 7 Mc. convtr., into a car radio; this limits tuning range so he has four switchable xtals in 7 Mc. convtr. 3ZBN has been re-building gear and antenna and is now using a six el. yagi. 3ZAI has been busy with new convtr. 3ZBD on testing. 3MB at Cheltenham, rare DX, this chap. Listens a lot, but keeps quiet! 3ZAE has been shifting gear and re-arranging. 3QO still punishing the gang and is trying out 17 el. yags. 3ZAN on occasionally.—3QO.

SOUTH AUSTRALIA

56 Mc.: As yet there is no activity on this band in the city area, however Les 5AX and Comp. 5EF are active in Gawler, mainly using the band for cross-band duplex operation. Ken 5KC, John 5MG and your scribe are at present designing mobile gear for this band in lieu of 144 Mc. Xtal locked converters, 2E26 finals and standard car radio verticals will be the order of the day here. One will be able to contact quite a few of the "DC boys" by listening to their harmonics on 56 Mc. from 7 or 14 Mc. There are, of course, several advantages in going mobile on 56 Mc. compared with 144 Mc. There will be fewer stages in the converters and tx's, increased efficiency, lower losses and increased radiation from the fully extended car radio aerial. A possible disadvantage will be increased auto ignition noise, however this can be taken care of by an effective noise silencer, so be seeing you on 56 Mc. chaps.

144 Mc.: This band has been fairly quiet apart from ignition noises, mixers, etc. Most of the boys are having a spell after a few hectic weeks of activity brought on by the Ross Hull Contest and also the 2 mx mobile craze. However, both have abated and the only stations to be heard these nights are Reg 5QR, Clem 5GL and George 5GB, who are perfecting xtal controlled tx's for 288 Mc.

Nell 5ZAW has been heard on occasions also 5RO and 5EF. Hugh 5BC has been successful in "pushing" a signal down to Mt. Gambler on 144 Mc. At the time of writing Stewart 5MS has a converter only, however a tx is well on the way, I believe. Let me know when it is completed Stewart and I will organise some schedules for transmitting and listening from Adelaide.

Last month Ken 5KC, John 5MG and friend, John Shaw, and 5MT journeyed by separate cars to Cape Jervis for a week-end of shooting, surfing, and eating. Much fun was had by all, as they say. John 5MG had to be towed up a very steep hill by a four-wheel drive vehicle, owing to the fact that his clutch started slipping half way up the hill. I might add that this hill is the steepest hill that I have ever had to drive up.

288 Mc.: As I mentioned before, 5GB, 5GL, and 5QR have built xtal locked tx's and rx's for this band. The tx's consist of standard line-ups using 832s as final amplifiers. Converters I believe consist of p.p. 6J6 neutralised r.f. amplifiers followed by push-push 6J6 mixers and suitable crystal oscillator multiplier chains for injection at the appropriate freq. Bob 5PU and George 5GB are the proud owners of QQE06/40s. Bob intends using his as a final on 288 Mc., the driver tube will be a QQC04/15 straight amplifier.—5MT.

WESTERN AUSTRALIA

Following an invitation from Council, the following members of the V.h.f. Group participated in the radio links for the Narrogin Car Club Reliability Trial—6ZAS, 6ZAT, 6ZAH, 6HK, 6TR, 6AW, 6ZAE, 6ZQA, 6SJ and 6WJ. Denis and Warren had car trouble and were unable to reach their destination but the remaining boys had a great deal of fun. The enthusiasm of Don 6HK and Syd 6SJ is seen in the fact that they drove 120 miles to Esperance and back just to operate for 24 hours. We also know who is the "Jonah" with wheel bearings. How many have you done in Don? (It was Syd's car.)

144 Mc.: The Yawn Patrol activities have continued with Don 6DW joining in the net. Weak signals from Albany have been heard consistently in Perth and Bruce Rock. Wally sent his converter to Perth and his own signals have been copied on it from Don 6ZAV's so that when further checks take place on Wally's return from VK3, more two-way QSOs should result. Signals between Bruce Rock and Perth have been consistently good.

Vic 6VK in Northam has been listening with a super-regen. and has heard 6HK, 6BO and 6ZAV thundering through. Vic has a xtal converter underway and a tx should soon follow. Tom 6ZAH has passed his more and is to migrate to 26 mx. Don't forget 2 mx. Tom A number of super regens. are likely to appear on 2 mx following a talk by 6ZAA to the Modern School Radio Club. One of the students, Lee Potts, has sat for the L.A.O.C.P. I'll have to be careful what I say on 2 mx now!

288 Mc.: Most activity of the month has been concerned with attempts on the W.A. record for this band (a paltry 25 miles made in 1949). Stan 6ZAS went portable several times and heard 6ZAA from Yanchee (36 miles), but no QSO resulted. Finally Murray 6ZAM and 6ZAA went to near North Dandalup and successfully worked Rolo 6BO and Don 6ZAV (44.0 miles) for a new record. Gear used was 832 xtal rigs, super regens. and 4/4 beams at 6BO and 6ZAV and mod. osc., xtal converter and 5/5 beam at 6ZAM/6ZAA. Further expeditions with xtal gear at both ends is planned. Watch out Keith and Reg, we're after that record also!

Don 6DW has had checks with his xtal converter with Rolo (127 miles) without success to date. Don proposes to double from his 2 mx tx to get on to 1 mx. Finally, new licences and those interested in v.h.f. Why not build a mod. osc. and super regen. for 288 Mc. and then build your 2 mx gear? It will be handy for checking.—6ZAA.

ARMY SIGNALS CLUB TO OPERATE DURING ANNUAL CAMP

VK7ST, the Army Signals Radio Club, will be operating of an evening while in annual camp between 7th and 21st April. It would be appreciated if Amateurs could keep a look out for VK7ST and give them some contacts. Operation will be on the 3.5 and 7 Mc. bands.

The club is composed of members of the 6th Fd. Regt. Signal Troop in Launceston. Sgt. H. D. Spence (VK7DS) is the Club President and chief operator. The majority of the members are lads doing their National Service and are quite keen.

DX ACTIVITY BY VK3AHH†

PROPAGATION REPORT

8.5 Mc.: As was to be expected this band showed some improvement during the month of February. Good openings were observed when the noise of the season allowed the DX to be audible. The band opened to North America, the Pacific Islands, and the Far East at about 0830z when conditions were suitable.

7 Mc.: Conditions were normal on this band; 90 per cent commercial c.w. and short wave amateurs. Otherwise, propagation conditions were fair to good. Times were 1900-2100z for Europe (short path) with erratic break-throughs over the long path (0700-0830z). North America, the Pacific Islands, and the Far East were workable from 0700z.

4 Mc.: Here conditions were rather poor during the first half of the month, but improved during the latter part. Europe and Africa were well represented over both short and long paths, peaking between 0700 and 1100z. North American contacts appeared to be possible at all times with varying signal strengths. South American conditions existed around 0600-1200z.

21 Mc.: Conditions on this band are still somewhat erratic, openings being as usual: 2200-0400z for North America, 0100-0400z for South America, and 1000-1300z for Europe.

27/28 Mc.: This band showed some relatively good openings to the American continents (2300-0500z) and Europe (1800-2030z).

NEWS AND NOTES

With less than eight months to go, the Olympic Games in Melbourne seem to activate all people connected with preparations for this great event. Some time has gone by since the W.I.A. preparation of Amateur Radio events in connection with the Games were mentioned in this column and, being responsible for W.I.A. Olympic publicity, your scribe feels that this is an appropriate time to summarise activities so far. In order to publicise the Olympic Games and assure world-wide publicity for W.I.A. events in connection with the Games, official letters were sent to 76 foreign Amateur Radio Societies in March, '55.

A number of Olympic Games stickers have been made available by the authorities, although our initial request for Special Olympic QSL cards could not be granted. As long as supplies last, these stickers are available from your scribe. Details of Olympic events to be staged by the Vic. Div. W.I.A. will be finalised within the next few weeks and full information will be forwarded to all Amateurs who notified us of their intention of visiting Melbourne for the period of the Games.

A well known DXer has been honoured by the Southern California DX Club. John Knight, W6YY, whose contributions to this column have always been of greatest value, was awarded the 1955 DXer Award for outstanding service to the DX fraternity and excellent DX performance. To us in VK, John is known as a first-class DX operator from 3.5 to 30 Mc.; he obtained our W.A.V.K.C.A. Certificate No. 1 and gained first W place in the VK/ZL Contest 1954 (phone). Congratulations, John, and good hunting.

ZK1BS (ex-ZK2AA) and ZK1BL are keeping Cook Island on the Amateur Radio map. FG7XA is on 14100 c.w. ZS9G and ZS9O are active from ZS9. AP2RH is on 14025 Kc. (from W6YY).

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

VP5RR indexes being active for approximately six months (from 3ATN).

LA9LD/P is active from Hopen Island, Svalbard (Spitzbergen) on 3.5 Mc. c.w. (from NCDXC).

FS1RT is reported to be operating from St. Martin Island, on s.s.b., 14902 Kc. (from 5WO).

CR8SA (14078 Kc. c.w.) and 3A2BF are supposed to be active (from 3ATN).

It is understood that CR5JB, of Mansoa, Portuguese Guinea, is active. Additional means of identification is his c.w. note "resembling a slow buzz saw cutting through West Tennessee swamp cypress" (from NCDXC).

More news from the Northern California DX Club (NCDXC): W5HBM, ex-VQ1RF, is planning another African trip and will go to VQ9 land, probably late 1956 or early 1957. VQ6LQ is also active on the 21 Mc. band.

QTHs OF INTEREST

- (from NCDXC, 3ATN, 5WO, BERS195)
- FY7YF - Via W4ML.
- PZ1LL - Box 848, Paramaribo, Netherlands Guiana.
- VP8EK - Via N.R.L., C/o LAIRC.
- CR8CW - P.O. Box 1400, Luanda, Angola.
- FB8BR - Box 730, Tanarive Madagascar.
- EX-ZC5CT - 15 Western Rd., Brentwood, Essex, England.
- V89AS - Alan Swindon, P.O. Box 1245, Aden.
- VQ5EK - Box 1893, Kempala, Uganda.
- 3V8AB - 19 rue Junon, Carthago.
- VQ2IM - Ian McGregor, Box 841, Lusaka, North Rhodesia.
- EL1FI/MM - QSL via A.R.I., S. Paolo, Milan, Italy.
- ZELJG - Via Box 2377, Salisbury, Sth. Rhodesia.
- VP5RR - Via W6HVV, Box 954, State College, Mississippi, U.S.A.
- ZE6JT - David Harris, 30 Stanley Ave., Salisbury, Southern Rhodesia.

ACTIVITIES

3.5 Mc.: Frank 2QL heard ZK1BS and KH6, and worked Ws*. Jack 6EJ follows with VSIGX*. SAHH's log contains a series of Ws*.

7 Mc.: Laurie 2AMB reports ON4NAU*, VE2LI*, VE7ABI/VE8*, and DL9RK, YU3AJK, KX6AF, KC8AB, KG8GX. Fred 3YS worked VE1ZZ*. Ray 8ATN phoned with VQ4AQ* and Ws*. 6EJ keyed with VSIGX*. Dave Jenkin heard CO5HD, DU7SV, JA5AK, JASSP, KM6AX, VE3BCU, VE7ABI/VE8*.

14 Mc. c.w.: 2QL: VP6UN*, LU9ZB*, CX-2BP*, FB8BR/Comoro*, NY1PM*, and ZP9AY, OX3AD, MP4TAA, VQ5GC. 2AMB: LU9ZB*, LU1SE*, LU4HU*, PJ2CJ*, LU4GM*, VP6GT*, and CO3YP. CR7AJ, EL1FI/MM, EA, FB8BR/FB, ZEIDA, PA, FUB8A, VQ2GV, VP4LV, VP6DG, VP9CI, VS1, VQ3TW, ZELJG, OZ, HB, ZS. Neville 2APL: CE4AD*, EA*, JA*, G*, Alan 3CX: FV8AB*, EA8BF*, FB8BR/FB*, YA1AM*. Jack 3JA: OZ*, LUSAQ*, LU4FDQ*, VP9BM*, VP6UN*, DU*, FO8AN*, EA*, PA*, LA*, F*, YU*, OH*, Stan 3TE: CN8MX*, CO2OM*, DL/DJ*, EA*, F*, G*, HB*, HP1EH*, I1BNU/Trieste*, I*, LA*, ON*, OH*, PA*, SM*, VQ8CB*, VS2*, YU*, ZC5GN*, 4S7*, 4X4*, Lee 3XO: JA*, LU*, KV*, DU*, CO*, SM*, PA*, EI*, CR8*, G*, VU*, DL*, FB8*, VQ4*, YU*, KJ*, KR*, VS1*, HB*, OZ*, VP9*, CR6AI*, 3YS: F*, VQ6LQ*, G*, PA*, and YV1AD, HC-1LE, FO8AN, VP6GT, John 3ZC: TF5TP*, FO8AO*, JA*, Europeans*, KR*, ZC4IP*, 3ATN: ZD6BX*, YJ1RF*, Syd 43E: 4S7*, ZS*, VS2*, JA*, KA*, AC3PN*, OA4AU*, OA4J*, LU5AQ*, LUISE*, YV5FV*, VS6*, VR3B*, FY-7YF*, KZ2CS*, DL*, PA*, SM*, KP4ACM*, I*, KW6*, KR*, VS4BD*, ZD6BX*, CR7AH*, PJ-2CJ*, IT1TAI*, OH*, YJ1DL*, ZE4JK*, FB8ZZ*, and T2AB, HK4DP, PY2BAU, VP5BE, FO8AG, OE, FV8AB, EL1FI/MM, EL2D, VQ8CB, TF6TP, VQ6LQ, HZ1AB, ZD4BQ, OA4AW, LJ, LE, ZELJG, VQ2IA, CR7AD, YI2AM, PZ1RS, HB, CE4AD, EA7CA, FB8BR/FB, John 5HI: 15RFX*, HB*, CT*, G*, Ray 5BK: VS2*, VS8*, VU*, KR*, I*, 4S7*, VP7NG*, Austin 5WO: FO8AN*, 6EJ: AC3PN*, CO2BM*, CR7IZ*, DL*, DU*, E1BY*, F*, FB8BX*, FB8ZZ*, G*, GD3VB*, I*, I1BNU/Trieste*, HB*, IT*, JA*, MP4QB*, OD5LJ*, OH*, ON*, SM*, VS1*, VS2*, VS4NW*, VS5BS*, VS8*, VS9AS*, VQ6LQ*, YA1AM*, YI2AM*, ZC4IP*, ZE3JL*, ZB6JU*, ZS5DE*, ZEH0*, 4S7*, 4X4BX*, WIA-L3019: DL, F, PJ5AN, PZ1WK, G, HB, JA, BERS195: CR9AE, CM9AA, DW, F, FA8H, FB8BR, FB8ZZ, FK,

HZ1AB, IS1, KJ6BN, ST2NG, VQ2IM, VQ4AO, VQ5GC, VQ8LQ, VQ8CB, VS4NW, VS9AS, YI-2AM, YV5BJ, ZD6BX, ZELJG, ZK1BS, ZS, 4STEM, SM, EL1FI/MM, PA6CKW/Air Mobile, Dave Jenkin: T12PZ, KZ6MN, KG4AC, VS8, KV, VS2, FO8AN, 4S7, CE4AD, FG7BB, YV1AD, OE, YJ1DL, LUINE, DU, HB, JA, ON, F, 8AHH: G*, DJ*, VS8*, LU0AAW*, HB*, EA*, and ON*.

14 Mc. Phone: 2AMB: ZK1BL*, YV6AB*, YV-5DL*, OA4AW*, OA4CK*, I*, EA*, and ZK1BS, HP1CC, VS8, KP6AK, ZM6AT, OA4DR, OA4AX, HK5ER, KE2KW, OE, 3JA, GM*, G*, OZ*, LA*, VS1*, YV5BS*, ZK1BL*, YJ1RF*, 3ATN: VK-1AWI*, EN6AR*, Europeans*, EA8*, ZS*, ET-3LF*, KP4ADK*, VP7NK*, AF2U*, AP2C*, ZS3Q*, VQ4*, ST2*, VP5RR*, and FP8AP. Bram 5AB (forwarded by 3JA): CN8*, VQ8*, EI*, ZS*, G*, M1B*, 5HI: CO8GM*, ET2MZ*, VQ-2JB*, 5WO: YS1MS*, 8S4AD*, VP5AK*, VP-6KJ*, YV5FL*, CT*, 4X4*, EI*, ZS*, HP3FL*, VP7NS*, YV5DL*, HC1FG*, CE2CO*, PY2CK*, VQ4CT*, CN8MM*, ZK1BL*, VP1EK*, WIA-L3019: CT3AN, SL, 4S7, ZK1BL, VE, DL, SM, OZ, 3V8BB, VP7NG, HH4MV, VU, 15REX, VS1, G, Dave Jenkin: LUT1D, FY3AG, G, LUSAQ, CT, F.

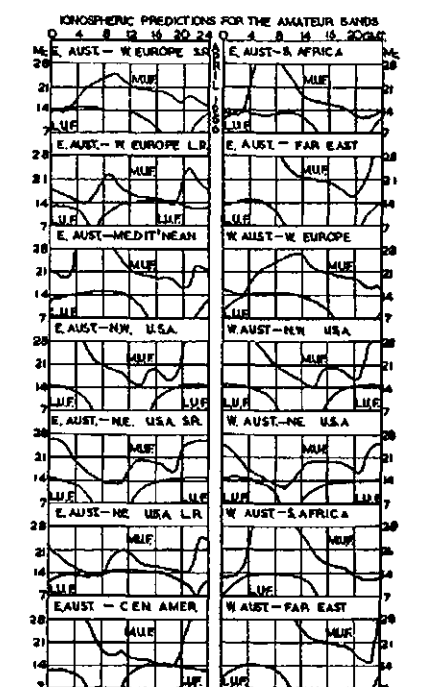
21 Mc.: 3JA: PY1JY*, KZ5DK*, CE1AJ*, OH*, SM*, G* and other Europeans*, Percy 8FA: CO*, HC1FS*, HC1ES*, VP6GT*, VP6FR*, VP6WR*, VP6NC*, VP6GC*, VP8TR*, KZ2CP*, KZ5DK*, ZP9AY*, YN1CAA*, KV4BB*, LU9-DAH*, LU2QA*, CE1AJ*, ZK1BS*, VE7TB*, ZS*, 5WO: KV4BB*, KP4AZ*.

27/28 Mc.: Neil 3HQ worked a series of Ws*. Angus 3IY phoned with a series of Ws*, VE4*, KL7*, GD*, VS1GX*, G*, DL*, JA*, 8PA also worked a number of Ws* and heard KL7 and VE. 5YS spoke to Ws*, VE7*, and KP4GN*. Max 4HD reported Ws*, VE4*, VE6*, VE7*, XE1FU*, HP1GD*, LU5AE*, LU2DED*, HC1FS*, DU7SV*, KA*, VS2CR*, MP4BBW*, VS1GX*, DL*, G*, LA*, SM*, PA*, HB*, I*, ZBLAJX*, OE* and VQ4FK. 5WO QSOed with OH* and Ws*. WIA-L3019 heard Ws. 3ABH keyed with a number of Ws*.

Rare QSLs were received by: 2QL: FUR (3.5 Mc.), 2AMB: KTIWX, ET2IB, 3ATN: EL2B, FB8ZZ, LX1SI, 4E: GM4JG, YU1AG, 5HI: EA9DF, OQ5FH, TG9AD, IS1FIC, 5WO: VP1EK, VQ8AG, VP9BM, 1S1EHM, 6EJ: DU7SV, MP4BEE, MP4BBF, VP9BM, XW8AB, BERS195: BV1US, YJ1DL, YV5DE, ZE6JT, 4S7.

Thanks to W6YY, the Northern California DX Club, and VKs 2QL, 2AMB, 2APL, 3CX, 3HG, 3IY, 3JA, 3PA, 3TE, 3XO, 3YS, 3ZC, 3ATN, 4HD, 4SE, 5AB, 5HL, 5RK, 5WO, 6EJ, and WIA-L3019, BERS195, Dave Jenkin.

IONOSPHERIC PREDICTIONS FOR AMATEUR BANDS, APRIL, 1956



SHORT WAVE LISTENERS' SECTION*

VICTORIAN FEBRUARY MEETING

This meeting of the Group was held at the rooms on 28th. The first part of the meeting was spent planning details of meetings and activities to be held by the Group in the future. During the course of the meeting, it was proposed that a committee be formed to undertake the organisation of lectures and events, such as visits to places of interest. A motion was put and carried to this effect, and Dave Rankin and Ian Hunt were duly elected in this capacity. Gerry Lane was also chosen to assist in the running of the committee. It was felt that the committee would be useful in taking a burden from the shoulders of the general committee of the Group and leave them more time for administrative duties.

A new member was welcomed to the meeting, namely Lola Burton, who is definitely very keen on short wave listening. Lola, as usual, had a really good log of stations for us. Noel 3ZD was present, busily sorting QSL cards.

A very interesting programme has been prepared for the Group, including lectures from various illustrious personages and visits to places of interest. The visits to be arranged include an inspection of the City West Telephone Exchange, D24, and various Amateur Stations. Further details of these visits will be broadcast over VK3WI and advised at the Group meetings. So come along one and all and find out what it is all about.

The second portion of the meeting was occupied by a demonstration of a c.r.o., with a built-in audio osc. constructed by one of the younger members of the Group. He brought it along without being asked, and we might say now that we don't mind anyone bringing in any equipment they think may be of interest to others. It proved all round to be quite an interesting item and some of the patterns formed looked really pretty.

At the March meeting, Max 3ZS gave a talk on the organisation of the Wireless Institute of Australia. I have heard a rumour that Max may be capable of writing an article on this subject. (Editor please note.)

* Compiled by: Ian J. Hunt, WIA-L3007, 101 Robert Street, Northcote, Vic.

At the April meeting (on 24th), Hans 3AHH will give a talk on Amateur Radio overseas. Hans has first hand knowledge of this subject, and this meeting should be a must for anyone at all interested in radio. All Amateurs are welcome to attend.

The May meeting of the Group is a free night. You may come along just for a rag-chew, bring in some kind of equipment you have, show off all the QSLs you have received or bring in your log and work on it. If some Amateur would like to arrive at the meeting with a car full of portable gear, or anything at all, he may. We won't lock any of you out you know. 29th May is the date.

Congratulations are due to our very enthusiastic member, Gerry Lane, who recently broke the distance record for a QSO on 288 Mc. It is understood that his record has since been broken by others, so congrats to all of you. Michael Ide is understood to be moving to a new QTH soon—still in the metropolitan area.

John Wilson was welcomed back to the last meeting. First time we've seen him since the festive season, and he's looking very fit too. Len Poynter seems to have as much energy as ever. Ian Hunt is now the proud possessor of an AMR300 and expects to really hear things. That S meter seems to fascinate him and he swears that all reports will be genuine from now on. We don't seem to hear much from the country chaps, so what about letting us know about some of your escapades.

ANY AMATEUR NEEDING ASSISTANCE?

The Short Wave Listeners' Group would be pleased to hear from any Amateurs who think we may be able to help them in such forms as monitoring transmissions and checking for b.c.i., etc. If you are perhaps going mobile and would like reports on transmissions, just let us know the approx. time and frequency and we'll do our best to be a help to you.

You may also be able to help us, too. If you have any suggestions you think would be of interest, or could come along and give a lecture or demonstration at any of our meetings, please let us know. We would also like to hear from any of you who would be willing to receive a visit of a small number, say six,

of s.w.l.'s. to see your home station. Any ideas along these lines may be forwarded to John Wilson, 37 Rayment St., Alphington, or Ian Hunt, 101 Robert St., Northcote. Ian Hunt may also be contacted by telephone, MY 260, Ext. 526, during the day.

STATIONS HEARD ON THE BANDS

3.5 Mc.: VKs 3AHH, 3ATN, SMS.

7 Mc.: W6SXI, VK2, 3, 4, 5, and 7.

14 Mc.: FSRT, ACSPN, FOBAN, CTIER, KH5AHG, ZK1BL, VE1E1, SM6SA, EA7EM, CE2CO, VR2AG, KH6ZA, KH6NES, FA8CC, W7VMD/KG6, KG6NO, KA6CL, VK9AS, VK-9DB, VK9ES, VS1CZ, G3GJF, KR6OB, DU1CV, HZ1AB, HP3DA, KA2FC, VS2EW, KG6AA, Y, KC6UZ, KA2KS, VK1IJ, FU8AC, ZK1BS, VR2CV, VR2CS, YV5AB, KR6RK, YV5VK, HK-3FV, KX6BU, FK8AC, VR3B, VESDCI, 45TVR, KP4ABD, KP4WD, O6FJ, ZS3S, W6FWG/KW6, JABAV, HZ2KN, VS1CZ, VU2AL, EI2W, EA-8BB, HP1CC, G8LG, GMSDHD, CESPV, KR6RT, EA2CQ, KA2WW, VS2BO, W1, 2, 3, 4, 5, 6, 7, 8, 9, 0, VK1, 2, 3, 4, 5 6 7, 9.

21 Mc.: ZL2MN VK3AKZ, FK8AC, VK2JZ, ZL1OA, K6BHH, ZL3LE.

VICTORIAN DIVISION W.I.A.

ALL-BAND SCRAMBLE

The next event will be held on
2nd APRIL (Easter Monday)

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Scramble ever!

Rules: page 12, Sept. '55 "A.R."

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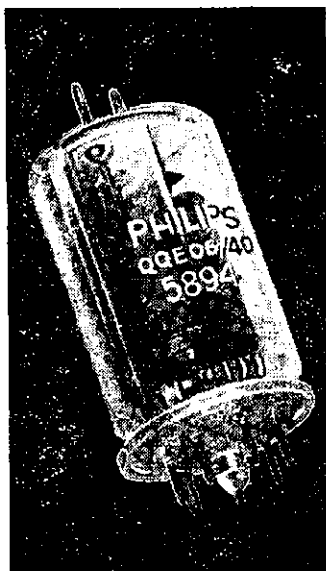
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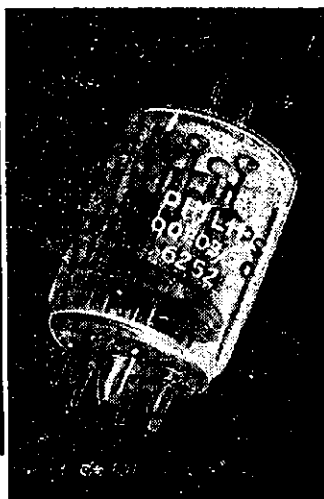


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A natural for 420 Mc. use! Has been successfully operated as a frequency multiplier in the UHF TV band. Particularly suitable for low-drain mobile transmitters and multiplier chains. Only 3" high, with the same mechanical and electrical features that have placed the PHILIPS 5894 in the forefront as standard equipment at 400 Mc. or higher.

	CCS	ICAS
144 Mc. input	90	112 watts
220 Mc. input	90	112 watts
420 Mc. input	75	90 watts

A FULL RANGE OF TRANSMITTING TUBE MOUNTINGS AND ACCESSORIES ARE AVAILABLE

TEMPERATURE MEASUREMENT!

A range of "Tempilstick" crayons and "Tempilaq" paints are also available. These items solve many problems in measuring seal and glass temperatures.



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PV18-55

FEDERAL, QSL, and DIVISIONAL NOTES



FEDERAL

FEDERAL COUNCILLORS

Federal Executive has been advised that Mr. J. Coulter has been appointed Federal Councillor for a further twelve months from March, 1956. This means that Jack VK5JD is continuing in the position which he has held with such success during the past years. It is most pleasing to see members willing to place their knowledge and experience at the disposal of the Institute.

It is also noted that Mr. R. Hugo, VK6KW, has again taken over the position of Federal Councillor in the Western Australian Division. Ron's experience will stand him in good stead and all will wish him well for the coming year.

Federal Executive expresses its appreciation of the fine work of Mr. G. Moss, VK6GM, who has carried out the duties of Federal Councillor so conscientiously during the past years.

PACKING OF QSL CARDS

It has been brought to the notice of Federal Executive that due to faulty packing some Amateurs, both here and overseas, have unfortunately lost some, or all, of the cards they have sent through the mail. It is suggested that where a good deal of handling can be expected, members make certain that the cards are packed in such a manner as to avoid the parcel breaking and allowing the cards to be lost.

W.A.C. ON S.S.B.

Interest in s.s.b. continues to grow and the "Calendar" of the I.A.R.U. for December indicates that a certificate is now available. The following excerpt supplies details:

"To stimulate experimentation with single-sideband techniques throughout the world, the Headquarters commenced the issuance of W.A.C. Certificates endorsed for s.s.b., where the cards submitted show clearly that both the candidate and the stations he worked were using such equipment. Member societies are encouraged to mark applications as being for s.s.b., if there is sufficient evidence on the QSLs submitted to them. To date, ten of these certificates have been issued."

FEDERAL QSL BUREAU

RAY JONES, VK5EJ, MANAGER

WIRTH and his YL are holidaying on the French Island of St. Martin in the West Indies. He is operating on approx. 14,600 Kc. c.w. and also on phone. He is signing FS7RT and well informed W circles predict that St. Martin will be classified as a new country.

A new certificate promulgated as from 1st January, 1956, is that of W.A.S.P.—Worked All Sicilian Provinces. It is available to licensed Amateurs anywhere in the world. The rules provide that the award will be granted to Amateurs who can prove by confirmations that they have made bilateral communication, after 1st July, 1952, with at least five Sicilian Provinces in any band, phone or c.w., or a combination of both. The Sicilian Provinces are: Agrigento, Caltanissetta, Catania, Enna, Messina, Palermo, Ragusa, Siracusa and Trapani. Claims for the award, together with the necessary confirmations and four I.R.C., are to be sent to ITITAL, Box 300, Palermo, Sicily.

The R.E.F. is staging a contest during March and April. Unfortunately details were forwarded by surface mail and did not arrive in time for advance publication. The phone section was scheduled from 1200 GMT March 3 to 2400 GMT March 4. The c.w. section is to be held on April 14 to 15 with same hours as the phone section. The group to be exchanged consists of the RST plus a running serial number of the contacts, e.g. 379001, etc. Logs are to be sent to the R.E.F., Box 42-01, Paris R.F., France. Logs are usable for claims for the D.P.F. or D.U.F. awards.

In an interesting letter to Austine, VK3YL, Kidong Kang, who operated HL5AA/Portable during December, 1955, gives details of the expedition for which the station was used. The station was using 15-20 watts and was temporarily licensed for the Mt. Chli climbing party of the Seoul Engineering College. 77 stations were contacted, among them being the following VKs: 5HW, 3ZO, 4SE, 4YP, 4SS, 6MS, 2MT, 6AF, 3ATN, 5WL, 3AHL and 3YL. Kang has received QSLs from 5HW, 3ATN, 6MS and 3YL and he promises to send his card when the annual exams end approx. end of January. His QTH is Kidong Kang, 62-16, 3-KA, Pildong, Seoul, Korea.

Avio, who was signing ELIFI/MM from aboard the flagship S.S. "Fallalca" on the voyage from America to Japan, uses 130 watts to a long wire. Tx is a Viking and the Rx SX7L. Avio desires all QSLs to be sent either to his home QTH of via Nizza 16, Genoa, Italy, or to the Italian QSL Bureau.

4STKH, whose signals were consistently sought after on 14 Mc. in 1955, has now returned to G. land. He requests outstanding VK QSL cards to be sent to him at "The Poplars," St. Mary's Road, Mortimer, Berks., England.

Further information from Dave Laing, YJ1DL, reveals that he has not been very active due to commercial station work. Dave was due to leave for Tahiti in March for a holiday and while there, he hopes to get on the air as an F08. He says that a QSL card has been sent to all VK stations worked, but if required, another card will be sent.

Requests for outstanding QSL cards for ex-DLAFS, 3AZAB, LXAFS, KZ5ND and W9SRB should be made to Guy Kane, 1158 Clarendon St., West Sacramento, Calif., U.S.A., who now, as KGAP, has one of the outstanding W signals on 14 Mc. c.w. band.

Ray Baty, ex-VR3A and VR3D, after having washed up at Fanning Island, has proceeded to the U.S.A. Ray visited W4GD in Tennessee, end of Feb., and continued on to many other States. His itinerary provides a period in England and Italy and he expects to arrive back in Australia end of June.

FEDERAL AWARDS

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

During the last month a certificate was issued to SM7QY, Gunnar Ekstrom, Gullberna, Sweden. G. Weynton, VK3XU, Awards Manager.

NEW SOUTH WALES

SOUTH WESTERN ZONE

For the past few months we seem to have been too late in getting our notes in "A.R." Let's hope we have better luck this time. Don 2RS is very active on 144 Mc., running skeeds with the VK3 boys. Don has new 6146 p.a. and 24 el. beam. Not much news from Griffith area, but John Smith has new Z call sign; congrats John. Hear we have a new call at Culcairn.

A meeting was held at Griffith on 11th March to arrange this year's Convention at Griffith. News of what took place next month.

Alan 2SJ has moved into the zone at Finley; welcome to the zone. Alan, 2QD and 2EU (Albury) heard occasionally ragchewing. The Tumut gang have been quiet lately, have heard 2PN on 40 mx occasionally. The chaps at Wagga seem to be very inactive, maybe the fault of the hot weather we are having. What about a signal and some news chaps? Well that is all the news I have at the moment, hope for more next month.—2AJ0.

VICTORIA

The Victorian Division is most fortunate in having obtained the services of Mr. Fred Ball, 3YS, as Honorary Secretary of this Division. Fred's eagerness to do a job and get it done, and his extreme thoroughness, is well known to all who know him personally and the Div-

ision should benefit greatly from his services. Already he has been busy arranging the programme for the general meetings for the coming year, which comprises a series of lectures that should prove to be very interesting to all.

April 4.—Annual General Meeting.

May 2.—A lecture by Mr. Wally Hunter, of Zephyr Products, on Microphone Manufacturing Technique.

June 6.—Mr. Campbell, of Masse Batteries, will lecture on the manufacture and care of storage batteries.

July 4.—Mr. Jack Vertigan, 3WR, will lecture on Single Side Band Technique.

There will be two general meetings in August, one on the 1st and a later one on the 29th, this later one will take the place of the September meeting as there will be no general meeting in that month. For the August meetings arrangements are in hand for a lecture by Mr. Alan Foxcroft on Propagation, and for the other meeting a Frogman Lecture. When complete details have been finalised for these two lectures, they will be advertised in "A.R." The Annual State Convention is scheduled for 3rd and 4th November.

At the March general meeting the following were welcomed as new members of the Institute: Messrs. P. Davies, 3APX; G. Hipwell, 3ALR; L. Harding, 3AHL; P. Playsted, 3APF, as full members, and Messrs. R. Lockerbie and F. Featherstone as associates.

The lecturer for the evening was Mr. Kempson, of the Melbourne Technical College Staff, and he lectured on the new TV operators' commercial licence. He also discussed automation and the enormous field in that direction that is opening up for the young men of today and tomorrow. Mr. Syd Clark, 3ASC, proposed a scheme for a voluntary weekly donation by members to the building fund and suggested a weekly amount of 2/-. This matter was discussed at length and gave the members quite a bit to think about. It was reported that during the Olympics in Melbourne the W.I.A. will hold an Olympic Dinner and arrangements have been left in the capable hands of Max 3ZS. Log Books are still available at the rooms at 4/6 per copy.

Neville 3ACN is at present spending a six months' holiday in New Zealand and is endeavouring to make the personal acquaintance of as many ZLs as he can during his tour of ZL land. Ron 3AHH, who has recently returned from a mobile tour to VK6, is now working on gear for 21 Mc. and is in the process of building a three element beam for that band.

VICTORIAN ALL-BAND SCRAMBLE

February, 1956, Results

Another Victorian Scramble was held on 6th February, 1956. The winner in Section C was again 3ALY with 16 points, all earned on 144 Mc. Section D was won by WIA-LS015. 36 stations participated.

Section C: 3ALY 16, 3ZQA 14, 3ZBE 13, 3YS 12, 3XB 11, 3OJ 7, 3ABA 6.

Section D: WIA-LS015 13.

Check logs received from 3HE and 3AHH, who also did the checking.

As mentioned in last month's notes, the next Victorian Scramble will be held on 2nd April (Easter Monday). Let's make this the best scramble ever! Rules of this Bi-Monthly Victorian Scramble can be found on page 12 of "A.R." Sept., '55. Send your log to the Divisional Contest Manager, W.I.A., Vic. Div., 191 Queen St., Melbourne, C.I.—73 3AHH.

CENTRAL WESTERN ZONE

During the past couple of months activity in this zone has been very limited as far as your scribe is concerned, and I think also, most members seem to be less active during the summer months. This is due, perhaps, to the country members having more work to do harvesting, etc., and the city folk spending the longer daylight hours tidying up the gardens, so getting onto the best side of the XYL. However I guess that from now on we will see more midnight oil burned when the longer nights restrict our outside activities. Chas. 3EB is at present on holidays, which he is spending in Tasmania, so I guess he will come back with glowing reports of the Apple Isle. Harold 3AX is busy building a new v.t.o.; expect he will be catching that rare DX in the near future.

NOETH EASTERN ZONE

Our Secretary, Earle Scones, is working on his BC346. Vern 3AXW, XYL and family have been enjoying a caravan holiday. Ken 3AQQ

VK2 DIVISION W.I.A.

EMERGENCY NET FREQUENCIES

7050 and 3575 Kc.

Please listen before using
7050 Kc. as this frequency is
very much in use by VK2WI
these days.

Thanks, VK2WI.

is now well established on 80 mx. Bruce SAGG and Brian JASF are having some success with the DX on 20 mx. Johnny JACK must be still tied up by his commercial operations. Murray 3HZ is moving into a new house in Shepparton, and Alex 3AT is more or less occupied with his professional work. Peter 3APF is often seen about in Shepparton and Ray 3FI is still constructing his shack. Although he is thought to be quite active, there is nothing on the v.h.f. work of Alan 3UI, neither is it known if Keith 3JC has finished his house yet.

Syd 3CI has recently spent a week fishing down at Foster and Des 3CO is still very much on deck. Henry SHP, like Jack 3PF, is tied up with his RFB VL3 skeds. Frank 3ZU is expected to be going away on leave now. Ken 3KR is able to work in occasional DX on 20 mx. We welcome Keith Cakebread on his qualification to full membership, with Doug Tacey's old call, 3DW, operating on 80, 40 and 20 mx. 3AMZ has got plenty of study and no rig in Wangaratta yet. Hugh 3AHF is using the new crystal microphone on the 20 mx DX. Bill 3JP is building a new garage. Howard 3YV has built a new final pi-tuner for his tx. Bruce 3QC is still on the colour photography and Doug 1IJ is getting in a lot of hiking as well as being DX down there at Macquarie.

(Editor's Note.—Congratulations are offered to Andy 3FD and Nancy upon the arrival, on 20th Feb., of twins—boy and girl. All are doing well, including Andy! The event is a variation of over 100 years of family tradition for both of them, that of raising a family one at a time!)

The sunspots and Aurora Australs have upset our zone operations around 7050 Kc. in late Feb. and early March. Always listen to 3WI for current activities on the hook-up as our Annual Zone Convention should come up soon.

EASTERN ZONE

The demonstration of a fox hunt, which was held at Warragul, on 26th Feb., proved a great success. Visitors from Melbourne were 3ARY, 3OJ, 3KD, 3ZAD, 3IE, 3BZ, 3LN, 3ZBU, 3ZS, 3ZBE, 3ZAQ, 3NY, 3GY, 3XJ, 2ZBY and 3IP. The fox car was Len 3LN who proved to be most foxy in his movements. The base point was Picnic Point at the 54 mile post, and it proved to be a lovely spot. The outright winner was Ray Price with the assistance of Ray 3KD. They combine very well as a team and will be very prominent in these events in the future.

There was a good attendance of local boys, some of whom had gear for 2 mx and they knocked up a few contacts with the Melbourne boys. 3OJ had a collapsible beam, up about 25 feet, which proved to be of great interest to all. Joe 3TO was up on the hill at Yallourn and worked most of the boys from there. The day was a great success and wound up with a picnic tea. We certainly thank the Melbourne boys for providing such an interesting day's entertainment and also the local boys for their attendance. This, no doubt, will be a forerunner of many more fox hunts.

Stations still making an appearance on the hook-up are Bill 3WE, Graham 3QZ, whose XYL is coming along quite nicely; Keith 3SS, who is spending part of his time in Melbourne doing TV course; Ron 3PR, who is always there and a real backbone of the 80 mx hook-up; Ian 3AAV, who is at the moment fixing his car in preparation for his holidays to S.A. and he will be working mobile on 80, 40 and 20 mx. Jack 3AJK is building up 2 mx equipment. Jack had a visit from 3AOE, XYL, and two junior ops. for a week-end and carried out some 2 mx mobile checks with George 3ZCG, who now is a resident of Newborough. Every Sunday night 3ZCG goes up on Coach Road, overlooking Yallourn, to try and contact the 3 mx hook-up.

Come on the hook-ups so that we can discuss preparations for our Convention, which is to be held in Morwell in June this year.

MOORABBIN RADIO CLUB

The club's last tx hunt was held in perfect weather, leaving from the club rooms slightly later than 2 p.m. due to technical difficulties beyond the control of the starting officer. Some 20 minutes later a crisis developed when the potential winner (Bob 3NZ) found himself neck and neck with Jack 3JD. It actually finished a dead-heat, so much so, that the panel beaters are still beating out the results. Burwood Park was the elusive, but not impossible place of hiding; the usual picnic gathering ensued. The club's next tx hunt was held on 18th March and will be covered in the next issue.

On 10th March a very enjoyable social evening was arranged by the club at Bob 3NZ's new QTH. It consisted of a dance—indoors and out, barbers out of doors, a dart board and quilts filled in any gaps while a monster easter egg was raffled.

GEELONG AMATEUR RADIO CLUB

Ron 3AYB recently gave a detailed instruction on the vagaries of the Geloso oscillator unit. Club members were particularly interested in this talk and they are making a new tx around the same unit. Mr. Geoff Woods, of the yacht "Iola" (all his own building), spent a very pleasant evening discussing the various angles of navigation. Geoff came along with a car load of gear, maps, sextants, etc., and later in the week took members for a sail to prove theory helps practice.

A field night on 80 mx was held—the tx being in the capable hands of Ted 3AEH. The winners, Bob 3IC and Jim 3ZBR, found the tx at Queen's Park. Jim 3ZBR gave an interesting discussion on mobile power supplies. Jim knows this angle of tx well as he does a lot of work on Bush Fire Networks. Members are preparing for the Convention at Warrambool and hope to have a good muster there.

At a long and weary last, Bill 3AWZ has worked several Melbourne stations on 2 mx—he is looking for 3ZBY who converted him to those more cultural bands—to work DX? Some members visited Melbourne recently to watch the 2 mx fraternity in action at the evening fox hunts. Three members have gear almost ready to go and others hope to follow soon. Ed 3AKE and Len 3LYN will both be pleased at this new activity.

QUEENSLAND

BRISBANE AND DISTRICT

Another month of 1956 has passed and now we are well into the new financial year, so please forward your subs. so that finances can be squared away in preparation for the year ahead. Your new Council wants to see a record year this time because conditions are getting better and we have heard call signs (VK4) that haven't been on the bands for years. A strange point, in 1946 when the post-war rush to get started, we held our meetings in the State Service Union rooms in Elizabeth Street and what meetings they were! It wasn't unusual to see capacity houses and in spite of the fact that DX was so good, the chaps always found time to attend the general meetings. Maybe the novelty of being back on the bands after six years and wanting to see the gang after such a long absence was the reason for the packed meetings. Maybe it was the Disposals equipment that was so regularly disposed of. The reasons may have been a combination of these two and a wish to have a good "earbash" with the other blokes. All we know is that a lot of us have a yearning for the 1946-1950 enthusiasm again and could be we will get it back again.

You probably noticed in the Federal notes in last month's "A.R." Prof. van der Pol, of the C.S.I.R., has stated that the sunspot maximum will occur in 1957 and that the sunspot number will be a record high. Now the strange point, at the beginning of the last sunspot maximum we had the State Service Union rooms for our general meetings and now we have them again.

Maybe you are sick of reading our repeated notes on sunspots, but Amateur activity runs hand in glove with conditions. When conditions are good, we have high membership and packed out general meetings, and just the reverse with poor conditions. This year we have nine nominations for Council where the maximum for the last few years has been about six. A lot of criticism has been hurled at the Divisional Council over the last few years, but members who were nominated year after year became frustrated. Gentlemen, those chaps who have been criticised so much have held the Division together in its period of "doldrums" and deserve your thanks. Now we will make a statement which will be scoffed at, but it comes from us in all sincerity.

Council is in office for the benefit of all and not a favoured few, and if you have any requests or complaints you all know the box number. Don't keep your feelings bottled up and develop a complex; let us know what is on your mind and we can do something for you. None of us have the powers of mental telepathy, so let us in on it instead of harbouring a grudge.

Well, after getting that off our chests, we can get down to other things. Firstly, when illness strikes it shows no preference. We had Bill 4YA very ill and now slowly recovering. Another staunch member has been very ill and was able to keep it a secret from most of us. Russ 4PN has been inactive for some time due to illness and not only has the Amateur fraternity been without his company, but the Royal Flying Doctor Service, of which Russ is an important member of the organising brains, has been without his services. Get well soon, Russ.

An old member of the Division and a former councillor who has been inactive for some time was a welcome visitor at the February general meeting. We are referring to Pat 4KB, who was the "prime-mover" in arranging for the new meeting place. Pat is not on the bands at present, but "Avc gives you ten" that when DX starts getting thick, 4KB will be in there amongst it.

Council received a copy of the new W.I.A. Log Book which has been kept quite a secret by F.E. If you want a really excellent log book, you can now get one here in Australia. Those of us who have been fortunate, in the past, to receive copies of the A.R.R.L. Logbook can now purchase a log book here in Australia which is on the same standard of quality as the imported article. That goes for all of you; details of how to purchase your new log book have been published in "A.R." so get one right away and you won't be disappointed.

Well we will close this month's notes with another reminder that we want to see you at the State Service Union rooms on the fourth Friday of the month. Please roll up, gentlemen. So 73 from your scribes, 4ZM and 4PR.

MARYBOROUGH

4CB is very pleased at reports of his 2 mx signals being heard in Brisbane (150 miles), up to SS. At his tx is not good enough to receive signals from Brisbane, so a crystal controlled converter is planned. Meanwhile, the 16 el beam has been hoisted higher. 4AI re-appeared on 14 Mc. Has acquired a 6146 for the final of his new band-switched rig. Has also built a multimeter, and a 2 mx crystal converter is on the production line. 4GH moved some gear out of his shack and so discovered the whereabouts of his tx. Is still looking for his rx.

4BG re-built his modulators as Class B zero bias and put in a xtal mike. Result is better and deeper modulation. Ron is working on 14 and 21 Mc. phone and c.w. FLASH! 4CB made the first 2 mx Maryborough-Brisbane contact with 4JO at the Brisbane end. Having repeated the contact since, seems to prove that it was the result of a weather front, so regular working is expected.—4BG.

TOWNSVILLE

Very sorry boys being unable to give you any dope of the doings at the meeting held at 4BX's residence on Thursday, 24th Feb., which I missed on account of my mother's funeral. Next meeting will be held on 18th April. Vern 4LK mentioning the fact he is unable to cross his strawberry plants with blue couch grass and save him weeding the garden. Good exercise Vern! 4UX operated mobile and was in constant touch with northern local boys after leaving Mackay to arriving at Giru. The boys here lost many hours precious sleep listening for you, though you were not heard on the final stretch home. 4DK used the local boys to keep an unofficial watch on the weather to know in advance if the Burdekin River would cover the railway bridge. He is now spending a week's holiday.

4TU hoping to get a mobile rig going in the car. Sure will get plenty of advice from the gang when parked on our lonely beaches. 4GF heard on 7 Mc. calling Claude 4UX/mobile on last lap home; glad to hear you Edgar. 4PS, 4JH, and 4BX getting their heads together on building a prototype set for 144 Mc. band. Remember DX distance for VK4 land is only 113 miles, worked over long week-end during closing days of January and should not be hard to beat. 4SE has over 80 countries worked since August, has the edge on most of the boys due to being well out in the mid-west free from QRM.

Apologies to Hans 3AHH in not sending DX notes, but with sickness, sunspots and wet season, band getting a spell. 4BW has now passed his 800th contact with Harry. Who gives the special party when the 1000th QSO comes up Andy? 4NT has promised notes on doings in the bush but so far the stage coach has not arrived, must be lost in the wilderness. Norm has gone cubicle quad happy and has earbashed all and sundry on antennae for months past, before deciding on the quad. Iris walks around with her fingers crossed. Rex 4LR had assistance from Joe 4JH in moving his gear in anticipation of flood.—4RW.

SOUTH AUSTRALIA

The Annual General Meeting, held in February, brought a good attendance of members who showed that they were keenly interested in the administration of the Institute. Business proceeded according to the agenda, with the President in the chair; a lot being passed and dealt with as routine items. This year a ballot for Council members was necessary and on the declaration of the poll, Messrs. Austin 8CA,

Barbler 5MD, Bowen 5XU, Brice 5OK, Bassen-schutt 5OR, Bulling 5KX, Judd 5HQ, Parsons 5PS, and Vivian 5FO were the successful candidates for office. The President's report has already been published so no details of that. The Treasurer's report was well received and Mr. Sullivan, 5JK, proposed that the usual honoraria be presented to the Secretary and Treasurer for their sterling work.

During "smoko" and completely off the records of course, some remark concerning the number of "B's" appearing on the list of councillors was overheard! Personally, being one, I should say that this is a record—any takers?

A discussion on the merits and short-comings of the Christmas Social took place and the general consensus of opinion seemed to be that the present set-up is satisfactory, with some changes in entertainment, perhaps. The 50-54 Mc., 56-60 Mc. change brought forth much partisanship, but eventually satisfactory expansion came forth and VK5WI still transmits a signal on the 56 Mc. band each Sunday morning for those who wish to find the band!

The retiring President was honoured with life membership in the Institute as a token of the members' appreciation for the work which had been done.

After the distribution of QSL cards the business of the ordinary general meeting was dealt with. One new Associate, Graeme McKellar, was accepted into membership and a resignation from Ralph Taylor received with regret. Very few matters other than routine ones were dealt with and the large body of enthusiasts who had remained throughout set to for a good old "pow-wow."

At the Council meeting held at Goodwood on 6th Feb., the newly elected members chose Mr. John Bulling, 5KX, as their Chairman and President of the Institute for the new term of office. John is electrical maintenance engineer at Osborn (E.T.S.A.) and has had plenty of experience to back him as President of the Institute and we all wish him well in the highest office. Jack 5JD and Brian 5CA fill the offices of Vice-Presidents, with Harvey 5HQ your new councillor, accepting the office of membership organiser. The other officers remain as for 1955-56. Following the decision to increase Council to eleven members, at the Annual General Meeting, another member will be co-opted to bring Council to full strength.

The Hobbies Exhibition is now in full swing at the Adelaide Town Hall and VK5WI is represented with a display of v.h.f. h.f. equipment, loaned and installed by Messrs. Austin, Beasley, Sappintzer and Bowen. These latter, together with Arch 5XK, Rob 5RG, Associate John Campbell, are doing duty as operators and chief publicity agents. Next year, April, 1957, an Exhibition will be at Wayville for six weeks and the Institute is going to need all hands on deck, so keep the date in mind chaps.

Jack 5JD is again on the high seas (and the higher the better for he left me 12 hours to get these notes written!). I have to glean where he has reaped (or cast where he has sown perhaps would be better) to gather personalities. The T.v.i. Technical Committee met on 21st Feb. and decided on a course of action which includes a series of three lectures at the general meetings. Its members are Ray 5BT (Chairman), Rob 5RG (Secretary and Scribe), Ian 5ZAA, Phil 5ZAD, Des 5DK, Clem 5GL, and Gordon 5XU. By the time this is printed another meeting will have been held at Phil's place on 20th March.

40 mx hasn't been too healthy lately and there is much feverish activity on 20 mx as the sunspots stir up the ionosphere. At the rate that things are going, this peak will go beyond 1946 and appear about August next year. Those interested in assisting with the Geophysical work sponsored by Australia should give their names to the Hon. Secretary as soon as possible.

5CJ has been busy on the shack and should be settled in before the winter; be no excuse then, Col. Claude 5CH has been busy trying to keep up the supply to keep the rest of the gang on the air. These blackouts are no good when you're chasing some rare DX Claude, better have Stuart QRT next time the load gets near the danger point and everything will return to normal. 5MS has been getting results with his converter on 2 mx with his beam perched up some 70 ft., heard quite a few VK3s and several VK5s; wait till you get the tx on Stuart and can work them.

Leo 5ZAG reports that his 2 mx converter is performing well; better hoist your beam up a bit Leo and let Bram know you are about. Bram 5AB is getting stuck into some DX on the lower frequencies, believe he has started an antennae farm up there at Hynam with vee beams several wavelengths long. 5FD still finds no time to throw his switch on. Tom 5TW and

John 5JA still not active. John is probably too busy while Tom is saving up for the next R.D. Contest, 5KV is a little more active lately, especially on 40 mx phone working Carl 5SS—a recent new call on the band.

TASMANIA

As press dead-line will not permit coverage of the meeting to be held in the club rooms on 7th March, the most I can say thereon is that TGA's lecture on the Hydro Electric Commission's activities should be most appropriate, in view of the fact that the Annual General Meeting and Dinner are to be held at Bronte. As you read this, the Dinner will of course be a thing of the past, but I feel sure that it will still be a memorable event, in keeping with the efforts put into it by Reg 7WN and his aides.

At a recent Council meeting, Doug 7AB was demonstrating the virtues of a well known make of v.f.o. It proved reluctant to give any output at all, mainly because of a switch so recently installed that it was overlooked, but boy, oh boy, when that switch was found, and operated, there was certainly oodles of drive. A burned out meter left Doug darned sorry that he ever found the switch.

7WI now operates on the full 100 watts due to the efforts of Joe 7BJ, who at the present time is on recreation leave. Judging by the number of reports coming back on 40 mx one Sunday, I would say the results certainly justified the efforts, and if results on 80 mx were similarly rewarding, then a long felt want has certainly been satisfied for country members.

I hear that Ted 7FJ has recently taken unto himself a pair of 807s, and since Ted is only a short distance, airline, from me, it looks somewhat as if I am for it at last. Ah well, it was good while it lasted. I definitely saw Max 7ML poring over the coil switching circuit of a proposed tx. In striking a cautious note, I shall only comment to the effect that it certainly augurs well for the future, and the bug may yet get in a good nip in the right place. Associate Johnny Grace seems to be overcoming the various difficulties associated with the construction of sound-on-film reproduction equipment, and the finished product is very nearly ready for presentation. Seems to me that there is good material there for a lecture and demonstration—what say Johnny?



A & R OUTPUT TRANSFORMERS

ULTRA LINEAR OUTPUT TYPES

★ TYPE 921 (921-8: 2 or 8 ohms; 921-15: 3.7 or 15 ohms):

For VALVES:

807, KT66s,
etc.

Suitable Conversion

"WILLIAMSON" to U.L.

See "Audio Engineering" of
Jane, 1952.

20 WATTS: 30-30,000 c.p.s.

Primary: 6,000 ohms.

SCREEN TAPS: 19% of Plate Z.

F.R.: Plus or minus 1 db 10-60,000
c.p.s.

Leakage Inductance:
1/2P/1/2P: 18 mH. maximum.
Prim/Sec: 20 mH. maximum.

★ TYPE 931 (931-8: 2 or 8 ohms; 931-15: 3.7 or 15 ohms):

For VALVES:

6L6, 6X4,
KT66, etc.

See "Radio and Hobbies" of
February, 1955, 17 watts
U.L. Amplifier.

20 WATTS: 30-30,000 c.p.s.

Primary: 4,500 ohms.

SCREEN TAPS: 19% of Plate Z.

F.R.: Plus or minus 1 db 10-60,000
c.p.s.

Leakage Inductance:
1/2P/1/2P: 15 mH. Maximum.
Prim/Sec: 16 mH. maximum.

★ Ultra Linear Output Type—

Type 916—12 watts.
Prim.: 8,500 ohms p.p. (with
screen taps).

Sec.: 916-8: 2 or 8 ohms;
916-15: 3.7 or 15 ohms.

Type 949—12 watts.

Prim.: 8,000 ohms p.p.

Sec.: 2, 3, 12.5 15 ohms.

Response: 10-50,000 c.p.s.

Valves: 6V6, 6BW6, KT61,
EL84, etc.

19% Screen Taps.

★ For Mullard "5-10" Amplifier

Type 2505—12 watts.

Prim.: 6,000 ohms c.t.

Sec.: As below.

Response: 10-50,000 c.p.s.

Type 2505-8

For 2 or 8 ohms Secondary.

Type 2505-15

For 3.7 or 15 ohms Secondary.

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APPEARANCE
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Ted 7EJ has sprouted out on his own in business at Devonport, and we wish you success in your venture Ted. However, don't concentrate too heavily on the receiving side. Associate Vance Tobrman is exploring new pastures and is now allied with a reasonably well known power generating organisation. Do not forget that ticket Vance when you happen to ponder on frequencies over 50. Alan 7CJ now has the poles on hand, and is trying to make up his mind on rhombics, vee beams and the like. Good work. "Al," however pick on something that will allow a little f.f. to trickle down south. An AT5/AR8 combination now graces Bert's (7BC) set up and I understand that he has, more or less, forsaken the v.h.f.s. for the time being. Gee, Bert, I thought by now that you would be the 2 mx king on that part of the coast.

Contrary to my forecast, Len 7LS has not yet unpacked the gear at Wynyard. I must have words with Nostradamus on the subject—something wrong somewhere when my prophecy is so short askew. Len 7LE recently took part in a short three act play. Curtain rises on act one to show Len in the shack, entranced by the music made by some invisible force using his antenna set-up for a double-bass. Act two features Len bravely venturing forth to find a horse with one hind leg very firmly entangled with the halyard. Act three shows the escape of the intruder, and the rapid descent of an antenna, associated with a halyard speeding heavenwards. Curtain falls on Len gazing at a point 70 feet high, in an attitude of supplication, with words on his lips that none can hear—but all can guess.

Well chaps, before the fader is finally closed on me, I would like to wish the new scribe good luck with his hunting, and to thank all those who have been such a great help with news items at various times. Cheers all, 7JD.

NORTHERN ZONE

The election of office-bearers for the forthcoming year is as follows: President: G. Kirmsee, 7GM; Vice-President: R. Kilby, 7RK; Sec.-Treas.: H. Solomon, V.H.F. Officer: P. Frith, 7PF; QSL Officer: C. Wright, 7LZ; Zone Correspondent: W. Briggs, 7LX.

Congratulations to Perc. Woodruff who, at long last, received his limited call, 7ZAW, and is at once very active on 2 mx, both with and without the proper radiating system, eh Perc? Our congratulations also to Henry Solomon, who just failed to pass the theory section of the examination, but don't give up Henry, remember the spider.

After a very successful opening to the 2 mx season, Gordon and Peter, 7GM and 7PF respectively, are busy revamping cascade front ends to include the latest in low-noise triodes 6CW7 (ECC84), and both promise good results. Len 7BQ and Col 7LZ and Gordon again have investigated the possibilities of 5 over 5 arrays for 2 mx and appear to like them, as all three have them in operation, so DX on 2 mx for these stations seems assured.

Believe Bill 7DS is putting the candle beneath the 7 Mc. rig and will shortly be heard on phone. Max 7CA is emitting some queer noises on 2 mx; any leads Max? As also are many super-regen. rx's on the way. Tx hunts are being held while the good weather lasts. Ken 7LX has the 7 Mc. mobile installation going in fine fashion now, and is looking forward to many contacts during May this year, when he will be visiting the three Eastern States.—7LX.

NORTH WESTERN ZONE

The monthly meeting of the North Western Branch was held at the QTH of 7DR at Ulverstone. There was a good attendance of members from Devonport and Burnie. Four new associate members were welcomed. Methods of R.D. Contest scoring was discussed and it was agreed that more information on past contests should be published to enable a new system to be worked out.

In the Burnie municipality the Town Planning Commissioners have adopted new regulations and Amateur Radio Stations have been included as a semi-commercial business. It seems they require someone to explain to them exactly what an Amateur Station really is. We have requested W.I.A. Hobart to arrange interview and impress on the Town Planning that Amateur Radio is a hobby.

A very neat portable transceiver, built by 7JO, was the centre of attraction for quite a number of the members. After the meeting closed an excellent supper was provided by 7DR's XYL.

PAPUA—NEW GUINEA

This month still sees our President away on leave, but manages to make himself heard from various shacks around Brisbane on 20 mx phone. Our oldest Amateur, 9EC, should now be well and truly established in VK3 and we

all look forward to hearing from him and what it is like to be leading a life of ease with a well earned retirement. Several have returned from the big smoke, including 8HI, who showed up on 40 mx phone several Sundays ago, and look forward to hearing you often Les. Roy at 8AU is back with us again, and quickly got back into form by knocking over the DX in his usual brisk manner, contributing his fair share of QSLs to DXCC minded individuals. 9DE also beard in the recent W contest and turning on the heat to the delight of the Ws. He also took up my suggestion and I understand has a very interesting lecture coming up, which had to be postponed due to a.c. power on Sundays and get the good oil right from "Double Brandy's" bottle.

9EB still flitting around the country in a fancy Cessna, but occasionally finds time to drop in for a rag chew. Has quite a wealth of gear spread around broadboard fashion, but slowly being confined to a rack and panel. 9RM still chasing DXCC and was and has been recently informed that he is the recipient of the third AJD award. 9TZ very QRL with a big Hydro scheme and at present pondering just how to fume his water race around the side of a 2,000 ft. cliff, but always finds time to drop in on the gang each Sunday morning. 9AS trying to coax a few extra ergs out of his 40 and 20 mx rig with considerable success.

9CW, of the Wau Radio Club, anticipates getting on 20 mx just as soon as some of the junior lads become more familiar with Amateur jargon and procedure, and all striving to be the first to have an overseas QSO on c.w. It is quite surprising just how quickly these lads catch on and we are fortunate in having the local commercial operator to assist in this direction and apparently getting quite a kick out of seeing the way they progress.

So far I have no notes of the activities of the Babaul boys, and would like to hear of the doings in that neck of the woods, as occasionally they come through on short skip on 20 mx, but not long enough for a solid QSO. Don't forget gang to send in anything of interest up to Wau for incorporation in these notes in order to keep the coverage as broad as possible.

CORRESPONDENCE

The opinions expressed in these letters are the individual opinions of the writer, and do not necessarily coincide with those of the publishers.

INCREASED POWER ON 144 Mc. AND ABOVE

Editor "A.R." Dear Sir,
I believe that Federal Executive has from time to time raised with the P.M.G. the question of power increase for VK Hams. My view, sir, is that for bands below 50 Mc. no good purpose would be served by an increase in the legal limit.

However, anyone familiar with the work of W2UK, W4HHK, W1HDQ and others using 1 kw. inputs on 144 Mc., high gain beams, etc., will be aware of the considerable contribution Amateur Radio has made to our scientific knowledge in the past couple of years.

The work I refer to concerns transmission of 2 mx signals over distances of 1,000 miles by the meteor scatter method.

This, however, is not the only contribution Amateur Radio can make to our knowledge. Work on transmission by topsospheric scattering, correlation of v.h.f. communication with our weather patterns, transmission along ducts and so on, can be carried out by the Amateur.

However, it has been demonstrated that for most of this work powers of several hundred watts are necessary. I feel there is a good argument for increase in the legal limit to, say, 500 watts, on bands 144 Mc. and up.

I am quite prepared to go into this matter at greater length if sufficient interest is in evidence.

—I. F. BERWICK, VK3ALZ.

[Federal Executive is always pleased to receive technical data supporting such claims through the member's Divisional Council.—Ed.]

IMPROVING 56-60 Mc. BAND

Editor "A.R." Dear Sir,
The W.A. Division of the W.I.A. has notified members of the scheme to help Professor H. C. Webster, of the Queensland University during the International Geophysical Year of 1957-58 with reception reports of 56 Mc. activity from "Aurora Polariss" and, we hope, from any other anomalous propagation.

This appeals to me as an excellent scheme and if the results of Amateur communication out of the ordinary can be co-related to Aurora, Met., Sporadic E and goodness knows what else, then work on 56-60 Mc. will be well worth while.

There are a few things that could be done on the band to improve activity and results. Firstly, an increase in power input to the final to 250 watts if required would be a distinct advantage or in any case sufficient increase to enable some of the excellent v.h.f. tubes to be run to capacity.

Secondly, an extensive use of pulse. This would enable long time monitoring of channels to be conducted while waiting for something to break and the use of c.r.o. monitoring for back scatter and the possibility of forward scatter. The pulse could be used for phone for those with sufficient enterprise.

Thirdly, and I consider this to be the most important, open up 56-80 Mc. to the Limited Licences and let the Z boys have a go at it. It is definitely a phone band and when the DX break-through occurs c.w. is seldom used. Since the Z boys have shown (they have in VK6 anyway) that they can really build gear and get excellent results on 144 and 288 Mc., their addition to the small number active on 56-80 Mc. should do an awful lot of good, and in view of Prof. Webster's appeal, I don't see how we can do otherwise.

So Mr. Editor, if you can bring this to the notice of the Federal Council, perhaps they can do something for the v.h.f. boys throughout Australia and in so doing, hand out a little compensation after giving up 50-58 Mc. to TV without saying boo!

—ROGER CHOATE, VK6RK.

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.

SALE: Advance Sig. Generator, range 30 Kc. to 30 Mc., as new, £35. BC211AA Freq. Meter, complete incl. reg. power supply, £35. 50 watt Modulator, suits p.p. 807s, incl. 3 power supplies, £25. Type 3 Mk. II., £20. Labgear Wide Band Tuners, 40, 20, 10, new, 30/- ea. VFO's, Meters, Tubes, etc. Enquiries: E. L. Colyer, 20 Burgoyne St., Gordon, N.S.W. (JX 4400).

SALE: A.W.A. Transmitter AT13 r.f. and power supply sections complete with tubes, £85. C. W. Smyth, East Doncaster, Vic. (WJ 1119).

SELL: VP Beam, 14 Mc., all dural plus mtg. and coax 50 ft. (beauty, see Handbook). Bendix Freq. Meter, LM10, with book and pwr. supply. Converted 522 Rx Tx in rack, 6AK6s in Rx plus S meter, pwr. supply and mike, wkg. 2 Xtals. Band-sw. 6146s Tx, 7-14-21-28 Mc., separate VFO, with coax. 6 mx Tx 815 p.a. plus xtal. 6 mx Convtr. (xtal), 12 Mc. i.f. (easily altered for 56 Mc.). Eddystone Bug Key. Eddystone FS1 Mod. Lev. Ind. with 4 coils. Command Rx converted 3.4-7.5 Mc., N/L, AVC, etc. Bendix Rx 1.5 to 9 Mc., 4 bands, converted, extra audio st. (a beauty). Tubes incl. 1625s, 12A6s, cheap. 829B. VFO covers 40, 20, 15, 10 with 6AG7 and VR150 tubes for panel mtg.; a perfect little job. 144 Mc. p.a. with QOE6/40 with Eddystone Tx Cond. split-stator 100 pf. per sect. ceramic ends. Lots of other good gear and tubes. No Junk. What you need? All enquiries answered. J. Herd, Box 73, Wangaratta, Vic.

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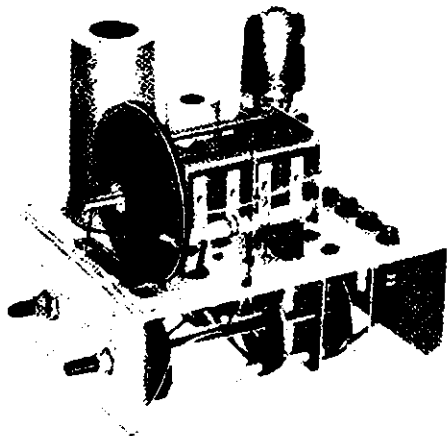
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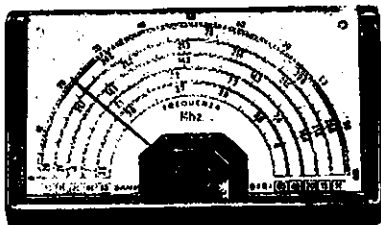
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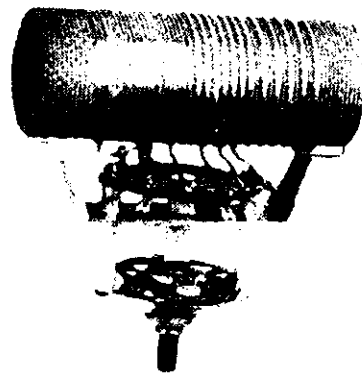
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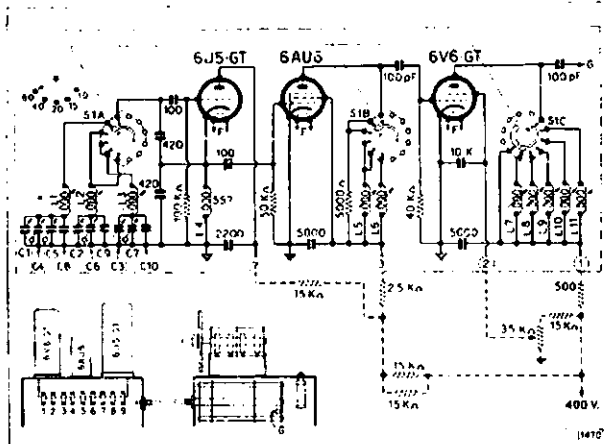


Crystal Inserts
Left: Cat. UN10, 30/7
Right: Cat. M410, 38/6



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As a companion to the Gelson VFO unit the same manufacturer offers a band-switched Pi-Coupler with a tuning range of 3.5 Mc. to 28 Mc. of small dimensions and having the capacity of 807 or 6146 output into a load of 40 to 1,000 ohms. Wound on high quality ceramic former. Price of Cat. No. 4/110 coil. £1/10/6 inc. tax.



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- RAX Receivers, complete with valves, 150-1500 Kc., £16/10/-
- Amer. Loran Receivers, contains 26 valves, 1 100 Kc. xtal, £15
- BC733D Crystal Locked Receiver, 10 valves, 108-120 Mc., £5
- SCR522 American Transceiver. Frequency: 100 to 150 Mc. In clean condition, less valves ... £10
- Command Receiver Racks, twin, brand new in cartons, includes two relays, switches, phone sockets, etc. ... £1
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- Inter-Com. Units, English. Contains two valves, transformers, P.M.G. key switch, resistors, etc. To clear ... 12/6 each
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| 4285 Kc. | 6450 Kc. | 7035 Kc. | 7125 Kc. | 8183.5 Kc. |
| 4495 Kc. | 6850 Kc. | 7040 Kc. | 7126 Kc. | 8317.2 Kc. |
| 4535 Kc. | 7004 Kc. | 7042.65 Kc. | 7130 Kc. | 8320 Kc. |
| 4540 Kc. | 7005 Kc. | 7045 Kc. | 7134 Kc. | 10.511 Mc. |
| 5000 Kc. | 7010 Kc. | 7047 Kc. | 7140 Kc. | 10.515 Mc. |
| 5050 Kc. | 7010.7 Kc. | 7050 Kc. | 7145 Kc. | 10.524 Mc. |
| 5300 Kc. | 7011.5 Kc. | 7053.5 Kc. | 7150 Kc. | 10.530 Mc. |
| 5360 Kc. | 7011.75 Kc. | 7063 Kc. | 7156 Kc. | 10.5465 Mc. |
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AMATEUR RADIO

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EDITOR:

J. G. MARSLAND, VK3NY.

ASSOCIATE EDITOR:

R. W. HIGGINBOTHAM, VK3RN.

TECHNICAL EDITOR:

K. E. PINCOTT, VK3AFJ.

TECHNICAL STAFF:

J. C. DUNCAN, VK3VZ.
D. A. NORMAN, VK3UC.
R. S. FISHER, VK3OM.
A. E. MORRISON, VK4MA

ADVERTISING REPRESENTATIVE:

BEATRICE TOUZEAU,
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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 50 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., 51.016 and 146.25 Mc. Intrastate working frequency 7135 Kc. Individual frequency checks of Amateur Stations given when VK3WI is on the air.

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VK5WI: Sundays, 1000 hours SAST, on 7146 Kc. Frequency checks are given by VK5MD and VK5WI by arrangements on all bands to 50 Mc.

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

VK7WI: Sundays, at 1000 hours EST, on 7146 Kc and 146.5 Mc. 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



THE PLEBISCITE

The holding a plebiscite dates back to the days of ancient Rome when it was used to obtain a direct vote of all electors of the State on important public questions. Although many centuries have passed since the first plebiscite of the people, the principle is still carried on today—witness the use of the Referendum—which is the modern plebiscite. In a nutshell, it is the proper democratic way of obtaining the views of the electors on matters of import.

So it is in any well organised society that questions of a contentious nature are settled by a vote of all members. This is right in principle, but it is only truly representative if all the members vote and not just some. In other spheres, the result of a ballot is decided by a minority of the members at times leading to unpopular decisions being made which do not please the average member. This state of affairs can be laid at the doors of the members themselves who develop an indolent and "couldn't-care-less" outlook. The officers of the society may justifiably reply "Well it

is of your own doing." We prefer to think of it as "of your own NOT doing."

While this Institute practises the principles enunciated above at almost any Divisional meeting, it is rather unusual, if not unique, to call for a vote of ALL Amateurs on a Federal plane. To our knowledge, it has not been attempted before, probably due to difficulties of distance and other factors. You will correctly assume that such a plebiscite of Amateurs must be one of some importance. We consider it to be, so, but the subject must, for the present, still remain a mystery.

Speculation whets the appetite and this is the intention here as well as to indelibly impress on your mind the importance of YOUR vote when it is called for. When you obtain the form, fill it in conscientiously and correctly and send it where directed. Remember, your vote is important even if of a negative nature. PRO BONUM PUBLICUM.

FEDERAL EXECUTIVE.

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Testing and Adjusting The "2YY" Transmitter

(VK2YY is the call sign of the Radio Section of the Leichhardt Petersham Technical College)

BY N. S. BEARD,* VK2ALJ

The 240v. a.c., switching sequence is as follows and is simple enough:—

The first switch places a.c. on the primary of the p.a. filament transformer, giving 6.3 volts for the transmitter heaters, and 5 volts for the p.a., h.t. rectifier. When these are on, the second switch closes the primary a.c. to the p.a. h.t. transformer, but this is interrupted by the S/R switch, so that although this switch must be closed before the modulator can be switched on, there is no h.t. on the p.a. or the signal shifter, until the S/R switch (or the S/R relay) is closed. The relay in the 6V6 driver supply closes the h.t. to the triode driver in the modulator, so that although the modulators are drawing current continuously when using phone, there is no speech input to the grids of the modulators, unless there is a d.c. input to the 6V6 driver in the transmitter.

The third ("Mod.") switch closes the a.c. to the modulator h.t. supply. When this switch is closed, the speech amplifier and modulator heaters are connected, and as the bias rectifier is connected across the 6.3v. speech amplifier heater line, the bias rectifier has a slight time delay before it commences to give a bias voltage. When the "Mod." switch is closed, and the meter selector switch is placed on "I. Mod." the meter reads at first about 150 Ma. or higher, but this drops to about 90 Ma. as the bias rectifier warms up.

The final switch (S/R) may be paralleled with an external relay if required, but remember that it carries the full 240v. from the mains. The leads to the relay may need by-passing to avoid radiation from inside the a.c. compartment.

TESTING PROCEDURE

First check that all circuit wiring is complete, and that all tubes are in place in the transmitter and the speech amplifier, but do not insert the 5R4GY rectifier in the modulator power supply until the bias voltage is set.

Open the p.a. h.t. lead to the p.a. compartment at the modulation transformer, leaving the h.t. off the 6146 and its clamp circuit until the driver stages are operating correctly.

Switch on the filament transformer only and check all heaters. If these are all OK, close the p.a. h.t. switch. Place the "C.w.-Ph." selector switch on "Phone," and close the S/R switch. This will place h.t. on the three sections of the signal shifter, the 25 watt lamp which is used as a dropping resistor from 580v. d.c., down to 350v., will be at practically full brilliancy, and the VR150 series dropping resistor can now be adjusted to light the V.R. tube at its correct brilliancy. If possible, open the cathode circuit of the VR tube, insert a

d.c. meter, and adjust the series resistance until the tube is drawing about 10 Ma. or 15 Ma. The tube should then take very low current, but will be alight when the final is on load.

Turn the meter selector to "I.G." (grid current to the final) and peak up the tuned circuits in the isolator and the driver stages of the Signal Shifter, on all ranges in turn, to give maximum drive current to the p.a. grid circuit. The procedure is laid down in the instruction sheet given with the Signal Shifter, but if the 40 metre range has been altered as we did in the College transmitter to give better band spread, and to prevent instability when using phone on the 40 metre band, the isolator will be on 80 metres and the drive plate coil can be peaked at about 7100 Kc.

If a reliable frequency meter, such as the Bendix, is available adjust the oscillator as per instructions so that the pointer is correct at the 3500 and 7000 Kc. points on the dial, and if the trimmers are given a final correction at the high frequency end of the dial, the calibrations on the dial will be found to be reasonably correct.

If a Bendix is used, check its crystal against WWVH before saying that the Signal Shifter is sufficiently accurate to mark the band edges. The calibrations will be very close to correct, as the oscillator has been previously calibrated in the factory, and needs only slight adjustment. The drive on 80 metres will probably be too high, and may need backing off. The drive on all bands, however, will be between 4 and 8 Ma., but this value will, as usual, drop off when the final is taking load.

P.A. TUNING

Connect a 60 watt or a 75 watt lamp as a dummy load at the output terminal of the transmitter. Turn both output and input tuning condensers fully out of mesh. Switch the band selector switches to 10 metres, and tune the oscillator to about 28.2 Mc. on the tuning dial. Re-connect the p.a. h.t. through the modulation transformer to the p.a. stage. The h.t. will now be connected to the p.a. tubes, plate and screen, and to the clamper tube. Leave the modulator switched off or pull out its rectifier; we don't want it as yet. Place the selector on "phone," which saves the trouble of inserting the key in its socket, and closing the key.

Switch on in sequence: Filaments, p.a. h.t., then the S/R switch, and the p.a. plate current should show a reading of 150 Ma. or so. Tune the input meter of the pi-network for a dip, as is usual in tuning a p.a. stage. If there is no point at which a dip is obtained, switch off and read your "A.R." again, pages 2 and 3 of January, 1956, the pi-network tank circuit, by VK7AI. Either you have a 10 metre coil which is one turn too

large or too small, or your input tuning condenser has too large a capacity minimum. Try a different sized coil.

With a definite dip on the meter, close the output tuning condenser, re-tuning to the dip at the same time, until output lights the lamp load. Keep increasing the load until the plate input is at 125 Ma., with a single 6146. If you are using two 6146s in parallel, it should be a maximum of 180 Ma., which is the current at 100 watts input. At this stage it is a good idea to check the output frequency with an absorption or other meter, as it is quite possible to tune the output to 56 Mc., or some other unwanted frequency, by an improper setting of the pi-network condensers.

The correct positions should be found and noted, as, if you are doubling in the final, the output will probably be on two bands at the same time; a pi-network is a good suppressor of harmonics, but it is not so good against overtones. Do not use the final as a doubler.

If the tuning is correct, the grid drive will have dropped slightly, but should the tuning be incorrect, the grid drive may increase due to regeneration, and it may be found that the final has a slight tendency to "take-off." Re-adjusting the tuning will take care of this. As a final check, switch from "phone" to "c.w.," insert the key and check the keying in the monitor, and by a check of the plate milliammeter. The input should read practically zero with the key open.

It is recommended that you do not leave the transmitter in the "standby" position by leaving the key open on "c.w." When the transmitter is left in this position, the clamp is in continuous operation, and there is at least 10 watts of power being dissipated in the clamp tube dropping resistance. In plain English, there is a voltage drop of close up to 600 volts across this resistance and the p.a. screened compartments was never intended to enclose a "toaster." Open the S/R switch and save power. The heat during c.w. transmission is intermittent, and is dissipated from the compartment easily during periods of reception.

Repeat the tests on the other ranges —15, 20, 40 and on 80 metre bands. The number of turns on the pi-network coil may need adjustment, depending on the size of your input condenser, but the number of turns given in the article by VK7AI will normally be correct. ("A.R." January, 1956, page 3.)

MODULATOR ADJUSTMENT

The modulator unit could probably be tested as a separate unit, unless you have built this type of equipment before, and never made an error in wiring! If a separate test is made, remove the p.a. rectifier, unsolder the p.a. h.t. leads on

* 4 De Chair Road, Dee Why, N.S.W.

the secondary of the modulation transformer, and connect across the transformer output a 50 watt 4500 ohm resistance, in series with a 5 watt 100 ohm up to 500 ohm resistance. This resistance provides a convenient point to attach a c.r.o. or to clip in an a.c. milliammeter or a voltmeter.

After a preliminary check of heaters, etc., plug in the 5R4GY and switch on the modulator h.t., with your milliammeter selector on "Mod. Current." The current shown on the meter will be anything from about 10 Ma. up to 200 Ma., since you have not yet adjusted your 6L6 grid bias. Adjust this value from the bias pack by varying the load potentiometer, until the standing current is about 90 Ma., with no input from the microphone. If a relay is used to switch in the driver of the modulators, as in the "2YY" rig, close this circuit with a piece of insulating strip (it has 300 volts d.c. on it) to complete the h.t. circuits, and proceed with a normal amplifier test.

As a reminder of the operating conditions, a pair of 6L6s in Class AB2 on full load will have about 360 volts on the plates, the screens require 270 volts, and the bias should be set, on load, to 22½ volts, negative. The potentiometer should be set, therefore, to give a current input of 90 Ma., with the microphone volume control turned right off, the driver relay closed. At full output, the plate plus the screen current is 220 Ma., giving a plate output of 47 watts, as per valve data book. This is, of course, on the primary of the modulation transformer, and the actual output is much less than this. This is equal to an a.c. output of 390 or 400 volts across the test load resistance, or to a current reading of about 90 Ma. a.c. through the resistance.

If distortion or other signs of overloading are noticed before the full output is obtained, additional dropping resistance may be needed in the h.t. supply to the pre-amplifier stages, or, alternatively, the screen voltages of the first two pentodes can be lowered.

FINAL TEST

Connect up the modulator and the p.a. circuits, insert all rectifier tubes, and check on all bands in turn for output on both modulation and on c.w., into

PORTABLE-MOBILE OPERATION

NEW CONDITIONS

Following prolonged representation to the Amateur Administration, the Federal Executive of the Wireless Institute of Australia is pleased to announce that as from 1st May, 1956, conditions of operation for Portable-Mobile equipment on frequencies in bands below 50 Mc. will be modified.

The conditions as stated in Paragraphs 40-51 of the Handbook for Operators of Amateur Wireless Stations will be varied as to provide for operation of Portable and Mobile equipment as follows:—

- (a) During the absence of a licensee from his usual address for periods up to 24 hours WITHOUT Departmental approval being required.
- (b) For periods up to three months in any year subject to approval

being obtained from the Superintendent, Radio Branch, in the State in which the licensee normally resides.

It must also be noted that as at present the Department is prepared to issue mobile licences to persons whose calling merits granting of same.

Members interested in mobile or portable operation will, under section (a) above be able to operate their equipment on frequencies below 50 Mc. without the necessity of obtaining Departmental approval providing the 24 hour period is complied with.

Believing that this variation of operating conditions will attract many new experimenters to this field, it is suggested that members familiarise themselves with the relevant sections of the Handbook concerning this phase of Amateur activities.

the dummy load, listening in your monitor.

The p.a. meter should be perfectly steady with modulation, and the grid drive should not vary, unless there is over-modulation or unless the p.a. pinetwork is improperly tuned. If there is improper tuning, it is easy to get regeneration and an upward shift in the grid current.

Do not test the modulation without a proper load on the p.a., either a lamp or the aerial, otherwise the condensers will arc-over, and you may have a really good burn-out either in the p.a. stage or possibly your p.a. shunt r.f. choke.

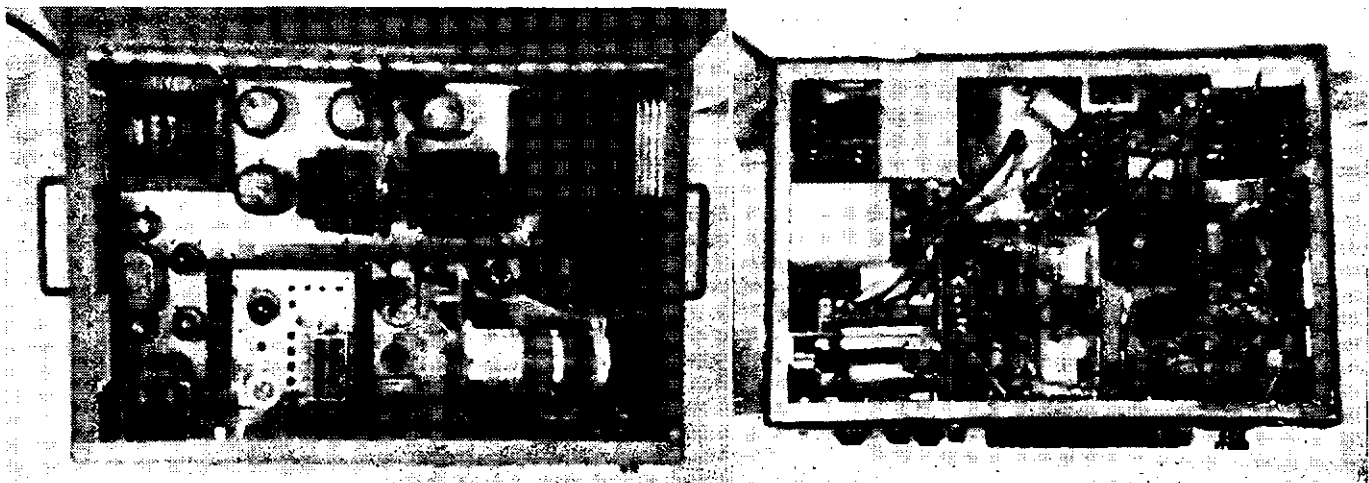
The final should now load into either a long wire, or into a co-axial feeder to the aerial tuner. An aerial coupler should be used to assist in harmonic suppression.

NETTING

To place the Signal Shifter on a selected frequency or to measure the frequency of an incoming signal on the receiver, leave the receiver in its normal

sensitivity and close the "netting" switch. This takes current from the oscillator only, from the modulator h.t. supply. The oscillator will not be heard in the receiver unless an open wire aerial is connected to the aerial coupler or unless a short wire is passed through the mesh of the screening. A quick monitoring check may be made by switching the receiver to a higher range, and the output from the transmitter should be strong enough to hear at about S4 or S5, but not loud enough to cause feedback, speaker to mike.

Finally, do not use the final as a doubler. It is possible to do so, but you will have output on two bands. A pinetwork may suppress harmonics, but it has not a sufficient degree of suppression on lower frequencies than that to which the p.a. is tuned. Also, for full t.v.i. proofing, a low-pass filter should be used between the p.a. and the aerial coupler, to avoid any trace of harmonics in your neighbour's 30.5 to 36 Mc. i.f. channel when he buys his "Ultra-ultra" 300 guinea t.v. set.





Trail of wreckage left by the 1955 Maitland flood.

Aborigines were Wiser than the Whites

Aborigines were wiser than their white counterparts when it came to settlement in the Hunter River Valley district of New South Wales.

They kept to the surrounding hills — safe from the avalanche of water which they knew could bring sudden death and disaster.

Early in 1955, the worst flood in the history of the white man in Australia swept through the valley, causing privation and misery to thousands of people.

It also cut every form of communication. More than 10,000 subscribers' services and 400 trunk lines and telegraph channels were cut off

and it was estimated that the repair bill would total more than £500,000.

Safeguard for The Future. It was a costly lesson, but today science has found a way to reduce this sort of flood damage to a minimum.

A new resin* which permanently seals telephone terminal boxes in a solid waterproof block is being used by the Postmaster General's Department on its services throughout Australia.

SHELL scientists derived this resin from mineral oil to give communications the most effective waterproofing agent yet developed.

**Epikote Resin*



RELAYS

(A Summary of a Technical Lecture* presented by Mr. KEITH MAIN to the South Australian Division)

HISTORY

In 1836, Professor Joseph Henry was faced with a problem. He had been accustomed to calling his students to lectures by means of a network of electric bells, but as the lines between the bells and their source of power grew longer, he was troubled with voltage drop which rendered the whole system somewhat unreliable.

After much thought and experiment, he devised and patented an "electromagnetic switch" which enabled him to ring the bells without having to bother about voltage drop. This was the earliest known use of a device which now-a-days is universally used, namely, the relay, though he did not call it that.

Samuel Morse, in the U.S.A., was having similar trouble. Using an electro-magnet invented by a Dr. Jackson, he had produced the telegraph "clicker" which worked very well for a while. But telegraph lines were extending as the frontier was pushed further west in the 60's and 70's. As the length of line increased so the initial voltage had to be raised to compensate for the voltage drop of the line.

When the first Atlantic cable was used, the applied voltage was of the order of 2,000 volts: this high d.c. potential was dangerous as well as difficult to handle.

Eventually someone thought of the system used by the famous Pony Express to cover long distances, so instead of a single circuit of perhaps 1,000 miles, an electro-magnet device was used to break the circuit into smaller distances. Since the Pony Express used relays of horses, this new device in the telegraphic services received the name "relay."

All these relays were d.c. devices until about 1925 when the possibility of using a.c. was investigated more thoroughly. From then until the outbreak of World War II, a.c. relays were used in greater numbers, but hostilities and the increasing use of complex equipment pushed forward the development of the d.c. relay to evolve the trouble-free device of present-day use.

CHOICE OF RELAY

When deciding which relay to use in any particular circuit, the average Amateur scrambles through the junk box until he comes up with a relay which has the required number of contacts. If he is lucky, the contacts will be arranged in such a way that they will do the job in hand. If he is very lucky, the relay will work on the voltage available and he has an even chance of winning a lottery! If not, he will set to, re-arrange the contacts and fiddle with the coil until the armature closes with the voltage available, the contacts do what is required and he now has a relay that is just what the doctor ordered. He proceeds then to wire it into the circuit.

* Lecture summarised by B. W. Austin (VK5CA) from technical lecture given by Mr. Keith Main, the South Australian representative of Lorimer Contacts Pty. Ltd., Melbourne.

The story which follows will tell him some of the things which he doesn't know about relays.

CONTACT MATERIAL

Fine silver (i.e. 99.5% pure) is sometimes used. This is very soft and bruises easily, but can carry heavy currents. Arcing causes bad pitting by melting the metal on one contact and depositing it on the surface of the other leaf. It is not used often, but may be found in special equipment.

Sterling silver and coin silver, both of which have a proportion of copper, are more commonly used, but suffer from the same disadvantages as fine silver. Imperfect mixing of the silver and copper in the alloy can cause very bad pitting and contamination of the surface from the sulphur in the copper may cause sticking contacts.

A mixture of silver and molybdenum or silver and nickel gives a measure of control over the above disadvantages. The molybdenum or nickel as a specially prepared powder is "mixed" with the silver by a process known as "sintering." Thus the molybdenum or nickel particles are separated on the surface by the silver. Hence the impact of the closing contacts is taken by the Mo or Ni particles, which, being hard, do not distort. Since the silver has a high conductivity, the contact resistance is very low. If an arc occurs it is split into a number of smaller arcs of smaller intensity by the Mo or Ni particles, the temperature is not sufficient to melt the silver and there is no transfer of metal. Contamination of the surface is overcome and a better contact is obtained.

Advantages of silver contacts: Heavy duty, do not clinker up, and wear better than others in heavy service.

Tungsten contacts may be used where high temperatures are encountered. Copper contacts are sometimes used as they can be subjected to a harder make and a higher contact pressure can be maintained. However, oxidation is a problem and phosphorus is added to give resilience and protection.

TYPE OF CONTACT AND SERVICE

Seventeen different conditions determine the type of contact; a few being, operating temperature, the load to be carried, frequency of operation, a.c. or d.c. circuits, whether the circuit is inductive or capacitive, current surges, voltage, location, etc.

Dirt on the contact surfaces is probably the greatest problem. A small speck of dust can prevent the contacts from closing properly and various methods are used to prevent this. The 3000 type relay uses domed contacts, which have a high contact pressure over a small area. As the domes contact each other, any dust particles are wiped off (hence self-cleaning). However, the domed types can and do "creep." The constant pounding on the closing of the contacts distorts the contacts in the direction of contact.

In relays having longer contacts than the 3000 type, the contacts are cleaned

by the movement of one surface over the other during overtravel. The bottom contact wipes as it travels in its arc. If contacts have to make and break rapidly, spring tension must be light, but overtravel will still wipe the surfaces clean. The wiping action also overcomes any oxide film which may have formed on the surfaces.

RATING OF CONTACTS

A direct current circuit is the hardest to design contacts for. The full potential is across the contacts at all times and consequently the full current has to be broken. When an arc commences it is hard to quench.

In an a.c. circuit, the potential varies, even to zero and the arc is thus self-quenching.

The current carried by the contacts is restricted by the carrying capacity of the leaves and pigtails. In the d.c. circuit, even though the contact area is sufficient and the current is within the ratings of the pigtails and leaves, the arc on break will determine the maximum current allowable. The wattage must not be exceeded. Roughly, if the voltage is doubled (if the gap permits), it is better to reduce the current to a third for safety.

METHODS OF CONTROLLING ARCS

As the damage caused by arcing is dependent on the heat generated, the object is to reduce arc heating time to a minimum.

1. By using a "snap" break. The object is to get the contacts past the point at which the arc can be maintained, in the shortest possible time. "Snap" action is noisy and causes excessive wear at the hinge due to the strong spring required.

2. By using a double break, either a double pole or a single pole double break. Sometimes parallel contacts are used. The double break type is effectively two sets of contacts, separated by a distance, both of which open simultaneously, being actuated by the same solenoid. The parallel contacts are those usually seen on 3000 type relays, i.e. two sets of contacts on the same leaf. The two sets never contact or break simultaneously and they "bounce" to even out the loading if the relay is fast enough.

3. The "blow-out" quenches the arc by using a magnetic field, either from a coil or a permanent magnet. The field of the coil or magnet is directed across the contacts so that it repels the arc away from the points. The coil type may be used on either a.c. or d.c., but the permanent magnet is restricted to d.c. circuits as the polarity of the magnet remains the same. This method is particularly effective for severe arcing on d.c. circuits.

COIL DESIGN

When designing or rewinding a relay solenoid, the important thing to watch is the ampere-turns product. It is not possible to reduce the number of turns to accommodate a lower voltage with-

out losing efficiency. If the operating voltage must be reduced (i.e. the supply is lower than the rating of the solenoid) then use a smaller gauge of wire and put on more turns. The ampere-turns must remain the same (or as near to as possible) the original winding. If one gauge smaller is used when re-winding, then remember that the resistance for an equal length will be 1.59 times greater. Two gauges increase the resistance by 2.62 times.

With a.c. operated relays, in addition to the resistance of the wire, the inductance of the solenoid introduces a reactive component. There are internal heat losses and self inductance gives a power-factor lag.

However, the a.c. relay works over a wider range of voltages than the d.c. type. A 230 volt relay will operate between 200v. a.c. and the upper limit likely to be experienced due to line fluctuations.

If using two a.c. relays in series, one lightly loaded (by spring and/or contacts) and the other heavily, the lightly loaded relay will often slap in before the other and act as a choke. This may prevent the second relay from closing. The remedy is to use a smaller travel on the heavily loaded relay so that both will close together. Relays required to have positive fast action (e.g. a safety switch) may have a low voltage coil. The higher voltage will be safe as long as the duty cycle is short.

OIL IMMERSED RELAYS

These are used where heat caused by high currents creates difficulties, or where arcing is a problem. All leads must be cambric covered. Rubber insulation must not be used because the sulphur contained in the rubber would be transferred to the contacts. The oil dissipates the heat, and quenches arcs and thus maintains the temper of the leaves. Transformer oil must be used and the whole unit must be sealed to exclude moisture.

SPECIAL RELAYS

Delayed Action Types

Slug: The copper slug forms a secondary winding and the induced flux opposes the original flux, delaying both make and break. Delays up to 0.5 second can be obtained and may be adjusted by the screw on the top and by varying the load, i.e. the number of leaves. The copper slug may be at the heel or the toe of the relay, varying either the make or the break, and its size determines the period of the delay (from 33 to 500 milliseconds).

Inertia: This is non-magnetic and is achieved by weights and the mounting position of the relay.

Mercury: A capillary thread of mercury flows on tilting the reservoir at a rate depending on the diameter and angle of tilt. Delays up to five minutes can be achieved.

Hot Wire: Current passing through a bi-metal strip causes expansion and closing of the circuit. The ambient temperature will vary the closing time.

Inverted Resistance: As a current passes through carbon generating heat, the resistance drops and a point is reached when the increased current closes the armature of the relay. This is very critical and is affected by ambient temperatures.

Motor: This uses a self-starting motor which operates a cam making or breaking the contacts. To alter the time delay either the motor speed or the gearing has to be changed.

GENERAL

Maximum operating currents of contacts for general usage relays:—

Silver 300 Ma.
Platinum 1000 Ma.
Heavy duty (large) 5 Amp.

The 3000 type relay generally has a 4 watt coil (operating rating). Up to 16 making contacts may be had on one 3000 type relay.

It is far more satisfactory to design the circuit first and then get a relay which will do the job, than to start with a relay and design the circuit around it.

Relays are cheap!

INTRUDERS

Official monitoring stations of several signatory nations of the Atlantic City Convention send regular reports of intercepts to the International Frequency Registration Board at I.T.U. Headquarters in Geneva.

The list below shows pertinent portions of the I.F.R.B. report for the period November, 1954, to July, 1955.

If members find that these stations are interfering with their transmission, they are requested to send details to Federal Executive (Federal Secretary, Box 2811W, G.P.O., Melbourne). Information should include date-time, frequency, type of transmission, etc., so that it can be consolidated and correlated for further action.

Station	Type of Operation	Freq. (Kc.)
Mozambique	Broadcast	3570
Russia	Broadcast	3780
Iran	Broadcast	3758, 3775, 3778, 3785
PM2, PM7	Manual A1	7000
Russia	Broadcast	7001, 7020, 7025, 7030, 7035
Spain	Broadcast	7003, 7018, 7085, 7087, 7090
Pakistan	Broadcast	7009
OWM (No. Korea)	A1 Press	7016
Greece	Broadcast	7032, 7034, 7040, 7045, 7080, 7082
Fren. Oceania	Broadcast	7025
Egypt	Broadcast	7040, 7045, 7050, 7055
France	Broadcast	7040, 7045, 7048
EAU	Auto. A1	7055
YED	Manual A1	7058
India	Broadcast	7065
It. Somaliland	Broadcast	7072
Iraq	Broadcast	7078
Turkey	Broadcast	7035, 7081,
YEE	Manual A1	7084
Tangiers	Broadcast	7080, 7100
ZAG	Auto. A1	7092
ORO	Auto. A1	7094
Saudi Arabia	Broadcast	7094
Indonesia	Broadcast	7098
Voice of America	Broadcast	7100
GFN	Spec. Auto.	14001
PYK	A-1	14015
ZFP	Auto. A1	14015
CBR	Manual A1	14019
RAC	Auto. A1	14028, 14039
HB1	Manual A1	14034
FOD	Auto. A1	14041
GEP	Auto. A1	14043
G3H8	Auto. A1	14057
UPL	Manual A1	14062
DL3	Auto. A1	14062
OMZ	Auto. A1	14069
FRP	A-2	14117
DCP	Auto. A1	14132
WWC45	Auto. A1	14165
ZAG	Auto. A1	14173, 14178
LCP	Auto. A1	14255
Russia	Broadcast	14270
BCW	Auto. A1	14284
OLU	Auto. A1	21000.2
ZQD	Auto. A1	21013
CML	Auto. A1	21724
RZA	A-1	21319
DGS	Auto. A1	21350
ZLP	Auto. A1	21405

Note.—The Voice of America station is reported to have ceased operation on 7100 Kc. If VOA is heard again in 7000-7100 Kc., please notify Headquarters.

Low Drift Crystals

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ACCURACY 0.02% OF STATED FREQUENCY

3.5 Mc. and 7 Mc.

Unmounted £2 0 0
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12.5 and 14 Mc. Fundamental Crystals, "Low Drift," Mounted only, £5.

THESE PRICES DO NOT INCLUDE SALES TAX.

Spot Frequency Crystals Prices on Application.

Regrinds £1 0 0

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15 CLAREMONT CRES.,
CANTERBURY, E.7,
VICTORIA

CONTEST RESULTS

NATIONAL FIELD DAY, 1956

OUTRIGHT WINNERS

C.W. Section: VK7LJ (operators—L. R. Jensen, VK7LJ; K. E. Millin, VK7KA); score, 80 points.

Phone Section: VK4TN (operator—A. Harris, VK4TN); score, 188 points.

Open Section: VK2AQJ (operators—K. B. Pounsett, VK2AQJ; S. E. Brown, VK2ASB); score, 197 points.

STATE WINNERS

C.W. Section

New South Wales: VK2ARZ (operator, M. R. B. Riley); score, 48 points.

Victoria: VK3ADW (operator, D. A. Wardlaw); score, 25 points.

No entries from VK4, VK5, VK6, VK7, or VK9.

Phone Section

New South Wales: VK2WI (operators, D. J. Pollard, VK2ASW; S. Bourke, VK2EL); score 123 points.

Victoria: VK3ADW (operator, D. A. Wardlaw); score 134 points.

Tasmania: VK7JO (operator, J. G. Oliver); score, 161 points.

No entries from VK4, VK5, VK6, or VK9.

Open Section

Victoria: VK3ZM (operators, H. D. Nichill, VK3ZM; D. McKenzie, VK3ALQ); score, 185 points.

Tasmania: VK7JO (operator, J. G. Oliver); score 103 points.

No entries from VK2, VK4, VK5, VK6 or VK9.

Fixed Station Section

New South Wales: VK2ZS (operator, W. J. Smith); score 44 points.

Victoria: VK3YS (operator, F. G. Bail); score, 90 points.

South Australia: VK5AB (operator, B. C. Jellett); score, 100 points.

No entries from VK4, VK6, VK7 or VK9.

LISTENERS' AWARD

N. G. Clarke, score 144 points.

LOGS RECEIVED

The following stations submitted logs:

C.W. Section		Open Section	
	Pts.		Pts.
VK7LJ	80	VK2AQJ	197
VK2ARZ	48	VK3ZM	185
VK2WI	46	VK2WI	169
VK3ADW	25	VK3ADW	159
		VK3GE	130
		VK7JO	103
		VK2RS	103
		VK2ARZ	48

Phone Section

	Pts.
VK4TN	188
VK3ADW	134
VK3LN	125
VK2WI	123
VK3GE	119
VK2XU	105
VK2RS	103
VK2AJO	102
VK7JO	101
VK3TF	72
VK3AUC	71
VK2ARZ	23
VK2AHA	check

Fixed Station

	Pts.
VK5AB	100
VK3YS	90
VK2ZS	44
VK3XB	42
VK3OJ	35
VK3ARJ	34
VK5XU	20
VK2PN	15
VK3ZAQ	10

Listener

	Pts.
N. G. Clarke	144

ROSS HULL MEMORIAL V.H.F., 1955-56

OUTRIGHT WINNER AND TROPHY WINNER

VK3GM (operator, G. R. McCulloch); score, 969 points.

Call Area Awards

VK2ABC (operator, F. J. Stirk); score, 303 pts. VK2ZAA (operator, R. K. Dodd); score, 38 pts.

VK3GM (operator, G. R. McCulloch); score, 969 pts. VK3ZAE (operator, R. J. Elliott); score, 780 pts.

VK4NG (operator, R. H. Greenwood); score, 324 pts.

VK5RO (operator, C. A. Moore); score, 669 pts. VK5ZAW (operator, N. C. White); score, 230 pts.

VK6WG (operator, W. W. Green); score, 130 pts. VK6ZAV (operator, D. F. M. Brown); score, 243 pts.

VK7LZ (operator, C. P. Wright); score, 356 pts.

In addition Logs were received from:

	Pts.		Pts.
VK2HE	127	VK3ZBS	237
VK3ZL	874	VK3AWS	check
VK3YS	491	VK3OJ	check
VK3ZD	268	VK3AGV	check
VK3TY	146	VK4WD	139
VK3VF	138	VK4LK	check
VK3BH	110	VK5BC	576
VK3ZAQ	578	VK5QR	419
VK3ZBE	482	VK5ZAA	97
VK3ZAZ	453	VK6ZAA/M	224
		VK7PF	180

HINTS AND KINKS

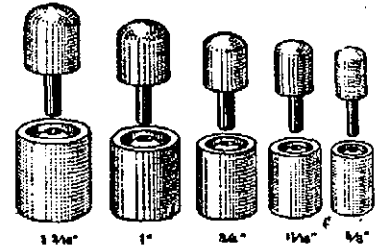
FINISHING TEST INSTRUMENT PANELS

A very fine and workman-like finish can be made with panels for test instruments, etc., by first cleaning the aluminium panel with some steel wool and spraying (a fly spray is excellent for the job) with clear varnish as used for coating charcoal and pencil sketches. This varnish can be obtained from most stores dealing in artists' colours and oils.

Another good clear coating (which the writer prefers) is ordinary clear nail lacquer. This can be brushed on with a fine camel hair brush or even the small brush that comes with the bottle. It leaves a very clear and durable finish.

If prior to varnishing, the panel is drilled and lettering done with black Indian ink, a quite professional job results and the coat of lacquer protects the ink from cracking or being rubbed off.—VK3SZ (reprinted from "A.R.," Jan. 1946).

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Manufactured especially for the Radio and Electrical Engineer and Constructor. Gives that clean cut professional appearance.

3/8"	21/-	1-1/8"	33/6
1/2"	22/6	1-3/16"	35/-
5/8"	22/6	1-1/4"	47/6
1 1/16"	23/6	1-1/2"	47/6
3/4"	24/6	2"	62/6
1"	31/6		

Special Sizes Made to Order.
Made of Finest Quality Tool Steel.
Guaranteed 10,000 Holes.

BRITISH "Q-MAX" SCREW TYPE CHASSIS CUTTERS

5/8"	24/2	1-3/4"	38/4
3/4"	24/2	2-3/32"	62/6
7/8"	26/8	1-1/4"	42/6
1"	31/8	1" Square	47/11
1-1/8"	31/8		
1-1/4"	31/8	Spare Keys	
1-3/8"	35/-	All Sizes	1/6
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The "Q-Max" Model GDO-1A is a high frequency grid dip oscillator with a built-in mains power pack.

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"C" 5.6-10.5 "	"D" 10.5-20 "
"E" 20-39 "	"F" 39-75 "
"G" 75-175 "	"H" 150-300 "

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- Determination of the resonant frequency of tuned circuits.
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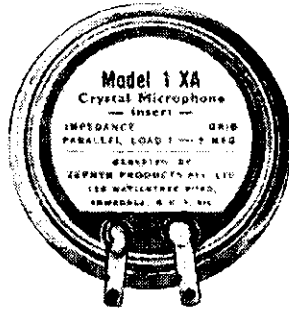
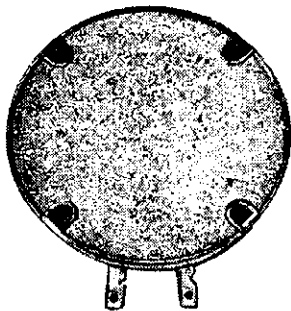
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MODEL "1XA" CRYSTAL MICROPHONE INSERT



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.
- 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), ⅜" 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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North Coast and Tablelands Zone (VK2) Convention Urunga, Easter, 1956

The Eighth Annual Urunga Convention is now history and many pleasant memories will be lingering for some time to come.

Many enjoyable hours were spent by a gathering of 27 Amateurs, 13 associates, and 15 ladies, together with numerous junior ops. Some enjoyed the scenic beauty of the district, others the contests, some the famous jacaranda juice, whilst everyone rejoiced in reunion with old friends and embraced the opportunity of meeting the "bloke" they have often heard or QSOed. Speaking of re-unions, it was like old times to have Crieff Retallick, VK2XO, and XYL Jean among those present. Crieff, of course, was the original founder and organiser for several years before he was reluctantly compelled to relax for health reasons and it was indeed good to have you with us Crieff. If my guess is correct, it won't be long before Crieff will be on 40 mx ear-bashing you all about Urunga 1957!

Many of our visitors were from Interstate, most of them on a second visit, whilst Jim (Don Pedro) 4PR has been coming for several years. John 4FP was apparently lost without his beloved Bulimba brew, but reckons on cleaning up the 40 mx events next year using a portable pair of 813s, whilst Don 3ALQ is seriously considering a 2 mx "sniffer outer."

The weather was kind to the Convention and did not interfere with the various activities.

Many stories can be told of the Convention, but the crowning glory of all is on Chick 2DK, of Narrabri. Next time you hear Chick be sure to ask him how he managed to reduce the load on his Clapp oscillator to restore stability? I presume that Chick knows what to do if he gets in the dog-house, but if not, just ask Rod 2ACU—he's sure to know.

An informal discussion group was held on the Friday night with the N.S.W. Division President, Jim 2YC, as a real target and source of information. Topics discussed covered emergency operations, home for VK2WI, schemes for improving W.I.A. finance and several other problems introduced by the boys. This discussion group has now become a part of the Convention, so if you have a topic you would like discussed, write to me so that I can prepare an agenda, but remember you must be there to commence the discussion.

Telegrams wishing the Convention every success were received from the Federal Secretary, Doug 3DU, and Mrs. Bowie, Ted 2AVG and Peter 2PA. Apologies too numerous to mention were received also.

Registration took place on the Saturday morning and a list of those who registered is given below:

VKs 2XT, 2AAB, 2AWQ, 2ABP and XYL, 2AOR and family, 2ZBA, 4PR,

4FP, 2AHH, 2ABU, 2ACU, 2AHA and family, 2DK, 4HR and XYL, 4TN, 3ALQ and son, 3AID, 2AHK and XYL, 2YC, 2APS and family, 2ASW, 2PY, 2AWG, 2XO and XYL, 2ADT and family, 2AJF, 2ADN and family, Associate Members Snow McAuley, Ray James, Bob Bailey and XYL, Norm Dash, Norm Moody and XYL, Harry Miller and XYL, Norm Burton, Bill Clarke and XYL, Brian Starke, Fred Reed, Les Wilson and XYL, Jim McIntosh, Ray Hogan, and A. Yelds.

The results of the various competitions is given below, but history must surely have been made as each event was won by the same contestant, and not to be outdone in any department, he drew the lucky registration number as well! This, however, was re-drawn and the prize went to a young associate member.

Gerry Challenger Memorial Contest on 40 metres for portable or mobile equipment not operated from a town supply: 1st, VK2AHH, 71 pts.; 2nd, VK2ASW, 59 pts.; 3rd, VK3ALQ, 47 pts.

144 Mc. Hidden Transmitter Hunt: 1st, VK2AHH, in 50 minutes; 2nd, Fred Reed (Assoc.), 51 min.

Urunga Scramble: Any band, any power from any source: 1st, VK2AHH, 35 contacts; 2nd, VK2XT, 33 contacts; 3rd, VK2ADT and VK2ASW drew with 28 contacts.

Best Miles Per Watt in the Scramble: VK2ASW, who worked VK3LR on 9w.

Gents' Registration No.: Brian Starke (Assoc.).

Ladies' Registration No.: Mrs. Les Sparke (XYL of VK2AOR).

A very enjoyable evening was had on Easter Saturday when Crieff and Jean Retallick made their "Do-Me" shack available to the gathering for a film evening which was followed later by the discharge of an 18 uF. Tank Capacity (hi! beg pardon, capacitor). Ted Hamey once again was the projectionist and he showed some interesting films on Atomic Power Houses, the development of the modern jet engine from 1926, together with inevitable funnies. We all thank you Ted for a grand show. Several of the boys exhibited colored slides which were really worth while viewing. Crieff showed shots of the Bellinger River scenery and many from his trip to Tasmania. Ken 2PY screened views from previous Urunga Conventions, whilst Errol 2AHK featured views of his wedding and honeymoon trip. We all had a grand evening and we thank you Crieff and Jean for having us at your place.

The prize giving function was held in the form of a concert in the School of Arts Hall. Jack 2ADN arranged the programme and I'm sure it was enjoyed by all, especially by the Davy Crocketts in the front row.

The antics of Vic Hardacre (and how he can wobble it) and Lindsay Cox are something that you have to see for yourself. Jack Gerard, aided by his famous doll, George, provided the company with laughs and some clever character impersonations. Three lovely little ladies including Janice and Lynette Hardacre skilfully presented tap dances and were most attractively dressed in keeping with their dances. Our sincere thanks go out to our artists for their excellent performances and to Jack 2ADN for his arrangement of the entertainment, both on Saturday and Sunday evenings.

At the conclusion of the concert, the Urunga Progress Association treated the Convention to supper and we all heartily thank them for their hospitality. After supper a lucky dip was passed around and those present received a useful parcel of resistors. Abe 2ABU then auctioned off a large box of assorted tubes and a modulated oscillator. Next year it is hoped that the range can be increased as this item was most enthusiastically received. Thanks Abe for a job well done.

Due acknowledgment and thanks must be given to all those who helped in the running of the Convention, and also to the radio and electrical houses of Australian Electrical Industries, United Radio Distributors and Amalgamated Wireless A/sia Ltd. for the generous donation of competition prizes. The N.S.W. Division Disposals Committee also aided in providing several items of equipment for competition winners.

The Convention for 1957 has the appearance of being a "super" show as offers of extra help from "new blood" have been made and the wheels will soon turn to co-ordinate this help. If you have attended a convention before, let me have your ideas so that the committee can do their best to give you the kind of convention you would like. If you have not attended before, watch these pages for information, but set aside the 1957 Easter Week-end NOW and bring the YL or YF with you where she can have a real holiday from home whilst you can meet all the boys and ragchew in pleasant conditions without QRM.

Remember Easter 1957—its on again!
—N. A. Hanson, VK2AHH, Zone Officer.

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.

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6C8	5/- each	EF50 Sockets	3/6 each	1626 (Magic Eye)	5/- each		511B	£3/10/- each
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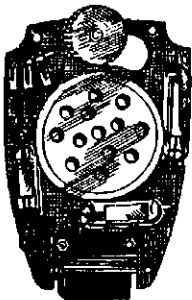
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The Electronic Photographic Speed Lamp; how to make and use it 5/3

The Master Colour Code Index for Radio and Television 2/3
The Emperor Radiogram 5/3
How to make Aerials for Television 3/9
Reactance Freq. Chart, 2/3
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"MEDRESCO" HEARING AIDS, as supplied by the British Government under the National Health Act.

The radio-minded Amateur will quickly see the possibilities of converting this unit into many interesting devices, such as Miniature Radio Receiver, Model Control Equipment, Baby Alarm, Pre-Amplifier, Inter Com. Telephone, etc., in addition to its original application.

This unit is supplied with a circuit describing the conversion of the first stage into a Receiver with two stages of amplification, which would make this unit capable of receiving transmissions on the broadcast band.

Operates from standard miniature hearing aid batteries.

PRICE: £3/19/6 less crystal mike.

Crystal Mike Inserts, very sensitive, high output, 19/6.

Postage and Packing: 3/6. Interstate: 5/-.

English Walkie Talkie Wireless Set 38 Mk. 2

The ideal person to person communications set. Working range of approx. two miles, set-to-set, on a vertical rod aerial, or ten miles approx. working from a good receiver and a high-powered transmitter.

Frequency coverage of 7.2 to 9.2 Mc., which can be modified, if required, to change the frequency.

Contains five valves: 1—ATP4, 4—ARPI2. Operates from 3v. and 120v. batteries. Complete with Microphone, Headset and 4 ft. Aerial Section.

Price: less Batteries, £9/10/-.

Plus 5/- pack. & delivery to railhead.

● **GENEMOTORS**, brand new, American made. Type B-9-1 Genemotors. Input, 18½v. at 3.5a.; Output, 400v. at 0.080a.; Continuous duty; 4,200 r.p.m. Fitted with in-built fan and filter. **Price: £3/10/- each.**

● **SHUNT MOTORS**, brand new. Made in Oster, U.S.A. 27½v. d.c.; 5,600 r.p.m. Built in aluminium casing. Fitted with gear reduction. **Price: £5/10/- each.**

● **SOCKETS**, miniature ceramic 7-pin, with shield. **Price: Six for 20/- post free, or 4/6 each.**

VOLTS, AMPS. AND MAN

MAN'S CONTACT WITH HIS ELECTRICAL ENVIRONMENT

PART TWO

BY ROBERT H. BLACK,* M.D.

MAN'S ACCIDENTAL CONTACT WITH INDUSTRIAL ELECTRICITY

Judicial electrocution and electroconvulsive treatment have demonstrated the two extremes of the application of electricity to the human body: the one a deliberate obliteration of life and the other the administration of a safe dosage to produce a desired effect. In both of these cases conditions are under strict control. This is not the case in accidental contact with industrial electricity supplies. The effects of such contacts vary considerably, ranging from the familiar unpleasant bump to a fatal result.

In Australia, during the five-year period from 1946 to 1950, electricity (lightning excepted) killed 226 males and 31 females and the commonest age for dying in this fashion was 20-29 years. This is approximately one quarter of the number of deaths due to poliomyelitis which occurred in the same period—and poliomyelitis was epidemic during some of this time.

Probably the first death from accidental contact with industrial electricity occurred in 1879, although currents powerful enough to have caused death were employed to light the operatic stage in Paris (at the first performance of Meyerbeer's "Le Prophete") as early as 1849, and English lighthouses in 1857. In the year 1879 a stage carpenter was killed at Lyon by the alternating current of a Siemens dynamo which was developing about 250 volts at the time. The first death in England occurred in 1880 when a handsman short-circuited a powerful electric battery. Since then the number of deaths from electricity has steadily increased as the use of electricity has extended.

As it is obviously impossible to experiment on man with electric currents to determine what amounts are lethal under various conditions, conclusions have to be drawn from a survey of the circumstances involved in accidental contacts as they occur. This approach permits some general conclusions to be drawn.

The type of contact with the conductor is one of the most important factors in determining the result of this contact. The dry skin offers marked resistance to the passage of electrical currents. This has been variously reported as being 8,000 to 40,000 ohms, but when the skin is damp the resistance may drop as low as 500 ohms. When the contact is bad 100 volts may be innocuous but the same pressure may be sufficient to cause death when the contact is good. The point being that, for a given voltage, it is the value of the current which is important.

Voltages as low as 46 have caused accidental death, and voltages of 110-117 have often caused fatal accidents. On the other hand recovery has taken place after contact with 500 volts, and

very many people have survived contact with 240 volts. A case is recorded where 750 milliamps. at 4,500 volts passed for several minutes through a man from hand to hand and the victim recovered after prolonged artificial respiration. Another recovered after 20,000 volts passed through him to a dry concrete floor.

Although there has been some disagreement on the subject it is now considered that direct current is safer than 50 cycle alternating current. With alternating currents of 50 cycles perception begins when about 2 milliamps. are flowing through the body and currents of 20 milliamps. are intolerable to many subjects. Alternations of 50 cycles per second are very efficient in causing tetanic spasm of muscles. If the frequency is greatly increased, say to 1 megacycle/second, nerve response cannot keep pace and the subject may experience nothing more than warmth. Accidental contact with high frequency conductors may result in serious burns. Direct currents, after the painful initial contact, can be tolerated up to appreciable values without discomfort.

The parts of the body through which the current passes is of importance. If the circuit is confined to a part of a limb burning only may result, whereas if it passes between the hands or between head and feet vital centres of the body are traversed and the current may affect the brain or the heart. Thus a child on a dry floor bit through some flex and was merely burned.

Other factors which may affect the outcome of the accidental contact are the duration of the contact, the amount of current available at the source, and the state of health of the victim.

Death from accidental electric shock may be due to the current paralysing a centre in the brain which controls breathing, or to its action on the heart where it disorganises the regular beat and causes an irregular and widespread twitching of the heart muscle and cessation of its pumping action; or it may cause both of these.

In non-fatal shocks temporary deafness may occur and the victim cannot hear his cries for help. Electricians who sustain minor shocks speak of "moons" which they see as luminous circles. These are commonest when the head is included in the circuit and are characteristic of headphone shocks. Consciousness may be lost or retained; if it is lost there may be loss of memory for recent events as with lightning stroke. Burns of varying degrees may occur and some of these are severe. There is a great individual variation in the susceptibility to shock, but there is no evidence that increased tolerance occurs with repeated shocks; on the contrary the opposite seems to be the case if one can apply the results of experiments on animals.

FIRST AID TREATMENT

Before proceeding to preventive measures the first aid treatment of electric shock should be mentioned. The current should be switched off. If this is not possible the victim should be removed from contact with the source, care being taken that the rescuer does not become a second victim by protecting his hands with some insulating material such as several thicknesses of dry cloth or rubber gloves. Then artificial respiration should be applied, meantime summoning medical assistance.

PREVENTIVE MEASURES

In the United Kingdom 36% of industrial fatalities from electrical accidents are due to the use of electrical hand-tools. Here the contact is over a relatively large area, the skin is often moist and the alternating current causes the muscles to hold the handle in a tight grip. The common safeguard is to earth the metal framework of the tool so that if a defect occurs in the insulation the leak current passes along the earth wire and the surge of this current should blow the fuse. This is what happens when things go according to plan, but it is obvious, from the number of deaths that occur, that either the safeguard of earthing is not always carried out or that it has been ineffective.

Apart from wilful neglect the common reason for omitting an earth connection is that there is no three-way socket where the use of the apparatus is required and a two-wire patch cord is plugged into a lamp socket. The apparatus still works but the safeguard has been removed. Uncertainty as to the use of the third wire in three core flex often results in its being tucked out of the way inside the lamp holder. If this wire touches the live terminal the portable apparatus becomes "live." The earth wire may pull out of its terminal or it may break. A test set is easily installed to test if the tool is earthed at the socket by using a small bulb and battery and a test point to touch with the tool.

However a third or earthed wire going to the outlet socket is not a guarantee of safety as the earth return lead beyond the socket may be faulty or the method of earthing to the mass of earth may be ineffective. Unless there is periodic testing of the continuity resistance there can be no assurance that it is satisfactory and affords the necessary safeguard against shock.

The most satisfactory method of safeguarding users of portable electric equipment is by the use of low voltage, for example, 55 volt transformers with the centre-tap earthed.

The Standards Association of Australia has produced a pamphlet of especial interest in regard to safety measures associated with radio equipment. This is the S.A.A. Radio Code of

1937. A copy should be owned, and read, by all concerned in the construction and use of radio equipment and the specifications should be followed to reduce the risk of electrical accident.

Electrical accidents have not increased in proportion to the amount of electricity used. Various factors have played their part in achieving this fortunate state of affairs, especially the efforts made within the electrical industry to maintain good standards of safety. Looking at the occupational categories in which electrical accidents occur it is found that electricians and electrical fitters sustain the largest number of accidents. Many of the accidents are avoidable in the sense that risk is taken, either knowingly or because of under-estimating the consequences, and thus a good deal of importance attaches to initial training and the supervision of work. Accidents result from over-confidence, inexperience and sometimes carelessness.

Education, therefore, must play a large part in the prevention of electrical accidents. This applies not only to the users of electrical supplies and equipment, but also to those who manufacture and install them. Instruction in the dangers of electricity should commence in childhood, but the holes for the plug in an electrical socket should be so constructed that the inquisitive child cannot poke his fingers in them to see if the current is on.

Electricity is an extremely useful tool but, as with all tools, one must learn to use it properly; it is a powerful tool and careless use can result, not in a bruised thumb or a cut finger, but in death.

REFERENCES

ANON., 1891.—Capital punishment by electricity. *Lancet* (Annotation), 2, 943.
 BROWN, M. V., and COATES, C. W., 1952.—Further comparisons of length and voltage in the Electric Eel, *Electrophorus electricus* (Linnaeus). *Zoologica*, New York, 37, 191.
 BYE, R. T., 1919.—Capital punishment in the United States. Philadelphia. The Committee on Philanthropic Labour of Philadelphia Yearly Meeting of Friends.
 BYERS, H. R. (Editor), 1953.—Thunderstorm electricity. The University of Chicago Press.
 CHALMERS, J. A., 1949.—Atmospheric electricity. Oxford. The Clarendon Press.
 COATES, C. W.; COX, R. T., and GRANATH, L. P., 1937.—The electric discharge of the Electric Eel, *Electrophorus electricus* (Linnaeus). *Zoologica*, New York, 22, 1.
 COHEN, B., 1852.—Prejudice against the introduction of lightning rods. *J. Franklin Inst.*, 253, 393.
 COX, R. T., and COATES, C. W., 1938.—Electrical characteristics of the electric tissue of the Electric Eel, *Electrophorus electricus* (Linnaeus). *Zoologica*, New York, 23, 203.
 COMMONWEALTH OF AUSTRALIA. Demography: The Annual Bulletin of the Bureau of Census and Statistics.
 CRITCHLEY, M., 1934.—Neurological effects of lightning and electricity. *Lancet*, 226, 68.
 EVANS, H. M., 1943.—Sting-fish and the seafarer. London. Faber and Faber Limited.
 GLAISTER, J., 1921.—A text-book of medical jurisprudence and toxicology. Edinburgh. E. & S. Livingstone.
 HAMILTON, A. McL., and SMITH, G. de F., 1894.—The effects of electric currents of high power upon the human body. In: Hamilton, A. McL., and Godkin, L. 1894. A system of legal medicine. New York. E. B. Treat.
 HARMSWORTH'S UNIVERSAL ENCYCLOPEDIA. Historical records of Australia, 1914. Series 1, 1, p.p. 63, 176. Commonwealth of Australia. The Library Committee of the Commonwealth Parliament.
 JEX-BLAKE, A. J., 1913.—The Goulstonian Lectures on Death by Electric Currents and by Lightning. *Brit. Med. J.*, 1, 425.
 JOHNSTONE, R. T., 1942.—Occupational diseases. Philadelphia. W. B. Saunders Co.

KALINOWSKI, L. B., and HOCH, P. H., 1946.—Shock treatments and other somatic procedures in psychiatry. New York. Grune & Stratton.
 McEACHRON, K. B., 1952.—Lightning protection since Franklin's day. *J. Franklin Inst.*, 253, 441.
 NORINDER, H., 1952.—Experimental lightning research. *J. Franklin Inst.*, 253, 471.
 PATERSON, A. S., and CONACHY, A., 1952.—Subconvulsive electrical stimulation in the treatment of chronic neurosis. *Brit. Med. J.*, 2, 1170.
 SCHONLAND, B. F. J., 1950.—The Slight of thunderbolts. Oxford. The Clarendon Press.
 SCHONLAND, B. F. J., 1952.—The work of Benjamin Franklin on Thunderstorms and the development of the lightning rod. *J. Franklin Inst.*, 253, 375.

SMITH, S., 1936.—Forensic medicine. 5th Ed. London. J. & J. Churchill Ltd.
 STANDARDS ASSOC. OF AUSTRALIA, 1937.—S.A.A. Radio Code. No. C.C.3 with No. C.69.
 STANDARDS ASSOC. OF AUSTRALIA, 1950.—S.A.A. Wiring Rules. Part 1, Wiring methods. Amended No. 1, 1955.
 SWANN, H. W., 1954.—Electrical accidents: their causation and prevention. In: Meredith, E. R. A. (editor). Industrial medicine and hygiene. London. Butterworth & Co. (Publishers) Ltd., 2, 223.
 THE ENCYCLOPEDIA BRITANNICA, 1939.—14th Edition.
 WILCOX, P. H., 1953.—Physiodynamic therapy (shock therapy). In: Spiegel, E. A. (Editor). Progress in neurology and psychiatry: an annual review. New York. Grune & Stratton, 8, Chapter 34.

A CHEAP AND EFFECTIVE "S" METER

BY J. G. OLIVER,* VK7JO

Once you have used an "S" meter on your receiver you will wonder how you ever managed without one. Here is a cheap way of making a very effective direct reading meter.

Firstly, find that burnt out r.f. ammeter that is lying at the bottom of the junk box, or if you have to, purchase one for a few shillings at the disposals stores. Remove the case and scale plate; this should expose the screws that hold the movement to the bakelite base, undo these and unsolder the thermo-couple, resoldering the leads from the meter coil direct to the terminals on the back.

Most likely the meter will have two plugs instead of terminals; these should be removed and replaced by two terminals. The movement can now be screwed back on to the base.

considered an "S9" signal gave a reading of 9 on the scale.

It was found that these meters have very poor damping, but the inclusion of "Rs" made the meter give a steady reading and also prevented damage when the i.f. gain control was turned right off.

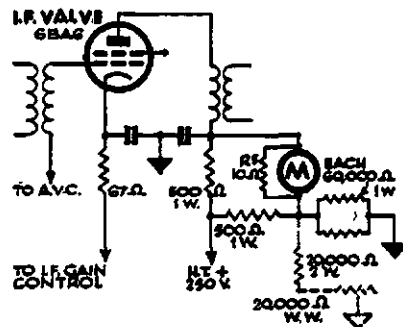


Fig. 2.

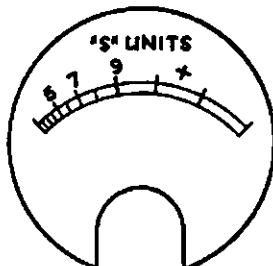


Fig. 1.

Before the dial plate is replaced remove the lettering and scale reading with metal polish, being careful to leave the actual scale itself, then with Indian ink print on the "S" units, making "S9" about one-third of the scale as shown in Fig. 1. The scale can now be replaced and the meter put back into its case.

Now for the wiring in the set. This is very simple, the meter being connected in the h.t. supply to the i.f. amplifier valve as shown in Fig. 2.

The values shown on the wiring diagram are those used by the writer, but to find values suitable for any set connect a 20,000 ohm variable resistance, as shown by the dotted lines, and adjust this until the meter reads zero, the value can then be read by an ohmmeter and a fixed resistance substituted.

The meter must be connected the right way round, and this can be found by experiment. With regard to "Rs," this was wound with a bit of resistance wire and adjusted so that what was

WHAT DO YOU THINK?

You have no doubt noticed that pages 3, 4, 21, and 22 are printed on better class paper. We would draw your attention to the quality of the reproductions on the above-mentioned pages. May we suggest you compare the detail in the "2YY" Transmitter on page 3 of last month's issue with that on page 3 of this issue.

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AMATEUR CALL SIGNS

FOR MONTH OF FEBRUARY, 1956

NEW CALL SIGNS

- VK— New South Wales
 2DS—G. H. Diedrichs, Eureka Park, Avoca, Mossvale.
 2EB—R. J. Bews, 71 Hills St., Tamworth.
 2IN—R. C. Meadows, 91 Blaxland Bd., Rhodes.
 2TO—L. G. England, 112 Dawson St., Lismore.
 2ZZ—T. F. Pike, in lieu of 2ATP.
 2ZBE—R. C. Prout, 9 Agnes St., Mayfield, Newcastle.
 Victoria
 3CF—L. Sebire, Delancey Rd., Wandin North.
 3CN—L. G. Walters, 7 Howell St., Moorabbin, S.20.
 3DW—K. R. Cakebread, 43 Barrier St., Benalla.
 3SP—G. S. Spong, 377 Upper Heidelberg Rd., Ivanhoe, N.21.
 3ARN—C. W. H. Rasmussen, 242 Bernard St., Cheltenham, S.22.

- 3ZCA—R. J. Skevington, 53 Grange Rd., Toorak.
 3ZDG—J. DeG. MacMillan, 8 Hamlyn St., Essendon.
 3ZDJ—D. G. G. Johns, Johansons Rd., South Warrandyte.
 Queensland
 4DD—J. Rooks, 37 Henry St., Townsville.
 South Australia
 5FR—W. R. Franzl, 7 Short St., Dacosta Park.
 5ZAF—D. G. Pfeiffer, 328 Marion Rd., Plympton.
 5ZBD—C. Taylor, 167 Hill St., Nth. Adelaide.
 Tasmania
 7ZAW—P. Woodruff, Beauty Point.

CHANGES OF ADDRESS

- VK— New South Wales
 2EY—J. P. Meehan, C/o Sgt's. Mess, R.A.A.F. Station, Canberra.
 2GE—M. G. Datson, 35 Malton Rd., Epping.
 2II—M. J. Moore, Stonehaven Ave., Dubbo.
 2JD—J. Davis, Elizabeth Cres., Newport.
 2LE—F. H. S. Lee, 78 Round Drive, Avoca Beach, via Gosford.
 2NQ—N. S. Piermont, Lot D, Loftus Ave., Loftus Heights.
 VK2QR—J. E. R. Burstall, Wondeer Ave., Beecroft.
 2TW—G. C. Smith, 20 Colin St., Cammeray.
 2YJ—C. W. Johnson, Box 623, P.O. Newcastle.
 2ACV—A. G. Mulcahy, 69 Riverview Ave., Kyle Bay.
 2AHK—A. E. Clark, 15 Ross St., Kyogle.
 2AIK—C. T. Horne, 1 Excelsior Rd., Cronulla.
 2ALG—J. A. Ackerman, "Idlewild," 77 Bourke St., North Parramatta.
 2APB—K. H. Branford, 8 Pitt St., Coffs Harbour.
 2APJ—A. G. Simmonds, 118 Gannons Rd., Caringbah.
 2ATB—F. R. Gale, 3 Lambert St., Cammeray.
 2AUR—G. V. Randall, 45 Bellevue St., Chatswood.
 2AVL—C. F. Luck, 20 Yathong Rd., Caringbah.

Victoria

- 3JV—A. C. Knight, 8 O'Malley Cres., Dandenong North.
 3MQ—J. A. Cusick, Lot 49, Great Ryrie St., Heathmont.
 3NT—J. R. Agnew, 58 Shepherd St., Surrey Hills.
 3NZ—R. H. Hall, 3 Eden Court, Toorak.
 3WQ—G. C. Chirnside, 8 Clendon Rd., Armadale.
 3ADA—J. B. Jarman, L.A.C. A14466, R.A.A.F., Ballarat.
 3AKJ—J. B. Battrick, Bayview Rd. (off Yuille St.), Frankston.
 3AMZ—B. G. Powell, St. Columba's Hall, Murdoch St., Wangaratta.

Queensland

- 4AX—H. R. Denby, 40 O'Keefe St., Cairns.
 4CJ—C. W. Marley, Richardson Rd., Park Ave., Rockhampton.
 4CM—T. M. B. Elliott, "Kelso," Wickham Tce., Brisbane.
 4EL—E. J. Lake, National Radio Station 4QN, Cleveland.
 4FB—F. S. Beech, 515 George St., Brisbane.
 4MA—A. E. Morrison, C/o. State School, Mt. Garnett.
 4MV—J. R. McVinish, 26 Newman Ave., Camp Hill, Brisbane.
 4RI—R. H. Gordon, 26 Lockhart St., Garbutt, Townsville.
 4SD—A. H. Sharland, 37 Patterson St., Wynnum North, Brisbane.
 4ZS—C. E. Ryan, C/o. Mr. A. Byrne, 249 Campbell St., Rockhampton.
 4ZZ—J. L. Kane, Barambah St., Rockhampton.

South Australia

- 5KF—M. R. Dow, 7 Welwyn Rd., Manningham.
 5LH—R. J. Strachan, 2 Brookman Court, Blair Athol.
 5PQ—P. Muscat, 1 Blackford St., Richmond.
 5RR—R. G. Harris, Forest Ave., Hawthodene, Blackwood.

Western Australia

- 6KJ—B. H. Gates, Station: 5 Draw St., Albany; Postal: C/o. A. K. Collins & Co., 132 York St., Albany.
 6LT—N. T. Lee, 151 Grey St., West Albany.
 6NL—V. H. Harris, 43 Tweeddale Rd., Applecross.
 6WZ—R. H. Atkinson, C/o. Mr. A. Collins, 6 Cliff St., Albany.
 6YZ—R. L. Samphier, 110 4th Ave., Mt. Lawley.
 6ZAB—H. Ifla, 6 Queens Cres., Mt. Lawley.

Tasmania

- 7LS—L. S. Eddington, 3 Jenner St., Wynard.
 7SD—D. M. Smith, 84 Cambridge Rd., Warrane.

CANCELLED CALL SIGNS

- VK— New South Wales
 2DG—K. Rudkin.
 2LV—H. R. Mansfield.
 2TR—T. R. Anthony.
 2ACZ—D. J. Allen.
 2ANZ—J. P. Shortall.
 2ATP—T. F. Pike. (Now VK2ZZ).
 Victoria
 3AVS—T. M. Strohheldt.
 3ZBT—C. Taylor. (Now VK5ZBD).
 Queensland
 4DR—L. G. England. (Now VK2TO).
 4FR—W. R. Franzl. (Now VK3FR).
 Western Australia
 6ZAN—R. J. Skevington. (Now VK3ZCA).
 Tasmania
 7PR—Launceston Technical College.
 Territories
 9CR—C. W. H. Rasmussen. (Now VK3ARN).

TELEVISION STATION OPERATOR'S CERTIFICATE OF PROFICIENCY

The Australian Broadcasting Control Board has notified the following candidates that they were successful at the examination held in Sydney and Melbourne on 13th March, 1956, for the T.S.O.C.P.: R. W. Forster, F. J. Cross, C. G. Harvey, B. D. Pronger, N. E. Martin, J. M. McConnell, S. G. McLean, M. V. Everett, L. M. Benschaw, D. G. Wickham.

In future, examinations are to be conducted twice yearly, on the second Tuesday of June and December instead of each quarter. Applicants who have passed any section 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 section.

The next examination will be held in Sydney and Melbourne on 12th June, 1956. Applications for the June examination must be lodged with the Secretary of the Board, 497 Collins St., Melbourne, by 15th May, 1956.

FEDERAL QSL BUREAU

RAY JONES, VK3RJ, MANAGER

(Owing to the late arrival of these notes, they could not appear in their normal position, and some items have been deleted.—Ed.) Tom Hobert, ex-VS6QC, advises that he is still patiently waiting receipt of several overdue VK cards, for contacts made while at Hong Kong. Tom, who is now G3DXJ, is located at 52b Valon Road, Arborfield, Berks, England.

Was fortunate to meet the bulk of the recently returned Mawson Amateur team in congenial and convivial surroundings recently. Present were Eric 1EM, Fritz 1VH, Hugh 1AWI and Jack 1JW, the only absentee being 1RA. Passed over to them the big stack of accumulated cards, which no doubt will receive their attention when more pressing matters are disposed of. Jack Ward, 1JW, got out of it lightly as he received only one card, which was from VK5WIA, the Scout Jamboree station. This was Jack's only contact! All the boys looked in first class condition, thanks to the fatherly eye kept on them by Alife, who is wise beyond his years.

Information is to hand via BERS195 that Pat Luz, one of the operators of CR10AA in Dili, Timor, is still keen to make a comeback on the air but finds it tough going to get the necessary gear for a proper set-up. Pat is currently located at Dili airport radio station and would welcome a word with any Amateur passing that way. Pat cherishes the ambition to migrate to VK one day. During the war Pat performed many invaluable deeds for the cause of the Allies. He eventually escaped from Timor during the Jap. occupation, but returned there at the request of the Allies to further their plans. To this end he was landed behind the enemy lines from one of our submarines.

Ken Halsall, VS6DE, Box 541, Hong Kong, who QSLs 100 per cent., asks that the many VK stations contacted, speed up their cards to him as he is finding it hard to come by VK cards so far.



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DX ACTIVITY BY VK3AHH†

PROPAGATION REPORT

3.5 Mc.: Observations of conditions on this band depended largely on the activity of overseas stations. Several good openings to the North American Continent were observed between 0900 and 1200z.

7 Mc.: DX activity on this band is reduced by the persistent commercial interference. However, break-throughs to North America (0500-1400z) and Europe (1900-2100z) can be reported.

14 Mc.: Conditions on this band have generally been good. Practically all continents were workable round the clock. European openings were particularly reliable between 0600 and 1000z over the long path.

21 Mc.: This band also showed some good openings to all continents. Times were as follows: North America, 2200-0700z; South America, 0000-0900z; Europe, 0800-0800z for the long path and 1000-1300z for the short path.

27/28 Mc.: Here good conditions can also be reported. Times were for Africa, 0500-0900z Europe, 0800-1400z, and the American Continents, 2100-0700z.

NEWS AND NOTES

Danny Well is now active as VR1B. He anticipates a stay of approx. two months, followed by a trip to Nauru (from 5WO, W6YY).

BVIUS is ex-HC1LW. He is active on 14 and 21 Mc. (from 4HD).

The Western Carolines are well represented by KC6AL on c.w. and phone (approx. 14100) around 1100z (from 5WO).

Despite improved conditions on the higher bands, many DX stations have recently been heard on the 80 mx band. One of the best known 80 mx DXers in our part of the world is ZL1CI. Claude reports these as having been active recently: KP4ADS, KP4DH, XE2NF, KZ-5CS, KM6AX, VE8MF, LU8AE, VP3YG, HK3PC, VP9CR, CE3AG, CE6BS, CR-6AI, PY2AV, YV5BJ, KV4AA, VP9BM, VO3X, CT1DJ, FA8DA, ON4AU, CT-1TT, EA8PP, FP8PM, PA0IF, PJ2AJ, HC1PC, LU8MAH, KR6LJ. Well, the DX is there, but don't be misled by the rare ones mentioned above: 80 mx DX is much more difficult than DX on the higher bands. It requires a good antenna, a good station and, above all, a patient and skilled DX operator. How about trying your luck on 80 mx during the quiet winter months?

Although your scribe definitely prefers pounding the brass, this column has always been and always will be conducted on a fair basis for c.w. and phone men alike. However, I cannot resist the temptation to point out that the usual a.m. phone means a considerable waste of our very limited Amateur frequency spectrum. The Amateur population is increasing at a steady rate and it is high time to foster less wasteful types of emission. You have guessed it: how about losing one of your sidebands and your carrier if you are a keen phone DX man? This month I have commenced a new sub-section under the heading "Activities"—14 Mc. Phone S.S.B. It goes without saying that this new sub-section can only be maintained by the consistent support of s.b.-VKs. This is a list of VKs presently active on s.b. (forwarded by 3WR): 2AC, 2DQ, 2VA, 2ZF, 3WR, 3AEE, 4AB, 4CC, and 4VJ. Initiative and zeal of all s.b. operators are highly commendable.

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

* Call signs and prefixes worked.
z—zero time—G.M.T.

YJIRF is ex-VK1RF (Heard Island, 1953) (from 5RG).

Gordon VK1GA, at Mawson, Antarctica, has been quite active during the month.

HLIAC appeared on 14 Mc. c.w. VK3AXU supplied a report on 7 Mc. commercial QRM—thank you!

QTHs OF INTEREST

(from 3JA, 5WO, BERS195, Rod de Balfour, NCDXC)

VQ5GC—Neville Jackson, Radio Officer, Post Box 23, Entebbe, Uganda.

VR1B—Via KV4AA

PZ1LM—Via WZHL

EL2C—Box 36, Harbel, Liberia.

15A4W—Box 85, Mogadiscio, Italian Somaliland.

F8YRT—Via W6ITH

ZS7H—G. Smit, G.P.O. Staff, Geodageun, Swaziland.

AP2M—110 Mulji St., Karachi 2, Pakistan.

VP2DA—Box 64, Dominica, Windward Island.

CT3AN—Jose de Brito Gomes, Rua da Carreira, 197, Funchal, Madeira.

ZC4WR—R. Whiting, Box 219, Limassol, Cyprus.

ZD4BX—J. H. Smart, Box 767, Jumasi, Gold Coast.

ZD6RM—C/o. Post Office Blantyre, Nyasaland.

F8RY—C/o. P.O. Box 130, Bastia, Corsica.

ACTIVITIES

3.5 Mc.: Syd 4SE worked PA0GKW/A*. 8AHH also worked PA0GKW/A* (MM-station 50 miles south of Melbourne!), FK8AO*, Wa*.

7 Mc.: Frank 2QL reports KG4AK, ZS7D, and Europeans. Laurie 2AMB follows with W7BQQ/KW6, KX6AF, LU3EL, KR6LJ. Ivor 3XB worked VO3X* and Kel 3AEP adds G*. BERS195 heard FB8ZZ (1800z), JA1BBE, JA3VM, JA5BL. Dave Jenkin reports G2TH, G3BAK. Bod de Balfour heard KX6AF.

14 Mc. C.w.: 2QL: MP4QAL*, VQ5GC*, VP9BM*, VP5BE*, VO3X*, VK1GA*, ZD2HAH, FM7WP, OX3KW, ZD4CC, OY7ML, 2AMB: LU-8BAJ*, CO2OE*, CE4AD*, and ZD6BX. Neville 2APL: JA*, KV4*. Bud 2AQ: JA*, Alan 3CX: YAIAM*, KG1BO, HLIAC, ZP8AY*. Frank 8FC: Z8*, ZC4*, CO2*, KV4*, T*, YI*, FB9*, and XW8. Jack 8JA: VP9CY*, PY7WG*, VQ8CB*, 4S7BW*, HK3PC*, VR1B*, 3XB: LU1*, VO3X*, 4S7*, VR1B*. Fred 3YS: FA8DA*, FB-8ZZ*, FUSAC, VR1B, KE1LA, FP8AP, VO3X*, 4E*, VS8CI*, VR3B*, KM6AX*, ZS*, VP6PJ, JA*, LUINE*, and CX2TX, HZ1AB, VQ3JTW, VQ6LQ, HP3FL, FB8ZZ, HB3AL, KTIWX, VP2VB/MM, KZ5KA, ISRAM, YI2AM, LX1CX. Doug 5BY: PZ1BS*, ZD6BX*. John 5BI: YA-1AM*, OX3LD*, VP5BE*, VP7BC*. Gordon 5HM: ZE1JC*, VQ4EF*. Rob 5RG: YJ1RF, E*. Ray 5RK: KA*, JA*. Austin 5WO: VR1B*, KC6AL*, MP4QAL*. Col 7LZ: VR3B*, VQ8CB*, LU5AQ*, VS8AB*, VP9CB*. WIA-18019: HH3L, VP9CB, VR1B, VR3B, 4X4AP, VQ4FM, Eric BERS195: AP2C, CO2BM, CO2OE, CX2AM, FA-8IH, FB8BP, FB8ZZ, JA, KV4, OQ5GC, PY3XE, ST2NG, VQ4AQ, VQ4FK, VQ5GC, VQ6LQ, VQ8CB, YJ1AA, ZE1JG, ZS, 4X4BD. Dave Jenkin: JA, VU2KM, VU2JA, CX2CO, CX1CX, 4S7FM, VQ8CB, 8AHH: CX2AM*, VO3X*, VR1B*, HLIAC.

14 Mc. Phone—A.M.: 2AMB: CO2BK*, OA-4AW*, HP3EJ*, YV1CD*, KP4ZC*, CES3Z*. Neil 3HG: CN8MM*, VE1ADQ*, VE1ABA*, VE1EJ*. 8JA: 4X4BD*, YV5FL*, YV5AB*, VP-2DA*. Bram 5AB: KA*, JA*, ZM6AT*, CE2CO*, YV5AB*, CE3JJ*, KP4CU*, TIECHV*, 4X4DH*, XZ2KN*, ZS*, CM9AA*, AP2U*, AP2C*, VQ-6LQ*, TIZLDT*, VR3C*, CN8MM*, 4S7NG*, CX-2AX*, HC2BH*, 5HM: ZS*, HC1FG*, 5BW: YN1ACC*, HI8EC*, KP4ZC*, 5HG: HP3FL*, 5WO: F8RY* (Corsica), 15REX*, HP3FL*, FB-8ZZ*, ZB5JA*, CO2MG*, FUSAC*, VP2DA*, 7LZ: YJ1AA*, KP4ZC*, VPIJH*, KTIWX*. John WIA-18019: 4X4BJ, 4X4BD, XZ2KN, BERS195: ZS, Dave Jenkin: FM7WQ, CX2AX, ZM6AT, Rod de Balfour: FA3GZ, FUSAC, BVIUS, VP9AK, F8RY (Corsica), FM7WQ, HR-1CB, VR1B.

14 Mc. Phone—S.S.B.: Jack 8WE reports KL-7AOP*, W1CS*, K2DW*, W8AUK*, W0HH*, W2KR*, W8TH*, G2IG*, DL1DX*, VS8CW*, DL3AR*, W0UJS*, OZ3EA*, VE8FT*, VE7JB*, KA*, DL4Y*, W2AOW*, W1CMD*, W6ZZ*, K421Y*, KX6NB, KV4BB*, KR6GM*, W6JJU*, W7QEU*, KX6BLB*, W6YHR*, W0CXX*, W7-SMU*, W0BZB*, W1CUX*.

21 Mc.: Ted 2AOP: SM*, JA*, G*, KG6*, DL*, 2APL: KX6*, ON*, OH*, LU3AX*, F*, W8AOZ/MM*, G*, W2NW/MM*. Bert 3HE: G*, KH6*, LA8*, CO1AF*, OQ5AG*, VU2AK*, VU2RC*, F*, OH*, OZ*, and VP8BS, VP1EE, CR7CO, OD5AV. 5HG: OH*, ZS8OV, W2DUM/

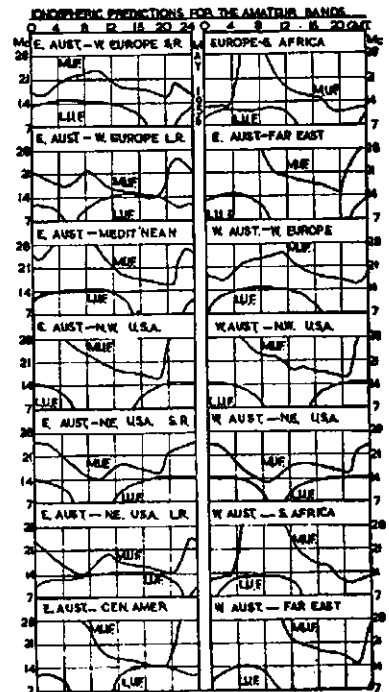
MM*, BVIUS, OQ5AG*, G*, LA*, F*, JA*, SM*, 8JA: I*, DL*, CESNS*, YV5AP*, VP6FR*, F*, G*, BVIUS*, SM*, ON*, OH*, OA4AU*, HB*, VU*, LA*, PA0*, ZBI*, IT*, PJ2AV*, 3YS: DJ*, VU2RM*, PA0PN*, DL0CXA*, G*, OZ*, F*, JA*, I*, VU2HF*, John 5JW: G*, 5WO: KZ5CP*, VE*, ZS3JM*, ZS1BK*, John 8GU: ZS9G*, 7LZ: I*, CT*, VR2*, K4CUB/KL7*, ZS3G*, BVIUS*, KX6*, JA*, OH*, DL*, FA8RJ*, KR6*, WIA-18019: BVIUS, VP8BL, I, DL, OQ5AG, Dave Jenkin: G, JA, GM, VS8CO. Rod de Balfour: G, CES3Z, DU7SV.

27/28 Mc.: 5HG reports Wa* HK3AB*, ZS-2ND*, SYS mentions Wa*, VE*, KP4GN*, JA*, KR6QR*, ZE1JJ*, ZS8ZK*, TG9JW*, CR7BB, VQ4EU*, VQ4RF*, ZE1JE*, ZS5JY, DL1, G, EA*, SM*, ZE1JJ*, and on 27 Mc. KH8*, W*, KL7BFW*. Max 4HD worked W*, VE*, VP-1SD*, CO1AF*, XE1FU*, VP7NG*, KL7AZI*, VP6PV*, HR4WH*, KA*, VS2*, DU*, JA*, I*, SM*, G*, GD3GMH*, OH*, ON*, HC1ES*, HC-1FS*, ZP8AM*, CX7BA*, PY5EK*, HC1FG*, CX2CO*, LU5AAT*, LUACC*, CX4CS*, LUBFAY*, LUD5C*, LU5AE*, HK3PC*, ZS8ZK*, ZS6OY*, ZS5JY*, ZS7TE*, ZE1JE*, ZS8AJH*, VQ4RF*, ZE1JJ*, EA*, CT*, HB*, G*, F*, OE*, I*, Les 4XJ contacted W*, VE*, KL7*, KE2FC*, XE-10S*, JA*, KR6*, DU*, VS2*, HC1KV*, HK-3AB*, HK3PC*, LU5AE*, TG8AD*, TIZLA*, G*, ON*, ZE1JJ*, ZS5PG*, ZE1JE*, ZS8TD*, ZS-5Y*, ZS4FS*, ZS5CM*, CR7AF*, CR7BB*, OQ-5AJ*, VP1EK*. 5HI: W*, VE*, VS2*, JA*, 5WO reports W*, VE*, ZS5MP*, ZS1KK*, ZS-6ANR*, ZE1JE*, ZD6RM*, ZS6AJH*, 60U QSO-ed PA*, VQ4ER*, ZE1JJ*, VS6*, ZS*, ZD-1AJX*, KL7*, CR7CO*, ST2DB*, ZS1B*, MP-4BBW*. 7LZ adds Lu*, TG9JW*, JA*, KP4GN*, XE1PY* and LU, ZS, VQ4. Rod de Balfour heard W, TG9JW, VQ4EU, JA, KH8. 8AHH's log shows W*, JA*, and ZS.

Rare QSLs were received by—2QL: ZS90, ZM6AS, VQ8CB, and LUS (3.5 Mc.). 3AMB: LUXEJ, LU1FBQ, LU1QB, YV1AD, VR3A, VP9BM, 3ATN: ZD6RD, EA6AR, 4SE: SV07L, VP9BM, 5AZTG, ZC8CT, ZE8JJ, 5HI: VP9BM, CO2CY, FB8BR, CR7LZ, 5WO: CP3EK, CX2AM, ZS3G, CR6CV, VP5KJ, 7LZ: MP4QAL, KZ-5EA, KTIWX, ZC8CT, CO2CY, BERS195: CR-7LZ, CS3AC, GC3KAV, VP9BM, VQ8CB, ZC-5SF, SV8AB, Rod de Balfour: ST2DB, CO2CY, VQ4RQ, YI2AM, CT3AN, KP6AK.

Thanks to W6YJ, ZL1CI, the Nth. California DX Club, and VKs 2QL, 2AMB, 2AOP, 2APL, 2AQJ, 3CX, 3FC, 3HE, 3HG, 3JA, 3WR, 3XB, 3YS, 3AEP, 3ATN, 3AXU, 4HD, 4SE, 4XJ, 5AB, 5BY, 5HI, 5HM, 5HW, 5JW, 5RG, 5RG, 5RK (thanks for forwarding reports from 5BY, 5HI, 5HM, 5HW, 5JW, and 5RG!), 5WO, 6GU, 7LZ, and WIA-18019, BERS195, Dave Jenkin and Rod de Balfour.

IONOSPHERIC PREDICTIONS FOR AMATEUR BANDS, MAY, 1956



FIFTY-SIX MEGACYCLES AND ABOVE

It has been reported that the following JA stations were contacted by VK2RU on the 50 Mc. band during the Easter week-end with signals up to S9: JA1ANO, JA3ME, JA1GP, JA1ID, JA3JJ, JA2QR, JA4GJ, JA3EK, JA1NF, JA1APQ. Any further information on this break-through would be appreciated.

A report has also been received that a contact was made between LU and JA on 50 Mc. which should slightly increase the current world record for this band.

Further indications of DX on the v.h.f.'s is the fact that American Police cars are being received on 40 Mc. at S9 in Victoria.

NEW SOUTH WALES

March proved to be a fairly active month for the VK2 v.h.f. boys and, contrary to the usual run of things, it was not all confined to the 144 Mc. band.

The main event of the month was the annual Spring Field Day which was held on Sunday, March 16. Thirteen portable stations and 45 home stations were active. However, as is usual in all Amateur affairs, very few logs were returned to our contest manager. The sum total was 13, comprised of eight from field stations, three from country home stations, and two from the city. The scores were computed on the basis of numbers of contacts and length of contacts with bonuses for the three longest distance contacts of the day. The top scorers were: (a) Field Stations—2HO (Mount Bald), 304 pts. for 35 contacts; (b) Country Home Stations—2WH, 181 pts. for 11 contacts; (c) City Home Stations—2ZCF, 42 pts. for 9 contacts. The three best contacts of the day were 2WH with 2RS/P at Albury over 204 miles, 2HO/P (Mt. Bald) with 2ZAA/P (Kendall) over 192 miles, and 2ANF/P (Waterfall) with 2WH over 173 miles.

The second event of the month was a Surprise Scramble, which was held on Sunday night, March 25. The VK2 Group have held several of these Surprise Scrambles and they have proved very popular. The idea originated from a chance remark to the effect that it was probable that the Sunday evening broadcast on 144 Mc. reached a far bigger audience than was imagined. The procedure now is that the members doing the broadcast are responsible for "turning it on" on suitable Sunday nights without any warning; the only announcement made is at the end of the broadcast that the Scramble is on until 9 p.m. At that time the station who did the broadcast takes the scores over the air and then broadcasts them. 25 stations participated in the last Scramble. Top scorers were 2OA and 2ANF, 21 each. 2ZBV made his first appearance on the band five minutes before the Scramble finished.

2ZCF and 2ZAC have been active on 288 Mc.—a band which normally has a graveyard sound in Sydney.

Dave 2BZ cracked the path to Forbes via 144 Mc. on March 17 and has been working Hugo 2WH regularly since. Dave has also been heard by 2ALU in Cowra. 2ALU is further in the news because of his new tx using an 829 in the final on 144.09 Mc. He has cracked the Sydney path and has made several contacts with the big smoke. While still in the DX mood, let me warn all and sundry to keep their eyes on the shipping news for the movements of either S.S. "Tayo" or S.S. "Caronic" and listen for FK8AB/M on either 144.6 or 147 Mc. The last time he was on way he heard signals from Sydney while anchored in Port Kembla. This time he says he will have a tx. DXCC 144?

The fox hunt organised for Feb. 29 was cancelled at the last moment due to the Melbourne weather that Sydney has been experiencing. This was the first outing of the V.h.f. Group that had been cancelled because of weather. In consequence the following rule has been formed. For fox hunts, hidden tx hunts and field days which have a control station, the fox control station is responsible for making the decision whether the weather is bad enough to

cancel the fixture. He is also responsible for promulgating this decision. However, all contestants are warned that it is wise to listen on the band before leaving home. For all other types of fixtures, "it's on," weather or no.

By the time this is in print, our Group Chairman, Roy 2HO, should be in his new QTH. He will be living up on St. Ives instead of down in Roseville. Perhaps this is the basis of the rumour we have heard that his new house is to be called "ELOHSTRAH." Anyway, it looks as though Roy will be in a really suitable location to do the Sunday night broadcast.

Perce 2APQ now claims to be an all-band Amateur after his appearance on the ABC's Week-end Magazine. Still, he did give v.h.f. a nice bit of publicity. Frank Legge interviewed him about the last expedition to the Jenolan Caves and played a taped QSO between 2APQ inside a cave and 2XX outside all the caves.—2OA.

VICTORIA

The third v.h.f. field day for this season was entered into with a great deal of enthusiasm. Quite a good number of portables were out; among those heard were 3GM (Mt. Bunnings), 3ADU (Woywangs), 3LN (Mt. Dandenong), 3AHJ (Yan Yean), 3OJ (Arthur's Seat), 3ZCG (South Moe), 3IE (Olinde), 3ZBU (Kinglake), 3AJK (South Moe), and 3ZAD Donna-buarg. The 2 mx band was particularly active, especially in the afternoon and 3IE at Olinde made a couple of rather good contacts in working 3ZD at Warragul and 3AJK and 3ZCG, who were both portable at South Moe. 3LN also worked 3AJK and 3ZCG. There is an attractive certificate to be awarded to the winner of this field day. Results will be announced at a later date. The winner of the second v.h.f. field day was Reg 3ZAD; congrats. Reg. 3GM was a close second and 3LN third. For future field days we would like to suggest that those going portable advise the publicity officer, 3LN, of the location they intend going to, then this information can be advertised in the Sunday broadcasts over 3WI and perhaps save the disappointment of two portables turning up on the one mountain top.

At the March fox hunt the fox 3LN endeavoured to add a little variety to the hunt by running several very short sprints, making a short stop until he was caught by one hound and then immediately starting off on the run again. This change in procedure seemed to add quite a bit of excitement to the hunt as catches came more frequently, the fox being caught on 25 occasions during the evening. The final location was at the home of 3ALY, Laurie and Marj, many thanks Laurie and Marj, and during supper and the postmortem the winner was announced. First was Laurie 3ALY, second Ray Price and third, Jack 3VZ. A newcomer to the hunt was Tom 3AOG with Ron 3AHJ as navigator. They did very well and we'll hope to see them at more hunts in the future.

Very excellent conditions are still occurring in spasms on 2 mx. On 14th March between 9 p.m. and 12 p.m. 5BC was worked by 3ZBS, 3FO and 3ZL in Ballarat with very good signals both ways. 3RK also made a contact.

On April 2, Easter Monday, there was also another very excellent break through on 2 mx when 5BC was worked by 3ZCW, 3ZQA, 3ALZ, 3YS, 3PG, 3RK, 3ZBE, 3FO, 3ZBS, 3AKR and 3ZAD. Signal strengths were very good, in fact Albert 3PG reports being able to hear children's voices in the background at 5BC. On the same evening 3ZCW made his first contact with Melbourne when he worked 3ALZ.

The March v.h.f. meeting took the form of a visit to a place of interest, the place being an inspection of the Central Fire Station at Eastern Hill. The demonstrations were very spectacular. Henry 3EN, the Brigade's chief radio officer, gave the chaps a very detailed description of the tx and his service department. All were greatly impressed with the versatility of Henry's work when it was realised that they build all of their own tx's and rx's, both for fixed and mobile work, within the section and the Brigade does not have to rely on outside commercially built equipment. The visit concluded with a vote of thanks being passed by 3LN to Henry and the Officers of the Brigade.—Phyl Moncur.

288 Mc.: Ray 3ZAE and John 3ZAI went to Pretty Sally Hill (30m. N. of Melb.) and worked all the locals—save 3QO. Pity that horizontal polarization tests could not have been carried out, as signals may have improved. At Easter 3AUX again worked fixed portable at Montrose (20m. E. of Melb.) at base of Mt. Dandenong.

Geoff worked the locals and repeated polarization tests with 3QO and got same results as before, i.e. signals came up 3 S pts. when horizontal polarization was used. Bert 3AAF took his mobile txal locked 288 Rx with him on a trip from Ferntree Gully (20m. E. of Melb.) to Geelong (40m. SW. of Melb.). 3QO took his txal controlled gear in to 3RI and ran continuous tone mod. signals on 288 Mc. with 15w. input. This signal from the city was audible 98 per cent. of the time from Ferntree Gully to Geelong and at times on the Geelong Rd. (which is straight and flat) was S9 plus. Sigs were good in Geelong itself. Finally seeming that 3AAF got such good 288 Mc. sigs in Geelong from Melbourne, how about it, you Geelong chaps?—3QO.

WESTERN AUSTRALIA

The second fox hunt of the Group was highly successful with seven cars participating and about 30 people. A welcome visitor was Fred 6FT who followed the cars around. You'll have to get some gear Fred and join in the fun! Rolo 6BO was the winner, followed by 6HK/6WJ, 6TR/6ZAZ and 6BE/6ZAA. Rolo established a record by finding the tx within 30 min. The first field day of the Group is being held on 13th May when at least 12 stations are planned to link up the southern portion of the State. The next meeting of the v.h.f. Group will be held on 5th May at the residence of Don 6ZAV. All interested in v.h.f. will be most welcome!

144 Mc.: Checks with Wally 6WG have continued over the 240 mile path and signals seem to be present 4 days out of 7. Rolo is considering the possibility that since signals have not been heard when the barometer is above 80 inches, which doesn't agree with observations made in England, that Albany is too close! A station in Geraldton (320 miles) might give us an opportunity to test this hypothesis. Anyone in Geraldton interested?

Tom 6ZAH in Brunswick Junction was visited recently by Murray 6ZAM and Wally 6ZAA who brought down 6ZAA's home station and successfully demonstrated that 2 mx was an excellent proposition in the Bunbury area. Signals were 5/7-9 both ways with Rolo 6BO and Don 6ZAV. Tom is now 6TH. Congrats Tom!

288 Mc.: Rolo 6BO's 288 Mc. signals have been successfully identified at a distance of 186 miles.

Following highly successful checks between Perth and Bruce Rock when Rolo's signals were heard consistently over a 127 mile path at strengths (day to day) varying from S2 to S7, with phone being copied on peaks, Don 6DW took his converter to Gnowangerup and was able to identify Rolo's carrier and repeat letters sent at random. The signal was extremely weak, but in view of the temporary nature of the set-up in Gnowangerup and the fact that checks were made on only four occasions, it is very fine work Rolo and Don! Rolo's tx is an 832 tripler driving a QQE06/40 with 40w. input, antenna a 4/4 stacked yagi, horizontally polarised, with a full wavelength between bays. Don's rx is a 636 p.p. neutralised triode with a 616 p.p. mixer and i.f. 7 Mc. His antenna is a 4/4/4 with a full wavelength between all bays. Don 6ZAV has also been copied in Bruce Rock on several occasions. Don is using an 832 in the final and a 4/4 beam. The present Australian record of 106 miles must be very precarious!

Welcome to Australia, Ken, formerly GSAVF. Ken is particularly interested in v.h.f. and we're very glad to have you here!—8ZAA.

TASMANIA

The 2 mx activity has fallen off with the lack of DX signals, this in spite of a good listening watch when conditions appeared at all favourable. 7LZ heard stations testing and unidentified weaker stations on 27th March. 7PF heard 3ALZ on c.w., but no QSO resulted. 7ZAW came on 2 mx on 27th Feb., operating from Beauty Point, and made contacts with the Launceston gang. His home location in Launceston should be good for VK3 DX. 7RL is building a tx for 2 mx and has a 522 rx going on the band. 7LZ has erected his 5/5 and it seems to be going OK, but hasn't heard enough DX signals to compare with the old beam. Col is again v.h.f. officer for VK7. 7PF and 7GM are now using the new cascade tube, 6CW7. This gives a much better performance on 2 mx. 7PF now measures the noise factor as being 4.3 db. on his converter. The construction of the 6CW7 is much better than the 6BQ7 and about one-third the price. 7PF has replaced his 815 p.u. with a 829B, which gives greater r.f. output.—7PF.

SHORT WAVE LISTENERS' SECTION*

VICTORIAN GROUP

The last meeting of the Group was conducted on 27th March at the rooms, 191 Queen St., Melbourne. Max Hilliard, from VK5, was present and passed on greetings from the boys in South Aus. A new member, Bert Stebbing, was welcomed. Fred 3YS also put in an appearance. The main feature of the meeting was a talk by Max 3ZS on the organisation of the Wireless Institute. Arrangements were made at the meeting for a visit to the station of Dick 3XD. Four members of the Group were at his QTH on the evening of 6th April, despite the pouring rain. It was a very interesting evening. Our thanks are due to both Max and Dick for giving us such a very fine evening.

Coming Events: A visit to the Police Radio Station D24 has been arranged. This visit is timed to begin at 4 p.m. on Sunday, 29th April. All members are requested to meet outside the Police Hdqrs., Russell St., City, by no later than 3.45 p.m. As the Police Force is a very busy organisation, it would not be well to keep them waiting. Any Amateurs who would like to join our Group for this visit are cordially invited to do so. In fact you can participate in any other of our activities if you ever wish to do so.

You are reminded to keep the following programme in mind: May 29—Free Night. June 26—Talk on Construction and Operation of V.h.f. Gear by Fred 3YS. July 31—Talk on his recent overseas tour by Geoff 3DF. August 28—Annual meeting, election of office-bearers. September 25—Talk by Len 3LN. October 30—Talk by Ron 3ARV. A visit to the City West Telephone Exchange is being arranged, so watch for this.

CALLING ALL AMATEURS

If any of you would be willing to receive a visit from a small number of S.w.l. Group members, say about five, please let us know. Also, if we may be able to help you by monitoring your transmissions at any time, listening while you are going mobile or even lending a hand in the erection of an antenna, don't be afraid to contact us. You'll be helping us in

* Compiled by: Ian J. Hunt, WIA-L3007, 101 Robert Street, Northcote, Vic.

this way as we must gain experience by such activities. Write to Ian Hunt, 101 Robert St., Northcote, or ring MY 260 Ext. 526 during the day. Any enquiries are welcome.

All s.w.l.'s are requested to forward reports of stations heard together with details of the equipment being used. We've been promised some information from the VK5 boys, so how about it? Come on all you country chaps and also VK2, VK4, VK6 and VK7. Are there any S.w.l.'s in VK9? We'd be very pleased to hear from you.

HEARD AMONGST THE HETERODYNES

3.5 Mc.—WIA-L8007: VK2APL, VK3AHH, VK3PR, VK3QZ, VK3LR, ZL4IE, VK2AXH, VK2CS, VK3HE.

7 Mc.—WIA-L8007: VK3JO (fixed portable station), VK3AMM/M, WIA-L3015: W3ECR, W6AM, W0KOK.

14 Mc.—WIA-L8007: EI2W, EA8BB, HPIC, GM3DHD, G8LG, CE3PV, ZK1BS, EA2CQ, DU1CV, VS2DC, VU2EH, KM6AF, VK9BS, YJIRF, VR2CV, VK1IJ, FUBAC, E8AI, M1B, K9DB, VS2DB, F8EG, ZS6CV, VESFU, KC4USA, LU2FR, VE3ARS, ZS4JK, G3FXB, VE3ED, CO2BL, VE7IK, VP4DB, KL7BVK, ZM6AT, F8XCZ, EA2DJ, ZS6BW, DL4MW, F7EA, LU7DH, FS8AK, DU1JK, XE1A, XE2KW, XE1CW, FM7WQ, OQ5BK, VE5GU, ZS6XB, VE1ZT, HC2BH, CN8JB, W1-W0, KH6, KG6, KH6, KA2, 3, 5, 7, Z1.1-4, VK2-7, WIA-L8015: CN8MM, CO5LF, CE3PV, DL4XK, F3MM, F8SI, F8RM, F08AB, FUBAC, G3GQ, GM3DHD, GM8MN, IIRB, JA3IS, JA6AK, KA2AK, KG6NAA, KH6OR, KR6RT, KP4ABD, KX6BU, KZ5IF, EA3CY, LU7DX, OE3CK, OZ5KQ, PY3AGR, T20E, VE1ZT, VE3ARS, VE7EF, VK1IJ, VK9DS, VR3C, VR2AM, VS1CZ, VS2DQ, VP2VB/P, OA4AI, XE1MJ, XZ2KN, YJIRF, YU1AO, YV5AB, ZK1BL, W1-W0, WIA-L3019: VU2US, VU2JK, OH5NW, OK1KT, OK3BG, 4X4BD, 4X4BJ, 4X4BD, OZ5KQ, HH4MV, HH3L, HB9RE, HB1RM, IT2JZ, SV8BB, VP7NG, PZ1WK, ITBXX, VP9GB, DU61V, DJ2JB, I5RAM, VS6BU, SM9VN, VE3AIU, VE1ADW, VR3B, VR1B, LA5YE, VQ4FM, Gs, 11, Es, Lola Barton, KAZWZ, KAZWW, KH6NES, KH6AXH, YJIRF, KX6BU, ET2US, KP6AK, VS1CZ, VR2CZ, MP4BBF, GM3DHD, XE2AI, CN8MM, PY4APE, FUBAC, 4X4DK, EA2CQ.

HK3FV, YV5EC, KR6SA, KG6NAA, KG6AFK, KL7AIV, VE1EI, T12RMA, VK1IJ, VP2DL, HK5ER, LUTDX, ZK1BS, ZK1BL, HC2BH, HP3EJ, HP3FL, VP1JH, ZS8AJ, OESJK, OA4AI, XM6IX, VE1AE, KW6VG, 4X4BD, CO2MG, KA5CL.

21 Mc.—WIA-L3007: KH6ZA, W6AM, KH6WAG, VS2DB, F8EG, ZS6CV, KV8ZB, W2SKE, KA2GX, HC1FS, W9QZ, W6AL, ZS4JK, G3FXB, EA2DJ, ZS6BW, F7EA, XE1A, KP4ADK, K4CUB, KL7, W7VMP, KL7ALZ, VP5RR, VP6FR, WIA-L8019: BV1US, VP8BL, IIFKQ, DL1VX, OQ5AG, Lola Barton: G3KPT, W1SCS, DL4XA, DL6NB, KH6BS, OH2NB, IIA1Y, HZ1ER, G3CQE, K6MEA, VK9DB, KR6PO, OH1RU, SM5RM, KX8ZB, G8SY, VESVL, KA7HD, KR6MY, PY2AY, OH5NM, OH2OV, ZS2ND, OA4AI, JA4BB, VU2RC.

28 Mc.—WIA-L3015: HK5ER, KH6AXH, KP4GN, VE4RO, VE7AJU, VK9DB, W1-W0.

144 Mc.—WIA-L3003: VK2RS, VK3SE, VK3ZCG, VK3ZDB, VK3ZBU, VK3ZDG, VK3AWS, VK3AWU, VK3ZAN, VK3FO, VK3ADU, VK3QO.

288 Mc.—WIA-L3003: VK3QO, VK3AAF, VK3AUX, VK3ZAI/3 (Pretty Sally Hill 34m.), VK3ZAN, VK3ZBD, WIA-L3001: VK3AAM, VK3QO, VK3AUX, VK3GQ, VK3ZAI, VK3ZCJ, VK3ZAN, VK3GX (Mt. Bunninyong), VK3ZAQ.

Well, after having read this most comprehensive list you'll agree that the bands are well and truly picking up. So go to it and see what you can hear. Next month we'll tell you something of the gear these listeners are using, so till then, cheerio and good listening.

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	12 1
VK4RY	2 2	VK3ACL	14 1
VK4HR	4 2	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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VACUUM MOUNTED CRYSTALS

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

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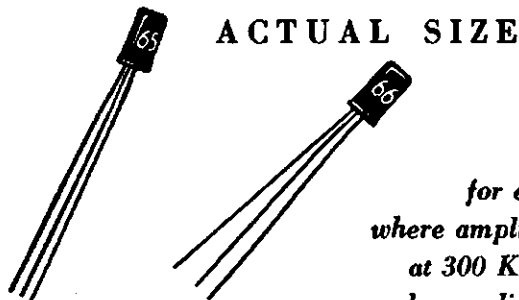
- (1) Approximately three times the activity of normal plated crystal due to the absence of air damping.
- (2) Better frequency stability due to the absence of air friction.
- (3) Plating cannot deteriorate with time and cause frequency shift.
- (4) Two or more crystals can be mounted in the one envelope and thus save space.

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

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Collector-to-emitter peak voltage max. 10 V
D.C.-collector current max. 10 mA
D.C.-emitter current max. 10 mA
Collector dissipation max. 25 mW
Junction temperature max. 60° C.

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FEDERAL

R.S.G.B. MEMBERSHIP APPLICATION FORMS

At the request of several members, Federal Executive has obtained from the R.S.G.B. in London some application forms for Corporate Membership in that Society. The annual subscription rate for Overseas Members is £1/1/- per annum.

Forms may be obtained by writing to the Federal Secretary, Box 2611W, G.P.O., Melb'ne.

CHANGE OF FEDERAL COUNCILLOR IN TASMANIA

After some years as Federal Councillor, Mr. J. Brown, VK7BJ, has relinquished this exacting post. Noted for his promptness and thoroughness, Joe kept Executive fully conversant with things in VK7 from a Federal point of view.

Taking over this position is Mr. D. Fisher, VK7AB, and all will wish him well during his term of office.

LIST OF 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 10th Jan., 1956:

- New South Wales
L. T. McLoughlin, Hunters Valley, Ellerston, via Scone.
*R. H. Dell, C/o Mrs. S. Davison, "Cunningham Plain", Cunnigar.
*K. L. King, "Fontainebleu", Honour Avenue, Lawson.
*J. E. Mackie, P.O. Box 40, Hillston.
C. H. Orr, 281 Princes Highway, Rockdale.
*J. B. Webster, 25 Bayview Ave., Eastwood.
*J. H. W. Grace, 21 Davies Ave., Watson's Bay.
*D. E. Woollett, 12 Broadarrow Rd., Beverley Hills.

Victoria

- R. E. Graemer, 21 Lyonsville Av., East Preston.
J. R. Barber, Carr's Lane, Anakie.
*S. R. Brooks, 23 Hex St., Tottenham.
*D. J. B. Hull, "Panorama", Larnach Rd., Baxter.
*D. Calwell, 87 Panoramic Rd., Nth. Balwyn.
A. K. Tiley, 23 Milroy St., East Brighton.
C. J. Waterlander, William St., Ouyen.
K. R. Cakebread, 45 Barrier St., Benalla.
*M. R. Osborne, 14 Brenbeal St., Balwyn.
K. L. Rogers, State School No. 3674 Dudley, White Rd., Wonthaggi.

Queensland

- *L. F. Schmidt, 18 Marriott St., Coopers.
South Australia
*M. J. Goodridge, 63 Gray St., Plympton.
Western Australia
T. H. Talbot, "Wedderburn", Brunswick Junction.

Tasmania

- G. H. Cranby, 17 Friend St., Georgetown.
*Qualified for Limited Certificate.

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

Well, chaps, here at last are a few notes for "A.R." to keep N.S.W. Division in the fore. The writer, 2APF, has been doing a bit of snooping around the bands and here is what is alleged to go on: A signal has been heard from Merv. 2ATD (Tamworth) after a long absence; Merv. hopes to be regular in appearance. Syd 2APS has been active on 40 and 80 mx on his new rig, which, we are led to believe, has all silver plated coils, and is doing an f.b. job, too. Sam 2ZBL will be sitting at the April exam. for his full ticket and we wish him every success. Wall 2AXH, who is a familiar voice on 40 and 80 mx, has had a visit from Allan 2AIR, who is holidaying in Terrigal with his KYL after a very hectic time in Tamworth, and Allan has been helping Wall line up his AR7 with f.b. results. Cec 2AKC is talking just as well, sinus trouble and all, and puts out a very nice signal to Tamworth.

Many and varied signals have been heard from a number of AT21s, but credit must go to Hart 2JC (of Narrabri) for having the best grid modulation yet heard. Ben 2ABT has had his AT21 on and the quality is good also. Bob 2AQR will shortly be leaving Warragamba, and will be heard from West Wailend; best of

luck in your new venture Bob. Noel 2ASQ will be home after Easter from Puckapunyal camp, where he has been having a holiday at the expense of the Army (lucky fellow) and hopes to have a pair of 6146s in a pi-network going soon, also a s.s.b. rig is in the offering. Reg 2HM has been heard working some VK5s on 40 mx with good results. Steve 3ASS (the midnight station from Swan Hill) tells me he will be leaving Swan Hill to migrate further north as the winter comes and may even settle for Tamworth. It is pleasing to hear the bands well occupied of late and should be a good argument in favour of extending seven megs. back to its original size.

SOUTH WESTERN ZONE

Our main item of interest this month covers the pro-tem meeting of this zone at Griffith on 11th March to arrange this year's Convention, which will be held at Griffith on 29th, 30th Sept., and 1st Oct. The meeting was held at Eric Clare's office. On behalf of the zone many thanks are extended to you, Eric. Members present were as follows: 2BW, 2AID, Wagga; 2PN, 2ZAA, Tumut; 2RS, Albury; 2AJO, Coolamon; 2AXD, 2ACS, 2PL, 2FS, 2AVJ, 2ZAZ, John Smith (Z call), Roland Grivas, Laurie Ashton, Eric Clare (Associates). A committee, comprising 2PL, 2AXD, 2AVJ, 2FS and Laurie Ashton, was formed to arrange the programme. At the conclusion of the meeting we were treated to a very fine afternoon tea, for which we are indebted to Laurie Ashton and KYL. Many thanks to you both.

Don 2RS and your scribe, 2AJO, journeyed to Griffith on 11th operating mobile 2RS. Many contacts were had en route. Alf 2BW also operated mobile and had some good contacts. Keith 2ZAA and YL Jean, when this is read, will be in double harness—the happy event took place on Easter Monday. Congrats from all in the zone, Keith and Jean, we wish you a life long happiness. I would also like to thank Mr. and Mrs. Jones (Brian 2AVJ's parents) for entertaining Don 2RS and your scribe at morning tea. Brian has a very nice shack and hopes to soon be active on 144 Mc., also mobile. Stewart 2PL has new gear, also Ted 2AXD who has an AT21. Evan 2ACS is active from Griffith. Your scribe has been working overtime with an increase of power on 144 Mc.—80 watts now, so come on Griffith, how about a signal or even a listen on 144.36 Mc.—2AJO.

HUNTER BRANCH

The Annual General Meeting of the Hunter Branch was held at the Tighes Hill Technical College at 8 p.m. on 9th March. Twenty-four members and visitors were present, including Jim 2YC (State President), Percie 2APQ (both from Sydney) and Major 2RU (from Gosford). Others travelling long distances to be present were Geoff 2VU (Singleton); Chris 2FZ (Aberdar), Harry 2YL and 2MC (Cessnock) and Associate "Mac" O'Brien from Raymond Terrace. The local members present were 2CS, 2XT, 2OT, 2UF, 2ARV, 2AGD, 2AHA, 2AOR, 2AFA, 2ADS, 2ANA and associates Gordon Sutherland, Frank Stobbs, Stan Lloyd, Ray James and Bob Bailey.

Reports on the past year were given by the Secretary, Treasurer, and Social Secretary. The Secretary reported that our lecturers for 1955 had been 2CS (twice), 2AC, 2JU, 2VW, 2EG, 2OT, 2UY and 2AMM, all of whose lectures were much appreciated by the branch.

The election of officers resulted as follows: President: Bill Hall, 2XT; Vice-Presidents: Harold Whyte, 2AHA, and George Lee, 2AGD; Secretary: Charlie Archibald, 2ARV; Treasurer: Doug Rodgers, 2ADS; Zone Correspondent: Les Sparke, 2AOR; Social Secretary: Gordon Sutherland; Social Treasurer: Bob Bailey.

Percie 2APQ then gave the branch a lecture on "V.h.f. in the Caves," enlarging the scope to include v.h.f. at Kosciusko, Ebor and with the Bushwalkers and Speleological Societies.

Jim 2YC (State President) gave the meeting an explanation of required operation of 2AWX in the Civil Defence Emergency Network. Jim also explained necessity for "Home for VK2WI" and the need for more donations to facilitate this being achieved.

Charlie 2ARV has received advice from the J.A.R.L. that the A.J.D. Award may be claimed through the W.I.A. by submitting the necessary cards to them. Neil 2XY will at 7.45 p.m. each meeting night, give c.w. practice and tuition to any associate desirous of taking advantage of this offer. Harold 2AHA has got his pole up at last and, with 46 ft. out of ground, he should have line of sight to Sydney. Bill 2XT, Jim 2AHT and Bill 2ZL are all in possession of AT21 Tx's. Leo 2QB has a potent signal on

14 Mc. and making W contacts. Lionel 2CS is using a converted Command tx; is very pleased with it. Bill 4XM (formerly 2AXM) reports two windows blown out and antenna mast blown down in last cyclone. Harry 2AFA has built a 2 transistor rx which he reports works a speaker quite well.

Tom 2PQ working a lot of DX on 10 mx. Frank 2AUH investigating lack of drive in his tx. Rodney Prout has passed for a Limited Licence. Les 2AOR still feeding his face after nightly QSOs. Ron 2ASJ operating c.w. on 14 Mc. occasionally. John 2XQ working c.w. DX. Varley 2SF comes on Monday nights to report to 2AWX; house painting accounts for his absence during the week. Nothing heard from Jack 2KQ, Norm 2ANA or Ron 2AAL for sometime.

The lecturer for the May meeting of the Hunter Branch will be Mr. Wal. Spencer, from the N.S.W.G.R. The title of his lecture being "Electronics in the Railway," this will be an interesting and informative lecture and a large attendance is anticipated. The date, 11th May; the time, 8 p.m.; the place, Tighes Hill Technical College.

Don't forget to listen to 2AWX on 14.05 Mc. at 8 p.m. every Monday night for information on the activities of the Hunter Branch.—2AOR.

VICTORIA

Another Annual Meeting has passed and a new year has started with a new Council at the helm. This time, the first for many years, there was an election for Council and now along with some of the old experienced hands there is some new blood, a very good combination for the advancement of the W.I.A.

The new Council is as follows: F. Bail, 3YS; H. Hodge, 3FE; G. Dennis, 3TF; H. Albrecht, 3AHJ; J. Marsland, 3NY; K. Pincott, 3AFJ; H. Charles, 3AHG; L. Robinson, 3ALD W. Wardlaw, 3ADW G. Buckingham, 3QU.

The retiring President, Gordon Dennis, 3TF, was re-nominated for that office once again. This will make Gordon's fifth successive year as President and somebody murmured "What'll your wife say?" From what we have seen of Gordon's KYL, Nina, she will be staunchly behind the President on the many occasions on which he will need her support, so long as nobody let's her know that there's a disposals handout to be organised in the near future.

As annual meeting night is mostly taken up with the elections, a lecture is not arranged for this evening and this usually leaves time for some very lively arguments on various subjects. However, they lacked the usual fire this year and not nearly up to last year's standard. One wondered if Ron 3RN was ill, he was amazingly quiet for 3RN; even his cobber, new councillor "Mr. Pinhead" 3AFJ, didn't seem to have anything to grouch about. Len 3LN was otherwise occupied, counting ballot papers, so that kept him quiet. (Was that the reason he was nominated as a scrutineer?—Ed.) Doug 3DU, George 3AG and Bill 3UM (good arguers all) seemed to be sadly out of form. Max 3ZS wasn't there, maybe that's why the meeting went so smoothly. Syd 3ASC muttered something about the building fund, Syd's dead in earnest about this building fund. Hon. Treasurer, Jim 3NY, proudly presented his "treasurer's report" showing the wonderful year the Victorian Division has had with a very good balance on the right side and stated that 400 of this balance was to be put into the building fund. This should be very pleasing to all.

The following new members were welcomed to the Institute: As full members—Messrs. P. Barnes, 3GH; J. Ocolowitz, 3ZAI; T. Hunt, 3AZY; J. Adcock, 3ACA; A. Frances-Williams, VS2EU, who is here on a visit from Malaya; M. Tulloch, 3AKT; K. Cakebread, 3DW, and as associates Messrs. K. Crockford and I. Darling.

The lecturer for the next general meeting on May 2 will be Mr. Wally Hunter, of Zephyr Products, and he will give a general talk and discussion on microphones. For the June meeting the lecturer will be Mr. Campbell, of Masse Batteries, and he will give a general talk on storage batteries. He will also have on display sample of batteries, both lead acid and nickel iron types.

We are pleased to announce that contest and award certificates, made available by this Division, now have the recipient's name and call sign hand-lettered with Indian ink. This makes a far better and more worthy job than typing. (We are indebted to Len 3LN for offering to do this job. Thanks Len.—Ed.)



A & R OUTPUT TRANSFORMERS

ULTRA LINEAR OUTPUT TYPES

★ TYPE 921 (921-8: 2 or 8 ohms; 921-15: 3.7 or 15 ohms):

For VALVES: 20 WATTS: 30-30,000 c.p.s.
 807, KT66s, etc. Primary: 0.600 ohms.
 Suitable Conversion SCREEN TAPS: 19% of Plate Z.
 "WILLIAMSON" to U.L. F.R.: Plus or minus 1 db 10-60,000 c.p.s.
 See "Audio Engineering" of Leakage Inductance:
 June, 1952. 1/2P/1/2P: 18 mH. maximum.
 Prim/Sec: 20 mH. maximum.

★ TYPE 931 (931-8: 2 or 8 ohms; 931-15: 3.7 or 15 ohms):

For VALVES: 20 WATTS: 30-30,000 c.p.s.
 6L6, EL37, etc. Primary: 4,500 ohms.
 See "Radio and Hobbies" of SCREEN TAPS: 19% of Plate Z.
 February, 1955, 17 watts F.R.: Plus or minus 1 db 10-60,000 c.p.s.
 U.L. Amplifier. Leakage Inductance:
 1/2P/1/2P: 15 mH. Maximum.
 Prim/Sec: 15 mH. maximum.

★ Ultra Linear Output Type—

Type 910—12 watts. Prim.: 8,500 ohms p.p. (with screen taps).
 Sec.: 916-8; 2 or 8 ohms; 916-15: 3.7 or 15 ohms.
 Type 949—12 watts. Prim.: 8,000 ohms p.p.
 Sec.: 2, 8, 12.5 15 ohms.
 Response: 10—50,000 c.p.s.
 Valves: 6V6, 6BW6, KT61, EL34, etc.
 19% Screen Taps.

★ For Mullard "5-10" Amplifier

Type 2505—12 watts. Prim.: 6,000 ohms c.t.
 Sec.: As below.
 Response: 10-50,000 c.p.s.
 Type 2505—8 For 2 or 8 ohms Secondary.
 Type 2505—15 For 3.7 or 15 ohms Secondary.

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80 METRE TRANSMITTER HUNT

A good crowd turned up to the March hunt when the tx was hidden by Len 3LV at Lysterfield in a bushland setting up in the hills in the Ferntree Gully area. This location was a little further out than usual and provided a very nice afternoon's run into the hills for those who weren't merely bent on finding the tx. Len 3LV hid the tx in his car, which he had driven off the main road well into the bush. In these rustic surroundings the gang had a very enjoyable get-together as usual and finished up with a picnic tea. The winner was Roy 3ARY and his right-hand man, Ray Price, and were closely followed by Bob 3OJ.

SOUTH WESTERN ZONE CONVENTION WARRNAMBOOL

The zone activities have been colossal the last few weeks owing to the Convention held in Warrnambool on 17th and 18th March. John 3ARJ set up his rig at Bill Wines' QTH on Saturday morning for use of the mobiles en route. Ted 3PS and Bill Wines were at the mike. Kevin 3AKR was the first mobile worked. Next came 3AGD and company. There was a steady arrival of Amateurs from then on and all enjoyed afternoon tea, provided by Bill's XYL, 3XI's daughter and Mrs. Adams (3ARJ's mother).

and company won the first hunt. The next hunt followed within a few minutes and was won by Bill 3AMH.

The scramble was conducted in one of the local parks and as time was getting on, each competitor was allowed three CQs. The winner was Don 3PO from the garden city of Ballarat, followed by John 3AGD. All then returned to Bill's QTH where afternoon tea was served. Thanks were bestowed on the girls by 3AMH, 3AGD and 3JA. 3ARJ donated two 80% prizes, which were won by 3AKR on the first hunt and 3AMH on the second.

This concluded a very good Convention and I would like to thank you all for making it what it was and we hope to see you all in November when the Convention will be held in Ballarat.—Bill Wines.

Stop Press.—All zone members congratulate 3ZAZ and XYL on the arrival of a daughter.

CENTRAL WESTERN ZONE

During the month we were pleased to see a good photo of Rex 3UR, of Bendigo, in one of the daily papers; nice work Rex, I guess you have been enjoying improved conditions on the DX bands during past few months, and have you got that long wire antenna in operation yet? Conditions on the 2 mx band seem to be good also as Garry, junior op, of Herb 3NN, has been hearing signals from Melbourne, Warr-

discussion was the Zone Convention. A tentative date was the week-end before the Queen's Birthday week-end, so would like all to come on the air and discuss it further. The convention this year is to be held in Morwell. Graham entertained us with some coloured slides, after which a delightful supper was served.

Ian 3AAV went to S.A. for his holidays and worked mobile-portable while there. His signal was heard on the 80 mx hook-up at 5/5. David 3DY and XYL have been touring (day trips) in Gippsland and working mobile; also joining in the hook-ups. Ron 3PR and family favoured Jack 3AJK with a visit during the Easter holidays. Ron still says no 2 mx for him, still we will see. Stations constantly on 2 mx are Stan 3ZAB, Ron 3ZD, Rex 3VL, Jim 3DI, Bill 3TY, George 3ZCG and Jack 3AJK went up on a hill at Moe South to take part in the v.h.f. field day in March. Many contacts were had, and signals were loud and clear.

Peter, 2nd op, at 3AJK, has sat for his ticket and is awaiting results. Good luck, Peter. Short wave listeners at Moe, Des and Terry, have built 2 mx beams and are now building converters. Len 3LV was heard on the hook-up after a long period of silence. Bill 3WE still coming on too. George 3ZCG went mobile on 144 and 288 Mc. during the Easter week-end with good success, stations being working in Melbourne, Geelong, and Colac.



VK3 SOUTH WESTERN ZONE DINNER. Back Row (left to right): Ian 3BV, Brian 3ADV, Frank Alexander, Geoff Clarke, Norm 3EQ, Geoff Munday, Bill Neil, Les 3DX. Middle Row: Ted 3PS, Eric 3ANQ, John 3AGD, Bob 3IC, John 3ARJ, Jim 3ABT, Neil 3HG, Ken Croxford, Bill Bell, Leigh 3II, Gordon 3AGV. Seated: Bill 3AMH, Ed 3AEH, Cec 3YW, Kevin 3AKR, Bill Wines, Harry 3XI, Jack 3JA, Harry 3HF (in front). Block by courtesy of "Warrnambool Standard."

Jim 3ABT and XYL arrived about 6 p.m.; 3AEH, XYL and family arrived along with old faithful, Bob 3IC, working mobile on motor bike. Pleased to welcome Ted 3PS after a long absence from Amateur Radio, and regret to say he has been very ill and all wish him a speedy recovery. Mart 3MH, who was once a member of our zone, wished us a very successful Convention in a QSO during the afternoon—a very nice gesture indeed. An excellent photo was taken of the group at the dinner and these may be obtained by contacting Bill Wines.

The annual meeting took place at 8 p.m., after which Leigh 3II treated us to a good film show. At the conclusion of the films we adjourned to a local coffee lounge for supper.

Sunday morning all assembled at 9.45 and tuned up loops for the first tx hunt. No one seemed able to pick up proper directions, although at one stage 3AKR, 3AGD and 3PO were within feet, but time beat them. After this we returned to Bill Wines' QTH for the broadcast. Later the visitors moved to Harry's (3XI) shack for inspection of equipment, beams, etc. After lunch we returned to meeting place and prepared for more tx hunts. Kevin 3AKR

nambool, Ballarat and Adelaide. Allan 3HL has been on holidays and has acquired a lot of a.c. gear. Chas. 3IB has been working his cobbler, 1GA on Mawson and many other DX stations. The new rig is working very well, but he is now thinking of using a pair of 6146s in place of the 813. Have not heard much of Keith 3AKP recently, but I believe he is building a new rig, using a pair of 807s, driven by a Gelsolo. Jim 3DP is on the air fairly regularly, but work on his grazing property keeps him pretty busy. Merv. 3AFO has not been very active of late; he also has another hobby, that of coloured photography, so presume that has been taking most of his spare time.

EASTERN ZONE

Many stations are noticeable by their absence on the 80 mx hook-ups, so chaps what about pulling your weight with the rest as there is a big programme ahead of us this year. The Latrobe Valley Radio and T.V. Society and the East Gippsland Radio Club held a combined meeting at Graham's 3QZ at Tralgon. Although attendance was a little disappointing, a good night was had by all. Main business under

NORTH EASTERN ZONE

Col 3WQ is understood to be still in difficulty with housing, hence no ventures into radio yet. Syd 3CI is doing well on 10 and 15 mx, with a "cubic quad" on the former. Johnny 3ACK is one of several with only limited time for Radio. Former Zone Vice-President, Rex 3UR, now City Engineer in Bendigo, is often quoted in the metropolitan dailies, once lately on his Amateur activities. Vern 3AKW is to experiment with aerial systems. Les 3ALE has his BC348 back on standard line-up. Alan 3UI, Keith 3JC and Stan 3AGT are all thought to have participated in recent QSL card distributions. Tom 3TS and George 3GD are also believed to have participated. Peter 3AFP specialises on the 5 mx work. Howard 3YV and Jim 3JK are both on tx construction. Bruce 3QC has not been in the Radio field lately. Brian 3AWZ is also off the Radio, being busy studying. Ron 3AQG is getting help to build an all-band tx. Des 3BP is away on holidays.

Henry 3HP is on the closing stages of the year's r.f.b. radio work, but there is nothing about either Bill 3AWQ or Jack 3AKC at the

moment. Doug IJ celebrated his recent birthday on Macquarie Island by making a hike, in company with a physicist friend, of total length 48 miles, in one day. Bruce 3AGG and Brian 3ASF are working away quietly on 20 mx. At time of writing, Ray 3FI had not completed his shack, neither had Murray 3HZ moved into his new house. Alex 3AT is understood to be tied up with professional work. John Goodall 3ZEG hopes to complete his Morse for full Amateur status later this year. Associate Jack Dunne is also studying to sit for his A.O.C.P. later in the year.

Keith 3DW has to trace a particular fault in his rx. Bill 3JP is thought to be building a new garage. Ken 3KR and Hugh 3AHF are working 20 mx DX when opportunity offers, while Vic 3ABX and Jack 3PF have not been heard lately. Des 3CO in Seymour is making himself very useful. It is not known just how Frank 3ZU is going with his projected leave, neither is it known if Kevin 3IR is doing much in Amateur Radio. The twins are proceeding quietly at night. By the time these notes appear in print the next North Eastern Zone Convention should have proceeded beyond the stage of discussion, and 3WI will have the latest information.

GEELONG AMATEUR RADIO CLUB

The boys have recovered from their trip to the Convention at Warnambool and stated they had a good time. The officers of the zone will be published in the S.W. Zone notes soon. Bill 3AWZ recently entertained members at his QTH on the old subject of "100 Kc. oscillators and multivibrators and their application." An interesting question time followed. Later that evening the XYs regaled their wasted spirits with a tasty repast. John 3AJT has donated a large quantity of excellent material for disposal as club members and the technical committee decide. A great many components will be embodied in the club's new tx.

At last 144 Mc. is taking its toll. 3AEH and 3AWZ, with 3ZAV, are delving into the mysteries of this band, and are still looking for more signals on any evening after 9 p.m. New beams, converters, and crystal tx's are the order of the day.

The recent announcement of the all-band call to Jim 3AET was received with great delight. We hope to hear Jim soon on all bands, but not simultaneously. Fred 3ALG is working his share of DX on 20' mx; uses the W8JK and the T2FD. Recently heard 3AKE on 2 mx, putting out his usual fine signal.

What about some of you mobile 2 mx gang coming to Geelong and showing we beginners how all the junk works? I guess you would really stir up activity in these parts. Bill 3WT has been on the sick list again and we trust he will be well soon. Gordon 3AGV is getting into Geelong on 2 mx from Colac; also heard Mart 3AKV and Gordon 3AGE working Geelong chaps on 80 mx.

QUEENSLAND

PRESIDENT'S REPORT, 1955-56

[Owing to a limitation of space, it is regretted that parts of this report have been deleted.—Ed.]

The past year has been rather a difficult one for Council and the members of the Division in general, and we have seen quite a few changes in our administration. Our elected President, Mr. Keith Grice, 4DG, having to retire from this position owing to a transfer to Atherton, this position was taken over by yours truly, and until one takes office, he doesn't realise just what it entails to keep the workings of the Division running smoothly. Secondly, our Secretary, Mr. Bill Young, 4YA, retired due to a serious illness, leaving the Division in a spot because Bill really had the interests of the Division at heart and had his fingertips on everything associated with the running of the Institute. The appreciation of all members, both in the country and city, was shown in a very appropriate way. The Secretary's position was taken over by Jim Rafter, 4PR, who is very quickly getting into the general swing of the Secretary's job.

It is certainly heartening to see better roll-ups at the general meeting each month, and I am sure that with the band conditions getting better each month, more and more will attend. Our membership over the past twelve months has shown a steady increase, there being approximately 160 financial members in the Division and about 40 of these are in the greater Brisbane area. Our financial position over the past year has been rather sound, although we had to increase membership fees to offset rising cost of various items. Full financial details will appear in "QTC." Our display at the Q'd Industries Fair gave the Division quite a boost from this venture.

The forthcoming year will see us in a new meeting place, State Service Union House, Elizabeth St., City. I strongly urge all members to attend the monthly meetings.

Listeners' Group

This Group was formed with the express purpose of encouraging younger people to become interested in Amateur Radio and electronics in general. After the Group had been formed members seemed to drift away. It has been pointed out to the Division that unless we get someone from among our ranks with the necessary time available to foster the Group, the scheme is doomed to fail. This situation will, I hope, be rectified in the forthcoming year because it is from the young people of today that the new calls will spring from.

Queensland Industries Fair

This Division at the Industries Fair conducted a very interesting working display of an Amateur Radio Station. Many good contacts were made and considerable interest was shown by members of the general public. To all those members who assisted with a loan of equipment and the operation of the station, my sincere thanks and I hope this display will be put on again at future exhibitions.

Reports

QSL Inward and Outward Bureaux.—Both inward and outward QSL Bureaux indicate the amount of cards handled was greater than the previous year, this possibly being due to better band conditions and activity on 21 Mc. increasing. All cards were dispatched promptly. Many thanks to Jack 4JF and Miss Clare O'Brien's unsparing efforts in this regard.

V.h.f.—The past year has been a very successful one as far as 144 Mc. is concerned. The activity on this band has increased considerably and the number of country centres operating has improved. The VK4 distance record for this band has lengthened several times since March last year. The issue of the Limited Licence has helped to increase activity and new stations have sprung up at Warwick and Ipswich. On 50 Mc. during the Ross Hull Contest, 4NG (Rockhampton) made contact with JAIHHS (Japan). Let's hope more records on these bands will be broken by VK4 boys.

Emergency Group

During March this year our Emergency Group Network came into operation and this time I am pleased to say with the complete blessing of the Radio Inspector's Dept. Communication was out with Cairns and some towns north of Townsville and the net was asked to provide communication to those centres, but early in the piece North Q'd was without power. However, on Wednesday, 7th, communication to Cairns was set up and many telegrams were passed both ways. Credit must go to the Chairman of the Emergency Group, Vince 4VJ, for the splendid way in which the whole situation was handled and thanks to Eddie 4EW and Clive 4CC for their unsparing efforts in passing traffic and to all those who participated in this event. Although a lot of criticism was levelled at the Group from various centres we feel this was mostly due to the fact that most centres did not know the correct procedure to adopt. However, seeing this was VK4's first real participation in emergency, experience was gained, and a set policy for all centres to observe will be forthcoming in a future Bulletin to be issued by the Emergency Group.

Contest Committee

Our Contest over the past year has met with good response from the members and some very fine scores have been achieved. VK4 Intra-State Contest was held in April and 4PQ won this event (he receives an order for 2 guineas from a trade house); 2nd, 4HZ (pick-up, re-donated by 4KS); 3rd, 4LF (3 ceramic formers, donated by 4XL). In the "R.D." Contest, 4PQ was first (electric clock, presented by Tracksons); 2nd, 4CC (Geloso mike insert, from Irvines). The prize for the average log score went to 4OX, being an open order on G. Wills and Sons for 5 guineas. There are no results yet of the VK-ZL Contest. Prizes will be: Highest Score in VK4 wins 6 inch Rola Speaker. Highest c.w., Aeos Mike from Chandlers, and the contestant with aggregate score nearest the average for the State will win one toast and rack toaster from E. V. Hudson for phone, and a dynamic mike and stand from Chandlers for c.w. My thanks to Contest Committee for their efforts throughout the year in conducting these events.

Country Report

Although most country centres have been very active with their own groups, both h.f. and v.h.f., no report has come to hand in time for

inclusion here. The country hook-ups have been fairly regular every week.

In conclusion I wish to thank the Council and all members who have assisted me so much in the past year. To the retiring Council I say we are all sorry to see you leave and I wish the new Council every success in the forthcoming year. To all members of this Division I say support your Council and Division, attend your general meetings, give Council your problems so that they may help you. On the air be courteous, always willing to help the other fellow, abide by the regulations and last, but not least, remember TV is not just around the corner, it's here!

(Signed) Frank B. Bond (4ZM), President.

TOWNSVILLE

The cyclone that hit Townsville did untold damage around this QTH. A large igloo alongside my fence and another behind my house lost many hundred sheets of iron and to cap it, I lost my 3 el. on 20 mx, 2 el. on 15 mx, and folded dipole on 40 mx were all wrecked, but fortunately the tower still stands. Ted 4EJ lost his tower, together with his new ZL Special; hard luck Ted, all the boys will give you a hand when you are ready.

Power and telephone lines were down in many places and it was around 5 p.m. Wednesday night that John 4DK came on with power from Kalamari Sugar Mill. He informed the Police and Postmaster at Ayr he was in contact with a station near Townsville (4RW) and if required could help pass traffic, but no one interested, even though a bank-up of telegrams were awaiting despatch. I was then asked by 4AW in Brisbane to organise a net to Cairns, and after much trying, Andy 4BW (in Mareeba) contacted the local Police to get a message through to Police in Cairns to have one of the local Amateur Stations come on the air, but again no one interested. So much for Brisbane asking for a net station.

Later on Ted 4MH came on for traffic handling. Harry 4HK (Atherton) came in with a message, which was eventually passed to 4AW on Thursday morning after approval had been given. Norm 4NT, who was in Gunnedah last year in the floods and handled emergency traffic, moved to Mareeba to be away from floods, and this time he was again called upon and his station was manned by himself and Bob, one of the local F.M.G. operators, and many hundred telegrams were passed as official channels were closed.

Thursday night 4BW opened up with traffic to 4RW on 7 Mc, which was taken by 4BX to re-transmit on 14 Mc. to Brisbane. Good work, Graham.

Frank 4FC at Ingham did yeoman service for his township with traffic handling.

Our club is asking that all dope on "Emergency Net," as set up in Brisbane, should be distributed to all Amateurs in country areas.

Any boys in the north not mentioned handling traffic, many thanks as I could not hear everyone.—4RW.

SOUTH AUSTRALIA

The rate the months rush by these days make me quite sure that when Gabriel blows his silver trumpet I'll still be writing notes for "A.R." For the time being they seem to be well back into my lap in spite of all my attempts to unload them. For the past thirteen years at this time, too, it has always been Doc's privilege to have his annual smack-back at the ex-venerable purveyor of meadow chaff—yes, you remember right, 5PS to wit! Not all the enticements I could muster would change Doc's steady No. No! No!

Another general meeting brought forth a bumper crop of members and visitors. Whether it was the prospect of getting some new gear or merely the not disappointing hopes of a first class entertainment from Dougal and Norm which drew the crowd, I'm not prepared to say. The usual welcome to visitors—Messrs. McKellor, Cant, Arbon, Yelland, Taylor (ex-VK3) and Maxted—was made by the President, Mr. John Bulling, after he had been accepted by the members with great acclamation. Back into the fold for the evening was Don 5DX, brought along by Dave 5BF. These two run a sked on 80 mx each evening. John disposed of the business in double quick time and the QSL cards and smoko were taken together. The members then settled down to some tendering—and, by the way, some proceeded, and all would have been there yet! Thanks Dougal and Norm for all your help.

Last year, Warwick 5PS was domiciled for his holidays at Oakbank. Having taken the precaution of borrowing my Type 3 Mk. II. beforehand and finding the National Field Day coinciding with quite a few contacts he had

made, he submitted a log—and won the State award! This year the F.C.C. tricked him by reverting the date to Feb. 12 and now nobody's on speaking terms, although 5WI did condescend to work him on Sunday morning.

Council invited Les 5LC to fill the vacancy in the ranks and last Wednesday (4th) John 5KX, who was in the chair, gave Les a warm welcome. Those present immediately thought of all the jobs that could be unloaded onto Les and finally knowing a "little bit" about this game of DX and Contests, he accepted a nomination to the Federal Contest Committee. His name, together with Gordon 5XU, Reg 5QR, Reg 5RR, and Rex 5DO, will be forwarded to Federal Executive for acceptance by Federal Council.

The T.v.I. Executive Committee is forging ahead with its plans and will open the barrage at the May meeting. Ian 5ZAM, who is right in the thick of t.v. at a local industry, will open the lecture and he will be followed by Phil 5ZAD. Ray 5BT will be the last to speak, but what he has to say will not be least. So whatever you do chaps, don't miss this series of lectures on what's wrong and how to fix it!

Members will be sad to hear that Len 5YF is very ill in hospital as of writing and Council has written to Mrs. Sawford expressing sincere sympathy on your behalf. I hope that by the time this is printed that Len will have turned the corner and be well on the road to recovery. Lance 5WF ("Inky" to you) is also having his share of ill-health and to you also we send our "get-well" signals OM. We are all very glad to see Alan 5VO about on his feet again. See that you keep us happy, Alan!

Called on Clem 5GL the other evening to find him amidst hunks of quartz, grinding and cutting for the lick of his life. He showed me his latest "acquisition"—a 2 inch slab, cut from a crystal at least 10 inches across which was almost flawless. The loveliest specimen that I have ever seen, which will no doubt be keeping some of the v.h.f. tx's on frequency before very long. Clem knows his stuff on this game and one day when he gets time off from making "rocks" he's going to make two tape recordings for the country chaps—aren't you, Clem! Side-step that one OM. Clem is also one of the members of the Technical Advisory Committee.

EYRE'S PENINSULA

Way out at Ceduna, George 5EC still xtal control on 7046 Kc., working hard fitting out the Bush Church Aid Medical Service area with

transceivers. Doesn't find much time to "ham" these days, but puts a beautiful signal into Adelaide when he does. Further East the Lincoln boys are becoming active with Pat 5LT burning up his "mike" with the hot DX that he is working—notice you're back into the fold again too, Pat, nice work; we like to have you all in the W.I.A. Jack 5VJ has a new shack with a house around it, but we haven't heard too much of you over here yet; what about it? Wally 5DF busy swotting how to turn H2O into ECO using a pair of 866s—seem to have that mixed somehow; never mind Wally, time will right all wrongs they say. Norm 5YM forsaking Wedge Island for fairer sights in Lincoln. Just what happens to those wild goats Norm?

LOWER NORTH AREA

From the area of bigger and better tx's, rx and beams, comes word that Ern 5EN has nearly completed his 22 tube converter, xtal, of course! to work on all bands. Bob 5RI been making changes in the bands not for me to comment on. Les 5AX trying his hand on mobile outfits and almost took my offer of a Type 3 but still had a few grey hairs left to tear out, so turned it down. VK3s will look for that lost signal Les—give them a ring on the phone; hope you have a good trip anyhow.

Comps 5EF laid low by the thought of a lecture on 144 Mc. gear, but says when his two tubes are not gassy, he'll come good. Hurry up and get well OM.

SOUTH EAST AREA

This land of promise visited by Joe 5JO, Charlie 5QN and Doc 5MD over Easter weekend. Charlie and Joe portable; sounded like there was water in the mike Joe when I heard you! The meeting last month was graced by the usual roll up with the evening taken up with some 35 mm. colour slides and a session of monthly activities. The 2 mx gang still running their session every Monday evening and Erg 5KU reports this period as the only time when Tom 5TW is heard.

Col 5CJ and Claude 5CH active occasionally on 40 mx. Stuart 5MS interested in a new hobby called "Zephyr" which is reducing the QRM on the DX bands—a temporary respite we hope. John 5FD still hasn't found out if his rig works—spends every week-end on the lakes water ski-ing. Thrills and spills a-plenty. Erg 5KU looking for DX on 20 mx, but expects to get back in the air as well as on it when the new sail-plane arrives from Adelaide soon. (Thanks for the news Erg.)

Occasionally one of our birds of paradise flies eastwards and the VK3 boys turn on the hospitality. Frank 5MZ, having migrated back home from the "big smoke" to our quiet village on the Torrens, is still radiating good cheer to all around him. Many Amateurs rallied round to make a wonderful time for Frank, who said, "There's no doubt about the Preston boys." Frank tells me that the VK3 gang rush the VK5 notes—hmm. I'd better go read up those libel laws again, just to be sure!

Just a sober note to close chaps. S.w.'s. are keen prospective Amateurs, but just occasionally where there is a disability, like blindness, s.w. listening is life in a broader world and answers to reports on our signals with a QSL card mean more than a piece of paper embossed with a call sign.

WESTERN AUSTRALIA

Sorry about missing last month's notes, chaps. What with shifting QTH and one thing and another, things became a little sticky at times. Many VK6s recently had the pleasure of meeting

TECHNICIAN WANTED

Relieving Technician, holder of 1st Class C.O.C.P., required by Church of England Flying Medical Services, for all or part of period from last week July to end October. Relieve Radio Officer in charge transceiver network for holidays. Good conditions, plenty fishing.

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Dec., 1954.

W2APF, Uncle Dave, who visited this State in the course of an unofficial goodwill tour of the world. Dave proved to be quite a character. Those who attended the Feb. meeting of the Division had the pleasure of hearing Dave lecture on the emergency work done by Amateur operators in the recent disastrous floods on the East coast of U.S.A. Dave's next port of call was to be Singapore, and he was worked by some of our 20 mx boys from the shack of V56CZ.

The visit to Kwinana Refinery proved to be successful—a party of 50 attended. Suggestions for visits to other places of interest have been coming forward and will be dealt with by the new Council.

Talking of the new Council, nominations which have been submitted are: 6TP, 6MK, 6KW, 6RU, 6BE, 6TR, 6AG, 6FT and 6HR. Since there were nine vacancies, there will be no ballot and those nominated will be the incoming Council.

Motions of appreciation have been passed in recognition of the work done by the retiring members, 6LJ and 6GM, both of whom have given their services over a number of years.

Thanks have been expressed by the Narragin Car Club for the part played by Amateurs in the recent car trial. W.A. Amateurs worked stations at Narragin, Norseman, Esperance, Albany and Bunbury. Communication was successfully maintained over the whole period of the trial.

That's enough of business, girls, so if you'll pull your chairs around, I'll pass on a bit of gossip, I've picked up here and there. Don 6ZAK; what happened at Narragin? I've been looking at a photo. 6TK was seen shooting through town on his way to the East. 6WJ has been demonstrating his t.v. gear to interested parties. Tom 6TH, of Brunswick, has been snatching time for meals between Ham Radio. Tom, incidentally, is the first VK6Z call to gain the full licence. 6RK made a brief appearance on 80 mx the other night; heard him telling 6EJ something about 2 mx gear. 6ZAA and chauffeur, 6BE, intend making a trip to 6EJ's QTH to convince Jack that 2 mx working with Perth is a workable proposition. Jack is busy building a 5/5 beam for 2 mx. 6BE and 6ZAA intend to continue on to Kalgoorlie from Ben-cubbin and try to work back to Perth from there. Now that they have given him some a.c., 6JR has been making regular appearances on 40 and 80 mx. Glad to meet you, Jim.

TASMANIA

The Annual General Meeting and Dinner, marking a quarter of a century of W.I.A. activity in Tasmania, was successfully organised by the central Tasmanian group lead by Reg 7WN. The meeting was preceded by an extensive tour of the Hydro Electric Commission's Dam Canal, Artificial Lake and Power Station installations. General business was freely discussed and recommendations made for the incoming Council.

Worthy tribute in the guise of Life Membership of the Tasmanian Division was voted on Bob 7OM for his sterling work in Institute affairs over the years. Snowy 7CH has compiled a record of Institute activity since the formation of the Division. The record will be available for perusal in due course and any items of your knowledge not included and worthy of inclusion indicate QSO with Chas forthwith.

With business completed, all adjourned to the H.E.C. Staff Mess where an excellent repast was provided. Mr. Lionel Nutting represented the H.E.C. and Mr. Peter Dunne represented the P.M.G.'s Dept. Following dinner, the party in three groups swooped upon the QTH of associate Bill Ion, associate Ken Shotten and yours truly, 7BR.

The week-end was rounded off on Sunday with a tour of Clark Dam, Lake King William, and the major power stations. Visiting XYLs were domiciled and entertained by Joan, Mavis, Patricia and Rene—a mighty effort girls, we are proud of you.

Jim 7O had "drive" trouble with his vehicle on return trip. Jim's portable midget tx-rx worthy of mention; three wrecked "S" meters prove it worked up here. Ken 7KA also in vehicle trouble after certain gent's manipulation with "exciter" leads. Reverse direction in forward gear, what? Late arrival Sid 7SF and crew arrived in time to accompany 7LS on the northward exit. Sid acquired an aircraft fuselage at a local sale for his new shack. When are you going "airborne mobile" OM? Roy 7RN, with associate Jeff, called, complete with camping body, tx and whelp. Len 7LS put out first QRM from the new QTH. Bill 7YJ arranging the ownership of some particularly savage breed of canine from John 7AG. One for the front and one for rear gate. Are the b.c.'s that enraged Bill? Rupt 7RM heard frequently selling the virtues of converted AT5 and his successes

with same. The old wise bird again arrived at 7ER's QTH, this time without error in sex. Welcome Julie, understand Poppa now studying radar controlled shot guns.

7LX heard from Northern Zone on 40 mx. Brother you must be the sole survivor of the low bands up there, if the lack of activity is indicative. Associate Bill Ion faces the exam. during April, best of luck. OM. Tom 7AL finally heard at good strength with the broadcast, and off the back of the terminating resistor, too, OM. Joe 7BJ, deputising for the official Broadcast, put in f.b. sig all round recently; bet you do not use a terminating resistor, Joe. Well chaps, if you are not mentioned, you are not heard on the bands. You have not been spied upon and my address is in the magazine. Help me, help you in the coming year. Let me know what you are up to or what your fellow OMs are up to and the editor may print it.—7BR.

NORTHERN ZONE

This month's activities appear to have centred around the DX bands and 2 mx tx hunts. Col 7LZ has worked some rare South African stations on phone; are my spies correct? Seems 21 Mc. is a phone man's paradise. However, 7RK seems oblivious to it all, as he is no doubt still pounding the ivories. Max 7CA has temporarily given away Amateur Radio for house dx-ing.

Most other members have had some real fun in locating a mobile 2 mx tx on a night a few weeks ago, although one suggests a speed limit should be imposed on participating hares, otherwise a crash appears imminent. Must be our "killer" instincts! 2 mx DX activity has been practically non-existent, very little being heard in that direction from 7PF, 7GM or 7ZAW.

Ken 7LX had an interesting contact—mobile to mobile—with 2ASA on 7 Mc.; which augurs well for the trip in May. Heard David 7AC ragchewing about v.h.f. on 40 mx recently; a break due to University holidays no doubt David.—7LX.

PAPUA—NEW GUINEA

By the time these notes reach print, it should see our President, Frank 9FN, back in the fold after three months' leave and full of vim and vigor for the job of getting 500w. of r.f. into the W.I.A. station, 9WI. Two of our other members also back from the big smoke—9AU, who I understand is now in hospital, hope it wasn't the shock of coming back Roy! Also Trevor 9TC is now located at Kavieng and looks forward to adding some ergs from that direction to replace the regular effort of 9HO, who is reported to be south. I understand that Jack Cheney, who Trevor replaces, may be coming to Wau, in which case it is hoped that Jack may be able to find the time and inclination to take over the activities of the Wau Radio Club from 9RM when he goes south in June. We have new associate members in Norm Meanie at Moresby and Glen King at Lae. Glen is building up a hot rx for s.w.l. with an eye to a ticket in the near future, and we all wish you success OM. 9AB has proceeded to N.Z. and 9CR to VK3 land, but hope that they will be returning at some future date.

Of interest to most members is the fact that our Sec. at Box 56, Moresby, has some very nice log books available at 5/3, which includes postage, and our Sec. also wishes to remind members that fees for the ensuing year are now due and to date the response has been very gratifying. Doug 9DB has a wager going with 9RM in a W.A.S. duel. At the present time, they are neck and neck with six to go to complete the tally of forty-eight States worked. Another associate member recently to join up is John Beach, of D.C.A. in Moresby.

Of general interest to all Amateurs is the announcement from Prof. Webster, of the Queensland University stating that in the coming Geophysical Year there will be considerable activity to be observed in the 14 Mc. band and higher, due to the Aurora Polaris. Dr. Gerson, of the U.S.A., states that it is anticipated that freak conditions will be prevailing and all Amateurs are asked to send in their names to Divisional Hdq. if they are prepared to assist in keeping data, particularly in the u.h.f. bands. As this letter was addressed to F.E., it is apparently felt that Amateurs generally will be able to play an important part in just what goes on up in the ionosphere, so your co-operation would be appreciated, with the distinct possibility that we can contribute something really worthwhile to the science of radio propagation. While you are giving this matter your attention, you may even knock off a world's record for DX in the u.h.f. bands and change the scenery in "QST" record listings.

We are all anxious to hear from the Rabaul gang and would sure like to get a note from one or all of the half dozen in that QTH. Conditions generally are punk for a QSO on the

40 mx Sunday morning hook-up, although occasionally they show up working DX on 20 and 15 mx through the week. This is now the only out-station area we don't hear from consistently, so how about some of you fellows putting pen to paper and make these notes truly representative of the news for our local Division?

Now we have had our own Division functioning successfully for the first year, how about if we all put our shoulder to the wheel and make this second year even more successful by each contributing a little that will strengthen the bonds to the benefit of all instead of leaving it to the other chap? It should hardly be necessary to repeat the oft-spoken words of wisdom which frequently show up in "A.R." editorials that if it were not for the W.I.A. and A.R.R.L. and similar organisations to represent us as a body in world-wide conferences relating to the allocation of frequencies, that in next to no time the enjoyment of our favourite hobby would be a thing of the past.

Without being too critical of the other chap's performance, let's hear what you have to offer as your contribution for the common good. After all, that's what these notes are intended for.

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: AMR300; complete Xmitter or Units; Power Packs 500-1500v. aside; Mod. 807s; p.a. 834s p.p.; p.a. 24Gs p.p.; cheap. A. Shaw, C/o P.O. S. Brisbane, Phone: J 6526.

SELL: ART2B Tx-Rx complete with dual pwr. supply—12v. d.c. or 240v. a.c., plus original generator supply, £60. D. Williams, St. Pauls Rd., Sorrento, Vic.

SELL: CRV American Tx, new, 815 p.a., 815 mod., etc., less pwr. or exchange for good Rx. Davies, 31 Jackson St., Toorak, Vic.

SELL: RF24 Converter, modified to cover 20, 15, 11 and 10 metres, as new, £7/10/-. Jones, 25 Panoramic Road, North Balwyn, Vic.

SELL: Type 3 Mk. II. Screen Modulated, 10 mx Converter, Command V.f.o., Freq. Meter, will separate or swop for 2 mx gear. L. Hoobin, 448 Glenhuntingly Rd., South Caulfield, Vic. LF 9794.

WANTED: Beam rotating mechanism complete with selsyns, transformer, indicator, etc. L. R. Bradshaw, 9 Grange Road, Toorak, Vic. (BJ 1903).

WANTED: HRO Coil Box 14 to 30 Mc. Bill Lewis, 383 Oxford St., Paddington, N.S.W. FA 4967.

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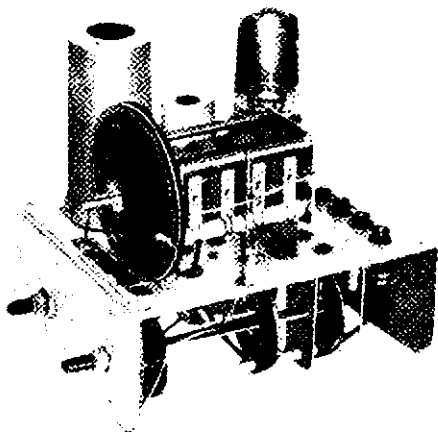
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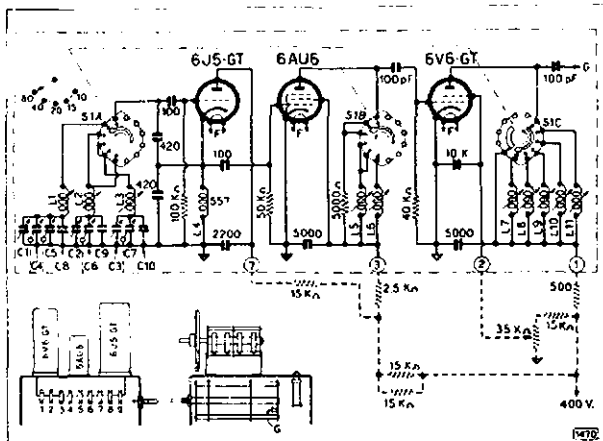
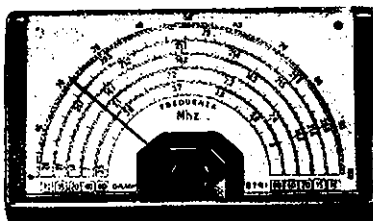
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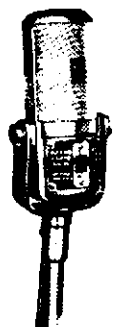
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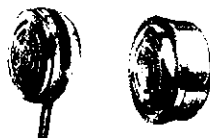
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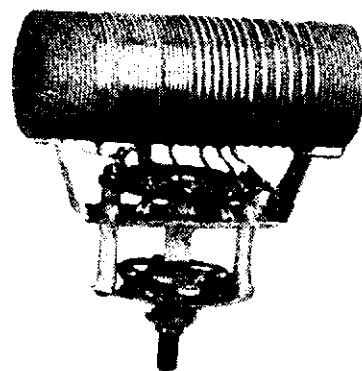
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JUNE
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EDITORIAL



REGULATIONS

For the first time in many a long day the Postmaster-General's Department has directed to all Commonwealth of Australia licensed Amateurs a notice concerning amendments to the "Handbook for Operators of Amateur Wireless Stations." Some previous amendments, which were never notified direct, were included in the 1954 edition of the Handbook.

Although the Department has been somewhat tardy in issuing notices of amendments to the "Handbook for Operators of Amateur Wireless Stations," in most cases the Australian Amateur has "heard" about the change as soon as it has been made public, but oft times gets the story wrong. The delay between the release of official changes and/or additions to Amateur Regulations by the W.I.A. and the official notification to individual Amateurs leaves much to be desired.

The fact that the W.I.A. negotiates with the Department for variations in existing regulations, or the inclusion of new ones affording more suitable operating conditions for the Australian Amateur, does not in itself constitute automatic advice to every Amateur in the Commonwealth since some are not members of the W.I.A. nor do they necessarily read the official journal—"Amateur Radio." By the same token the Department is not under any provision of law to notify each and every Amateur so long as some formal notification appears in the Government Gazette. This may also appear in local daily newspapers for the better dissemination to those concerned.

This is not a foolproof way of ensuring that every Amateur has been notified of the change. There are, perhaps, some who choose to dis-

regard notifications unless they are addressed to them personally from the Postmaster-General himself—that is of course if the change is one with which they disagree. A rumour of an agreeable change, however, is quickly passed by grapevine and acted on!

This position should never be permitted to arise! And yet the Department should not be expected to have to advise every single change to each Amateur immediately, any more than the Motor Transport Department should have to forward all licensed motorists a copy of changes in motoring regulations. The cost and time for so doing is not a fair burden to expect any State or Commonwealth Department to carry—and remember you pay the taxes to keep the Civil Service functioning.

What then can be done about it? The Government Gazette is not easily available to each and every Amateur—particularly those away out in rural areas. Notifications in the daily press are not written in a manner which conveys the legal information but are rather dramatised as a news item. The answer seems to be to officially transmit the information concurrently with its appearance in "Amateur Radio." The Federal station, VK3WIA, has been granted higher power for the purpose of official broadcasts to Amateurs of Australia and the Mandated Territories and it is the intention to seek the approval of the Postmaster-General for this system to be officially recognised as the voice of information. Transmissions conveying official information would be radiated in all Amateur bands at regular intervals over a reasonable period of time so that ALL Amateurs should have cause to hear and accept.

FEDERAL EXECUTIVE.

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Building a Panoramic Adaptor

BY K. M. SAXON,* VK7AI

ONE of the most fascinating electronic devices to have around the Amateur shack is the panoramic adaptor. By means of this piece of equipment it is possible to produce on a cathode ray tube screen a visual presentation of the strength, frequency and type of signal over a predetermined range of frequencies, centred on the signal to which the communications receiver is tuned.

Panoramic reception first came into use during the last war as an aid to monitoring the h.f. spectrum, where it reduced the number of operators required to cover a given frequency range, as any suspicious signal appearing, even momentarily, on the screen could be tuned to and investigated. Also, it proved invaluable at Air Force base stations, where slightly off frequency transmissions from aircraft could be quickly seen.

In the Amateur Station its uses are numerous. Band scanning and watching for clear channels in which to call CQ are facilitated. Transmissions can be checked for depth of modulation and bandwidth, and such troubles as splatter, key clicks and parasitics are readily observed. With highly selective receivers it is extremely valuable when looking for c.w. or s.s.b. signals, as there is practically no possibility of tuning over a station when, momentarily, it is not transmitting. With aural reception by itself this can happen, even when a c.w. station is known to be near a certain frequency.

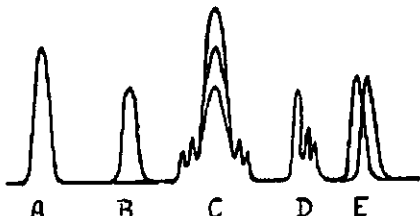


Fig. 1.—Presentation of Signals.

"A"—Unmodulated carrier. "B"—C.w. signal. "C"—Amplitude modulated signal. "D"—Single sideband suppressed carrier. "E"—Frequency shift keyed signal.

Often, too, it is possible to watch and identify the "v.f.o. swishers" who produce QRM by leaving their finals on when moving from one end of the band to the other.

In contest work it is almost indispensable, particularly with selective receivers. A known signal can be watched whilst searching for other signals, and the position of your own v.f.o. shows up instantly, thus netting is possible without even looking at the v.f.o. or receiver dials to see whether the v.f.o. has to be tuned higher or lower in frequency. The whereabouts of strong signals causing splatter can be seen and the signal which has just appeared several kilocycles away can be tuned to immediately and identified long before he has stopped calling CQ! Then,

* C/o. Clifton Private Bag, Somerset, Tasmania.

too, its effect on non-technical visitors is most impressive. They'll not forget it, nor will the technical visitor, who has not seen one before.

A separate receiver could be used for panoramic reception, but it is more economical and convenient to use a panoramic adaptor which is simply connected to the plate of the first mixer in the station receiver. Thus the one tuning system suffices for both aural and visual reception, giving the added advantage that the signal to which the receiver is tuned, normally appears in the centre of the screen.

PRINCIPLES OF THE PANADAPTOR

The essentials of the panadaptor are shown in the block diagram (Fig. 2). It consists of a superhet receiver having a broadband r.f. stage and a sharp i.f. stage, the tuning of the broadband r.f.

at any one time, but in the panadaptor, the local oscillator is frequency modulated over the desired band. The band of frequencies thus swept by the panadaptor is selected by tuning the main receiver in the usual way.

To obtain a linear frequency deviation, the reactance tube is supplied with a voltage of linear sawtooth waveform. This varies the frequency from one end of the sweep range to the other, at a relatively slow constant rate, then it is quickly flicked back to start the cycle again. A repetition rate of at least 25 c.p.s. is required to prevent flicker on the screen and 50 c.p.s. is usually chosen, to be in synchronisation with the a.c. mains supply, and thus reduce hum effects.

The r.f. stage of the panadaptor is broadbanded to provide a reasonably flat response over the required range of frequencies, which is often about plus

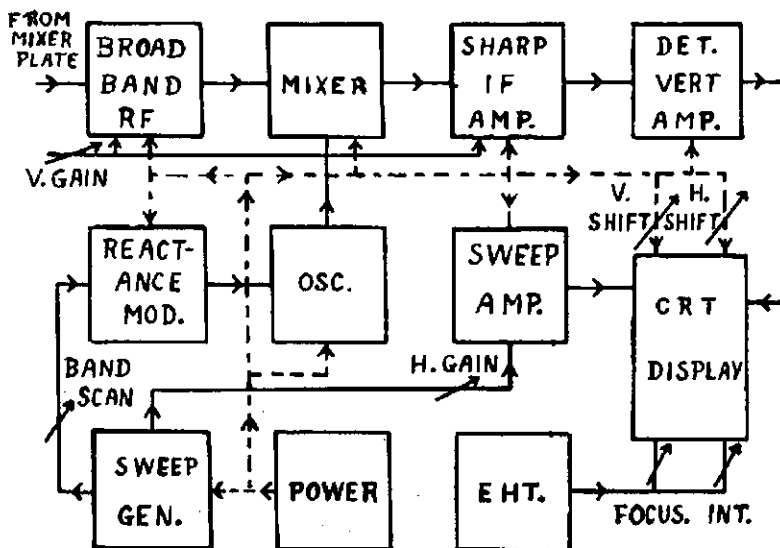


Fig. 2.

stage being centred on the first intermediate frequency of the communications receiver. The oscillator is varied over the required range by means of a reactance tube modulator, and the detector output is amplified and fed to the c.r.t. display unit.

The bandwidth which can be scanned is controllable, from the maximum practicable bandwidth of the r.f. stage to zero. In this latter state, the panadaptor works as if it were an ordinary double conversion receiver and the audio content will appear on the screen, or can be monitored at the plate of the vertical amplifier.

In an ordinary superhet receiver, of course, to cover a band of frequencies, the h.f. oscillator is varied and, as the h.f. tuned circuits are not particularly selective, it is possible to cover a hundred kilocycles or so by tuning the oscillator alone. In normal use, a receiver oscillator is fixed in frequency

or minus 50 to 100 Kc. Often, the stage is given a rising characteristic towards the edges of the band to compensate for the falling characteristic of the front end of the receiver. The higher the first i.f. of the receiver, the easier it is to obtain the desired bandwidth.

The input is connected through an isolating resistor to the plate of the first mixer of the receiver as all signals passed by the bandwidth of the receiver r.f. stage appear here. It is preferable for the receiver to have only one r.f. stage, as more would cause greater attenuation towards the edges of the desired pass-band, particularly on the lower frequency bands.

The i.f. stage of the panadaptor should be as selective as practicable to give good definition and separation between signals.

The second detector output is fed to the vertical deflection plates of the cathode ray tube and gives a pattern

as illustrated in Fig. 1, when the horizontal sweep is fed from the same sawtooth that drives the reactance tube modulator. The vertical amplifier is direct-coupled to prevent the base line of the c.r.t. tube pattern from moving downwards when a large number of strong signals is being displayed.

AUXILIARY USE

If there is no other modulation monitor in the station, it is a simple matter to install a switch or a relay in the leads to the c.r.t. deflection plates so that they may be connected to the panadapter circuits for reception, and to the transmitter r.f. output and modulating voltages during transmission for

trapezoidal patterns. If modulation envelope patterns are desired, the 50 c.p.s. linear sweep could be used, in which case, only the leads to the vertical deflection plates would need to be switched.

THE CIRCUIT

The complete circuit diagram is given in Fig. 3.

A 6BA6 (V1) is used to give good gain in the broadband r.f. stage. Capacitors C35 and C36 serve to overcouple the two i.f. transformers.

The converter (V2) is a 6AN7. From an i.f. of, say, 455 Kc., when the sweep range is plus or minus 50 Kc., the signal input to the panadapter will be between 405 and 505 Kc. To produce the adap-

tor i.f. of 175 Kc., the oscillator section of the converter must be varied over the range from $405 + 175 = 580$ Kc. to $505 + 175 = 680$ Kc., that is a centre frequency of $455 + 175 = 630$ Kc. plus or minus 50 Kc. To do this a 6AC7 (V6) is used as a reactance tube modulator connected across the oscillator coil, L1.

The phasing network consisting of R25, R26 and C20, is fairly critical, the values given serving for 455 or 910 Kc. inputs. For 1600 Kc. input, C20 may need to be smaller in capacitance, or it may not be required at all. If this capacitor is too small, placing the reactance tube across the oscillator coil will seriously reduce the oscillator grid current.

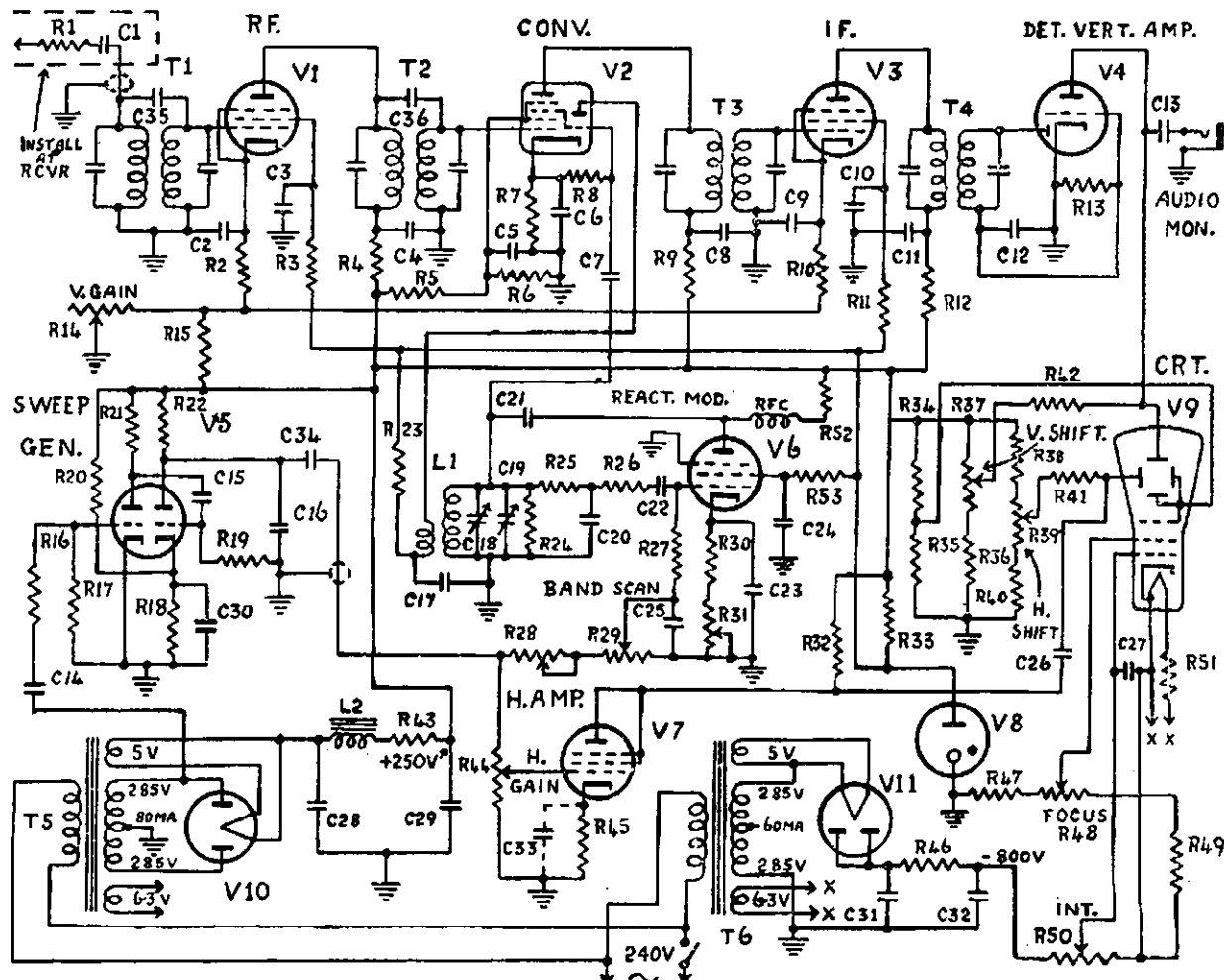


Fig. 3.

- C1—0.001 uF. mica.
- C2, C6, C8, C9, C10, C11, C23, C26—0.1 uF.
- C3, C4, C5, C13, C17, C24—0.01 uF.
- C7, C22—100 pF. mica.
- C12, C15, C21—500 pF. mica.
- C14—0.05 uF. 600v.
- C16, C34—0.25 uF. 600v.
- C18—150 pF. (see text).
- C19—35 pF. variable, centring control.
- C20—10 pF. mica or ceramic.
- C25—250 pF. mica.
- C27—0.5 uF. 400v.
- C28, C29—18 uF. 600v.
- C30, C33—25 uF. 25v.
- C31, C32—1 uF. 1,000v.
- C35, C36—50 pF. mica.
- R1, R8, R24, R46—47,000 ohms.
- R2—88 ohms.
- R3—15,000 ohms.
- R4, R9, R12, R53—2,200 ohms.
- R5, R6—27,000 ohms.

- R7—220 ohms.
- R10—270 ohms.
- R11, R25, R26—22,000 ohms.
- R13, R15, R20, R32, R34, R35, R36, R38, R40.
- R42, R49—100,000 ohms.
- R14—10,000 ohms w.w. potentiometer (H. gain).
- R16, R17—1 megohm.
- R18—5,100 ohms.
- R19, R27—220,000 ohms.
- R23, R52—10,000 ohms.
- R28, R44—1 megohm potentiometers.
- R29—100,000 ohm potentiometers (bandscan).
- R30—100 ohms.
- R31—5,000 ohms w.w. potentiometer.
- R33—5,000 ohms 20w. w.w.
- R37, R39—100,000 ohm pots., linear taper.
- R41—2.2 megohms.
- R43—1,000 ohms 20w. (adjust to give h.t. of 250v.).
- R45—1,000 ohms 1w.

- R47—470,000 ohms 2w.
- R48—500,000 ohms potentiometer (Focus).
- R50—50,000 ohms potentiometer (Intensity).
- R51—Heater dropping resistor, if required.
- RFC—13 mH. Edgystone r.f. choke.
- L1—Oscillator coil (see text).
- L2—15H. 80 Ma. filter choke.
- T1, T2—i.f. transformers to suit receiver i.f.
- T3, T4—175 Kc. i.f. transformers.
- T5—285v. aside at 80 Ma.; 5v. at 2a.; 6.3v. at 2a.
- T6—285v. aside at 60 Ma.; 5v. at 2a.; 6.3v. at 2a.
- V1—6BA6.
- V2—6AN7.
- V3—6N8.
- V4—6AV6.
- V5—6SN7GT or 12AU7.
- V6, V7—6AC7.
- V8—VR150/30.
- V9—VCR139; DG7-6 (or 5); 3BP1, etc.
- V10, V11—5Y3GT.



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The oscillator coil, LI, can be a b.f.o. coil for 455 Kc., a b.c. oscillator coil for 910 Kc., or a home-made one for 1600 Kc. Its inductance should be kept as high as practicable, by screwing the iron slug nearly right in, as then it is easier to obtain the required frequency deviation. The oscillator tuning capacitor, C18, can be either variable, or a fixed mica in parallel with a trimmer. Its value must be calculated or determined experimentally to suit the coil. C19 is a panel-controlled trimmer for centring purposes and for correcting for any drift in the receiver or panadaptor circuits.

If the adaptor is to be used with a receiver having a first i.f. of 1600 Kc., whether the oscillator is above or below this frequency will depend upon whether any of its harmonics fall in an Amateur band. Moving the oscillator to the other side of the input frequency may move the harmonics out of harms way, if the shielding doesn't eliminate them. Remember also, that the oscillator frequency varies plus or minus 50 Kc. No trouble should be encountered when using 910 Kc. or lower intermediate frequencies.

The linearity of the reactance tube is adjusted by means of R31 in the cathode circuit of V6.

The i.f. amplifier is quite conventional. A 6AV6 (V4) is used for the diode detector and vertical amplifier. As this is a high- μ valve, no bias is necessary in this application, and the grid is direct-coupled to the diode circuit. The plate is connected directly to the c.r. tube deflection plate and its load resistor R42 is taken to the vertical shift control R37 which is normally adjusted to place the baseline nearly half an inch below the centre of the c.r. tube screen.

The sawtooth generator, V5, uses a 6SN7. One half squares the 50 cycle a.c., which is then differentiated by R19 and C15, the short positive pulses thus obtained trigger the second section, which discharges the sawtooth capacitor C16. This capacitor charges exponentially through R22, the valve section being normally biased beyond cut-off. The values used for R22 and C16 give a sawtooth of adequate linearity and amplitude. Other types of sawtooth generator could be used, but this circuit is reliable and easy to get going.

The horizontal amplifier V7 is a 6AC7 triode connected. No cathode by-pass is normally used, the degeneration thus produced provides better linearity. No great amplification is called for, as the output from the sweep generator is quite high, the major requirement being that the stage can supply adequate output voltage to give full linear deflection of the trace.

For the c.r. tube (V9) a three inch type is recommended. Two inch types hardly provide sufficient resolution, whilst five inch types take up too much space besides requiring push-pull horizontal deflection amplifiers and a higher anode voltage supply, but they are otherwise excellent. If a tube with other than a 6.3v. heater is to be used from a 6.3v. winding, a suitable dropping resistor, R51, will be needed.

Two receiver type transformers are used for the power supply. One, T6, utilises the full secondary voltage in a half wave circuit to provide the e.h.t. supply for the c.r. tube. This is one suggestion for obtaining the required volt-

tage but any other suitable transformer and rectifier could be used.

As a refinement, retrace blanking could be applied to the c.r. tube, but this is not essential.

CONSTRUCTION

The panadaptor can be built on a 12" x 17" x 3" chassis with an 8 $\frac{1}{2}$ " x 19" panel. Normal receiver construction practices are used throughout so no particular difficulty should be encountered by any Amateur who builds his own equipment.

Layout is not critical. The c.r. tube can be mounted centrally on the panel near the top edge. The transformers can be placed to the left of the chassis, the sweep generator, horizontal and vertical amplifiers in the centre under the c.r. tube, with the i.f. stage next and the r.f. stage on the right, placing the converter and reactance tube between the r.f. and i.f. stages and the panel.

If used with a BC348 series receiver, i.f. transformers can be adapted for the r.f. stage by removing turns from 455 Kc. transformers as well as reducing the tuning capacitance to about half.

The whole converter, oscillator and reactance tube circuits should be well shielded, particularly when used with the higher intermediate frequencies, to prevent radiation of harmonics.

A magnetic shield is desirable for the c.r. tube. Mu metal is best, but a length of water pipe, or two concentric shields made of light gauge sheet steel with about $\frac{1}{4}$ " spacing between the two would no doubt be satisfactory. As the sweep is synchronised with the a.c. supply frequency, any deflection caused by stray fields will remain stationary.

The shift, focus and intensity controls can be located symmetrically around the tube. The two gain controls, the bandscan control and the centring trimmer are mounted in a line about 1 $\frac{1}{2}$ " from the bottom edge of the panel. The intensity and focus potentiometers should be mounted on insulated brackets and driven through insulated couplings. All exposed potentiometer terminals should be insulated with tape or tubing; your life expectancy is thereby increased!

Connection to the receiver is by means of a length of co-axial cable. A co-ax socket can be mounted conveniently on the receiver, or if it is not desired to cut a hole in the receiver, the socket could be mounted on a bracket in a suitable place as close to the mixer as possible, R1 being connected straight to the plate pin of the mixer valve.

With a BC348 receiver, the co-ax socket can be placed near the top right hand corner of the dial where a resistor in the dial light circuit was mounted behind the panel. From there R1 and C1 are easily connected to the plate of the mixer.

A scale made from thin perspex and calibrated in kilocycles either side of centre can be placed over the screen. This also would serve to protect the screen from breakage.

ADJUSTMENT

After thoroughly checking the wiring, apply the h.t. to the c.r. tube and focus the spot at low intensity.

Now apply the h.t. to the receiver section and centre the spot by means of the shift controls. Adjust the hori-

zontal gain to give a trace of suitable length and align the c.r. tube so that the trace is actually horizontal.

Next, line up the i.f. amplifier with a signal generator, using the c.r. tube as the indicator. (The trace should be deflected by any signal.) Make sure the vertical deflection is upwards. This may mean rotating the tube 180 degrees if one of the vertical deflection plates is connected to the second anode internally. The horizontal deflection should sweep from left to right, but in some tubes this may not be possible whilst still maintaining upwards vertical deflection. Where all plates are brought out to separate pins this difficulty will not arise.

Adjust R31 to provide about two volts positive at the cathode of the reactance tube, then set the oscillator to the correct centre frequency, with the sweep-scan control R29 turned right off. This frequency will be 630 Kc. for 455 Kc. input; 1085 Kc. for receivers of the BC348 series, or about 1600 Kc. plus or minus 175 Kc. if this should be the i.f. used in the receiver. This frequency can be checked by listening either to the fundamental or to a harmonic on a general coverage receiver.

Now check the reactance tube for correct frequency sweep and linearity. Turn R29 up about half way or so, and a raspy buzz should be heard in a receiver tuned to the oscillator frequency. Check to see whether this extends equally both sides of the centre frequency. If it does not, adjust R31. If linearity is poorer, the adjustment has obviously been in the wrong direction. Any adjustment of R31 will vary the oscillator frequency, which must be compensated for by C18.

Next, set sweep padder, R28, to give maximum desired frequency sweep with bandscan control, R29, at maximum.

Final adjustment of the i.f. amplifier can now be done by connecting the signal generator to the grid of V2, setting it to the receiver i.f. and turning the bandscan control to mid-position. The deflection which should appear on the screen represents the response curve of the i.f. amplifier. The i.f. transformers can be adjusted for maximum height, smoothest and narrowest shape of the curve.

Next thing is to align the broadband r.f. stage. The results obtained here depend largely on the i.f. transformers used. One method is to align all windings to the centre frequency, relying upon the overcoupling capacitors to produce the broadbanding. The recommended way is to tune the primaries slightly below the maximum frequency to be passed and the secondaries slightly above the lowest frequency to be passed. One adjustment will affect the other, which must then be re-checked.

If the variation in the tuning range of the transformers cannot be obtained by adjusting the slugs alone, the tuning capacitors will need to be decreased for the primaries and increased for the secondaries. If a portion of the new capacitance is made up by means of trimmers placed in an easily accessible position, alignment is considerably facilitated.

A 10 Kc. multivibrator is useful for these adjustments as it produces signals of equal strength every 10 Kc. across



Trail of wreckage left by the 1955 Maitland flood.

An Invisible Lifeline . . .

The worst flood in the history of the white man in Australia swept down the Hunter River Valley in early '55, causing death, privation and misery to thousands of people.

The death roll and property loss would have been even heavier but for the part radio — including “hams” in all parts of the State — played in rescue and relief work.

This “invisible lifeline” was operated from central emergency stations with equipment no bigger than the average radio cabinet. Technicians used 10-watt and

3-watt frequency modulation equipment, making contacts up to 40 miles away.

As the water receded, radio men gave valuable assistance, before tele-communications were restored, by relaying messages and directions throughout the area.

Scientific developments are constantly helping radio men everywhere to improve their techniques and equipment.

SHELL research, for instance, has produced from petroleum special resins used for wiring, insulation and condenser sealers in every type of radio set.



the band, but by connecting the adaptor to the receiver, any signal of constant strength, such as the v.f.o., can be used, by tuning it across the band, by means of the receiver dial and adjusting the transformers of the broadband stage to maintain as nearly constant amplitude as possible.

INTERPRETATION OF SIGNALS

The interpretation of the signals is quite easy. An unmodulated carrier produces a deflection of constant amplitude, as shown in Fig. 1a. A c.w. signal produces an intermittent deflection as in Fig. 1b. A modulated carrier appears as a deflection of varying height, with the sidebands appearing as ragged edges to the curve as in Fig. 1c. With reduced bandscan the sidebands show up clearly.

Single sideband suppressed carrier signals are seen as very intermittent and irregular deflections of varying height as in Fig. 1d.

An f.m. signal appears as many deflections spreading over a variable bandwidth. When unmodulated, a single carrier appears, as with other unmodulated signals.

Frequency shift keying is easily recognised, as two carrier positions, slightly separated, are seen (Fig. 1e). Often, fading can be seen to be greater on one frequency than the other, even though they are only a few hundred cycles apart!

Noise from leaky power insulators, etc., is mainly in synchronisation with the sweep and therefore remains stationary on the screen.

One interesting feature is that an image signal will be seen to move in the opposite direction across the screen from that of normal signals and is easily identified.

Loran signals puzzle many listeners. These produce a peculiar and distinctive buzz in the receiver. On the panadaptor they can be seen as pips which drift across the screen at varying speeds, when the bandscan control is set at zero.

The amplitude of a strong signal will decrease towards the centre of the screen due to the a.v.c. action on the r.f. stage of the receiver. This will also cause the amplitude of all other signals presented to decrease.

Once having used a panadaptor, there is little chance that anyone would ever wish to be without one again.

TECHNICIAN WANTED

Relieving Technician, holder of 1st Class C.O.C.P., required by Church of England Flying Medical Services, for all or part of period from last week July to end October. Relieve Radio Officer in charge transceiver network for holidays. Good conditions, plenty fishing.

Further details: G. Cameron, Radio Officer, Flying Medical Service, Ceduna, S.A.

AMATEURS PRESENT AT OPENING OF JOHN FLYNN MEMORIAL CHURCH

News has come to hand of some interesting mobile operations in the Northern Territory. Maurie Anderson (VK3AMA), with a couple of companions travelled to Alice Springs, via New South Wales and Western Queensland, to take part in the official opening ceremony of the John Flynn Memorial Church at Alice Springs on 5th May. Maurie's 40 metre mobile rig kept Melbourne Amateurs informed of his progress as their Landrover fought its way across the rugged "Back o' Bourke" country where Maurie renewed acquaintances made many years ago when he was one of the first radio operators of the Inland Flying Doctor Service.

While in the Northern Territory, Maurie maintained contact also with the Inland Mission under a special P.M.G. licence permit granted for the purpose. In Alice Springs he was heard from the station of VK5TL on the 7 and 14 Mc. bands.

It is interesting to recall that Australian Amateurs played a major role assisting the late Rev. John Flynn in the formation of the radio communications service for the Inland Mission. South Australian Amateur Alf Traeger, who held the calls VK5AX and VK8XT, developed the first pedal radios for the outback service in 1928. Early tests were made from VK8XT with the late Harry Kauper (then VK5BG), and Amateurs throughout Australia also co-operated.

In appearance the machine was similar to a typewriter keyboard, with a shortwave receiver and transmitter and sent out the appropriate morse signals whenever a letter key was depressed, the power being supplied by a small

pedal generator. It enabled families living in isolation, possessing no radio knowledge and with no source of electric power available, to keep in touch with civilisation or to request medical aid when necessary. Over the years the design of the sets has been improved and Alf Traeger still supplies the Mission with communication equipment.

Australia will always remember Flynn and his associates for their humane and enterprising hard work which has provided the outback people with a service unique in the world.

HINTS AND KINKS

POLYTHENE SPREADERS

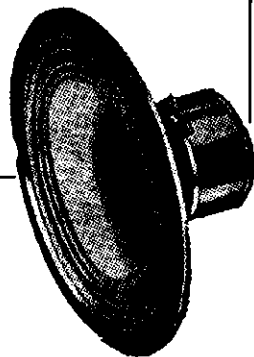
It was suggested in "A.R." that the polythene insulation material from coaxial cable will make effective feeder spreaders. It is better not to drill holes for binding wires, but to twist the wire tightly around the polythene near the ends. Also, after a few months' exposure to weather conditions, such feeder spreaders will show signs of "crazing," with probable breakage. This can be prevented by painting the spreaders with a sealer of clear plastic cement. —VK2NO.

FILLING PANEL HOLES

Holes up to half an inch diameter can be easily filled in by using the plastic metal compound known as "LOY." This material is something like the amalgam with which your dentist fills tooth cavities, and it sets hard in any metal panel in a short space of time. When set, it can be filed, drilled, emery-papered down and worked like any soft metal. —VK2NO.

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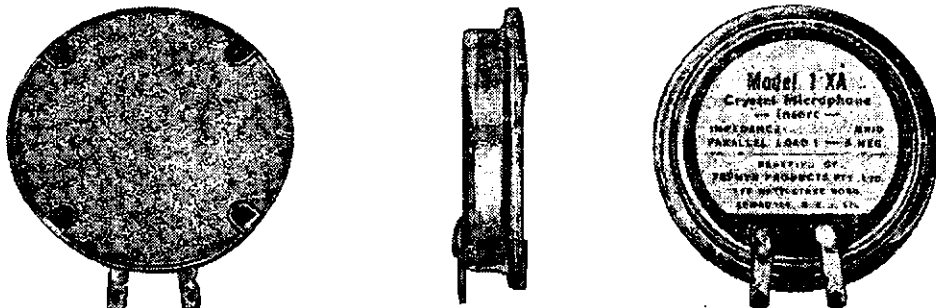
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TECHNICAL DETAILS

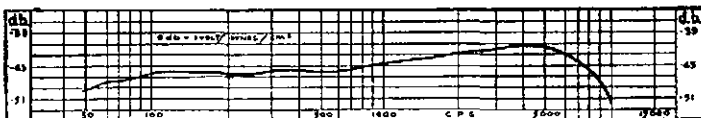
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This crystal microphone requires to be terminated with a high value parallel load of the order of 1 to 5 megohms for best results.

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.

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

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.

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TWO METRES, BUT HOW!

BY E. C. DAW,* VK5EF

AUGUST, 1955, issue of "A.R." contained an article by VK2QZ which he styled the complete explanation of 2 metres. Some of you may have considered that article humorous for the most part, but you can be assured it was all deadly serious and represented but a fraction of the weird and wonderful things that can happen to you when embarking on v.h.f., and 2 metres in particular.

The fact that some of the things he referred to could happen to someone besides me was very heartening, for at that time this QTH was undergoing the pangs of introduction, for the first time, in a serious way, to 2 metres by that rascal, Les VK5AX.

Oh yes, he lives here, too, and being radio's greatest urger, finally had me eating and sleeping v.h.f. Why? Because he had made a new converter and wanted to try it out on a strong local signal!! Now he knocks things up in very quick time, they always work first up, and seeing how simple it all looked thought there was nothing much to it, so had a go. Innocent me.

"QST" was quite a help, for by referring to many articles therein, it meant there was about 150 different ways of getting 100 watts input on 2 metres and then to add to the confusion, no two chaps on the air appeared to agree as to the best tubes or even antenna to do the trick. Finally, we settled for 12AT7 crystal oscillator, 12AT7 doubler, 2E26 driver, and p.p. 6146s final.

Finding the band came next; not having a Sherlock Holmes outfit, resolved itself into simple arithmetic, very simple, for having decided to get about half way in the active megacycle considered a rock 8.033 Mc. would do, so 18 times that gives 144.594—simple don't you think? Of course, that doesn't explain why the frequency finished up at 144.575, and that whilst getting the rig bug-proof a fairly hefty carrier appeared at 96.396 Mc. and about 30 others anywhere between 140 and 150 Mc.

Neutralising—how I hate that word—is just no trouble at all—according to "QST," "CQ," "A.R.," "R. & H.," "Pix" or "Sporting World"—for with a beam tetrode it's just a matter of feeding a voltage back to the plate from its grid, 180 degrees out of phase. Dead easy. Or if you don't like it that way, just resonate the screen circuit to some (always unnamed) frequency. We tried both, first of all the screen method which was lovely for it prompted the self oscillation of the final to be absolutely uncontrollable and provided anything up to 2 amps. in the antenna at any frequency you liked to nominate.

Next job was to try a-la-829B style, which worked better, much better, for then not only was the final neutralised, but completely neutral, the tube plates lost that rosy blue hue that they en-

joyed to this point, the grid drive disappeared altogether, and all trace of r.f. was removed—a great success.

Some heavy thinking was now called for and whilst poking around the rig trying this and that, found it would remain fairly stable if one hand was held near the top left hand corner of the exciter chassis and one foot on the power supply, and one hand held close to the final plate line. Quite an exercise really, but considered too difficult to maintain whilst carrying on a QSO, so obviously something better had to be done.

At this point that character VK5AX came into the picture for he suggested the dummy antenna be abandoned and the yagi put on to thus let him hear what kind of a signal it would put out. This was done and a c.w. attempt made. Of course he was able to follow me (at reduced speed) on any of the 30 odd frequencies mentioned before.

Not to be discouraged by that, he said "apply some modulation." That was the start of a new set of problems, mainly resolved after feed-back was cured; but then I'm a long way ahead of the story.



"At this stage 2 metres was nearly abandoned . . ."

When the modulator was connected, the first effect was the beautiful purple glow the 807s took up and every time I puffed, whispered, shouted, whistled, or just plain talked into the little pink ear of the mike everything in the shack spoke back at me with either sparks, or extra tonal shades from a deep bark to a high pitched scream or any number of combinations of them.

To cure that, about a bucket and a half of by-pass condensers and r.f. chokes were used, every lead that had the temerity to have an exposed end in a handy position had a few pooffs put across it and earthed, the mike lead was butchered until it was no longer a quarter wave of any of the suspected as well as the main frequency, all screw drivers with long shanks were removed

from sight or earthed, and even the tube chair had its frame under suspect at one stage.

Then we were ready for the big test, and high-presto!! 100 watts input, 100 per cent. (ahem!) modulation, mostly upwards we think, a bucket full of burned-out pea lamps that could not take it, and a signal report of readability 5, strength 1 a mile way, the excitement is great!

More tuning, more grid dip oscillator dipping, more shielding, and oh yes, more neutralising—then bingo, our 35 watt lamp used as a dummy antenna went up in smoke and joined the pea lamp heap. Were we in business yet? No, it was back as a perfect self oscillator, but this time only about 27 different frequencies—a slight improvement.

At this stage 2 metres was nearly abandoned for the peaceful pursuit of big game hunting or the like, but it was not to be, so once again out came the soldering iron and some more tidying up was done, a few leads were shortened here and there, and just for luck took the crystal out of its socket from inside the case and mounted it outside on the back plate where it could be easily removed and replaced by a drive from an n.b.f.m. exciter. You see we were getting very scientific at this stage and thought the good book may have something when it stated grid drive was not an essential for f.m.

The rig was again fixed up, and as usual had 43 different frequencies, so went out to get the axe with the idea of hammering some sense into it, left the thing turned on whilst out of the shack and when returning a few moments later, found all well with one frequency only, 100 watts input, very nice upwards modulation, and monitoring well, also indicating pretty fair r.f. output.

Why? Couldn't even guess at this point, but found that every time it was given enough warm-up time, it went like a bird. So at least we could go on the air again, and on cross-town checks and later to VK5MT, all was reported well.

Now says Les, let's try duplex. We then had a further set of problems. The antenna in use is but a temporary affair (borrowed), four element yagi about 10 feet off the ground and fed with 300 ohm ribbon. This latter caused quite a lot of strife in that the amount of r.f. in the shack was too heavy and blanketed the receiver, so a change to co-ax was made, ending in a balun at the driven element—much improvement noted.

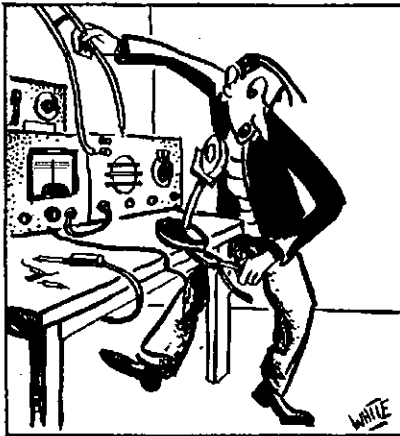
Oh yes, duplex, now after a couple of weeks of trial and much error, we finally made it, VK5AX having no trouble at his end on 144.42 Mc. He could hear me quite well with his rig on, but me? Yes, as usual, r.f. feed-back made more research necessary for his signal with my transmitter off was 9 plus, but when the transmitter was on,

* East Terrace, Gawler, S.A.

he sounded like Donald Duck (or s.s.s.b.) and a rockbreaker fighting it out.

After a lot of tries, it was found that if I earthed one side of the feedline, held the other in my hand and laid a pair of pliers on the lead to the converter about 0.4987357 wavelength from the input terminals, he came out of the mud quite well. I told him so, and then moved across the shack to get some cigarettes and at the first movement from the operating table back came all the trouble, so had to sit still in one position as a screen or something.

At this point the XYL comes into it, for seeing the worried look on the countenance, the effect of sleeplessness and reduced appetite, she really took pity and displayed an interest in this thing that could so influence an otherwise seemingly normal bloke. The rig was on, squeaking and squawking away and she put her finger against the crystal and said, "What's this little black thing?"



"If I earthed one side of the feedline, held the other . . . and laid a pair of pliers . . ."

The bottom of the earth fell out, no not quite, spurious oscillations stopped, the receiver went quiet, Les' voice jumped at us and we had to dive to the volume control to quieten him down and as soon as her finger came away from the crystal, hell broke loose again. Tried my finger, it worked too, so rushed a shield around it (the crystal, not the finger), and presto, all is well. No spurious, no warming up periods needed, one carrier, stable signal, upwards modulation, 100 watts input, 6 mills grid drive, and all we want now is someone to answer when we call "CQ 2."

If you have read this far, you will have learned that instead of the rig being balanced on one corner and supported by torches, multimeters, etc., etc., it is now screwed in the rack, and anything within cooee of it is of a length breadth or depth less or greater than quarter wave on 2 metres. There is more 0.001 uF. by-pass condensers in the whole outfit than Mr. Ducon ever thought he would sell one customer, and there is an air of peace and quietness about the place that usually follows the conclusion of a successful experiment.

Did I say peace and quiet? For a while anyway, for now we start on 5 metres and knowing my form, it will all happen again. Might even tell you about it some day.

AMATEUR CALL SIGNS

FOR MONTH OF MARCH, 1956

NEW CALL SIGNS

- VK— New South Wales**
 2ACO—C. H. Orr, 381 Princes Highway, Rockdale.
 2AOZ—L. H. Ferris, 11 Floss St., Hurlstone Park.
 2ZAE—A. K. Greenhalgh, 10 Sketchley Pde., New Lambton.
 2ZAI—K. L. King, "Fontainbleau," Honour Ave., Lawson.
- Victoria**
 3ABT—J. R. Barber, Carr's Lane, Anakie.
 3AHX—C. W. R. Holman, 110 Normanby Rd., East Kew.
 3AWT—C. J. Waterlander, William St., Ouyen.
 3ZDB—S. R. Brooks, 23 Hex St., Tottenham.
 3ZDC—D. Calwell, 87 Panoramic Rd., North Balwyn.
- Queensland**
 4HO—M. S. Robinson, "Roserea," 878 Logan Road, Greenslopes.
 4HX—H. C. Harman, R.A.A.F. Station, Archerfield.
 4KC—W. Bock, C/o. Bank of N.S.W., Mareeba.
 4NV—L. L. Neaverson, 17 Lamrock St., Holland Park.
- South Australia**
 5ZAI—A. D. Nutt, 27 Liberty Gr., Woodville Gardens.
- Territories**
 1RW—R. C. Widows, H.M.W.T. Station, Direction Island, Cocos Keeling Islands, Indian Ocean.

HAVE YOU RETURNED YOUR QUESTIONNAIRE YET?

CHANGES OF ADDRESS

- VK— New South Wales**
 2CV—R. J. Ferrie, "Owls Castle," Epping Rd., North Ryde.
 2EN—E. C. Hulme, 34 Gnarbo Ave., Carrs Park.
 2JA—J. A. J. Mitchell, 376 Centenary St., Albury.
 2JI—I. F. Marshall, 40 Wycombe Rd., Neutral Bay.
 2QV—P. H. Sara, 23 Rose St., Punchbowl.
 2UX—F. M. Goyen, 2 Gilderthorp Ave., Randwick.
 2YJ—C. W. Johnson, Station: 53 King St., Newcastle; Postal: P.O. Box 625, Newcastle.
 2ADV—C. Hicks, Rayner Road, Whale Beach.
 2ALG—J. A. Ackerman, "Idlewild," 77 Bourke Street, North Parramatta.
 2AVO—J. T. Crichton, 12 Rosedale Square, Lismore.
- Victoria**
 3BH—C. R. Whitelaw, 2 Elsie St., Boronia.
 3CU—C. J. Jackson, 33 Macrina St., E. Oakleigh.
 3JH—L. J. Rickards, Lot 3, Maria Ave., Nunawading.
 3SD—R. V. Wilson, 8 Dixon Gr., Blackburn.
 3XA—D. V. Hope, 4 Elm St., Blackburn.
 3ZB—T. G. Roper, 533 Waverley Rd., East Malvern.
 3ACJ—V. P. O'Brien, C/o. Power and Bennett, Solicitors, Pysent St., Horsham.
 3AVH—J. F. Hirst, Lot 51, Volga St., Pascoe Vale.
- Queensland**
 4DO—H. L. Hobler, Flat 3, "Riverview," 134 Victoria Pde., Rockhampton.
 4EM—E. B. Mars, Commonwealth Bank, Charleville.
 4FB—F. S. Beech, 209 Bennetts Rd., Norman Park.
 4GP—D. A. Crowley, 145 Nudgee Rd., Doomben.
 4RZ—J. M. Atkinson, Railway St., Gatton.
 4WD—W. G. Dodd, 4 Bruan St., Deagon, N.T.
 4WJ—J. H. Farrell, Station: C/o. Power House, Quilpie; Postal: P.O. Box 60, Quilpie.
 4YA—W. A. Young, 19 Cribb St., Ipswich.
- South Australia**
 5IQ—R. F. Treharne, 19 Stafford St., Clearview.
 5LD—L. Deane, 21 Davenport Ter., Hazelwood Park.
 5TW—T. Welling, 11 Jardine St., Mt. Gambler.
- Western Australia**
 6BR—E. R. Field, 19 Charles St., Sth. Perth.
 6EE—R. R. Elkin, 63 Woolwich St., Leederville.
 6EW—E. J. Wilson, 162 Ninth Ave., Inglewood.
- Tasmania**
 7BR—H. J. Bracken, Bronte Park.
 7FJ—F. J. Evans, 27 Milton Cres., W. Moonah.
- Territories**
 9TC—T. M. Cole, R.T.C., Kavleng, New Ireland.

CANCELLED CALL SIGNS

- VK— New South Wales**
 2GH—H. C. Harman, Now VK4HX.
 2HT—M. S. Robinson, Now VK4HO.
 2VX—V. E. Stanley.
 2AOY—A. Kitchen.
 2ZBN—A. D. Nutt, Now VK5ZAI.
- Victoria**
 3ZCO—C. J. Waterlander, Now VK3AWT.
- South Australia**
 5BS—B. S. Clarke.
- Western Australia**
 6HM—C. W. R. Holman, Now VK3AHX.
- Territories**
 9KC—W. Bock, Now VK4KC.
 1ZM—B. E. Shaw.

ERRATUM

Mr. K. J. Love's call sign appeared in the January issue of "A.R." as VK3AWV. This should have been VK3AWU.

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1955 "CQ" WORLD-WIDE DX CONTEST RESULTS

Per favour of W1WY and VK3ATN we are able to publish the following results of the 1955 "CQ" World Wide DX Contest pertaining to Oceania.

W1WY said: "The returns from VK and ZL were disappointing. Hope the boys 'Down Under' will do better in our next Contest, come October. We will have the rules and dates out much earlier this year.

"All the following results appeared in the May issue of 'CQ' together with all other scores."

Number groups after the call signs denote the following: Final score, number of QSOs, number of Zones, and number of Countries. Call signs in bold type are the winners.

PHONE—Single Operator

Australia

All Band—				
VK2GW	12,352	81	29	35
VK3ATN	115,475	286	57	92
VK3BW	1,400	25	11	11
VK5LC	13,847	81	25	38
VK5WO	4,464	44	16	20
VK6RU	8,322	62	25	32

21 Mc.—				
VK4EL	4,920	50	15	25

Hawaii

All Band—				
KH6LJ	250,800	614	62	70
KH6PM	101,854	339	61	55
KH6SP	30,888	218	26	28

14 Mc.—				
FK8AO	741	23	8	11

New Zealand

All Band—				
ZL1BY	91,264	261	52	72
ZL1WQ	49,932	167	48	66

Ryukyu Island

All Band—				
KR6QI	1,456	20	14	14
21 Mc.—				
KR6CR	2,436	33	14	14

C.W.—Single Operator

Australia

All Band—				
VK2GW	152,456	447	45	73
VK2EO	77,004	290	32	61
VK2PV	42,394	167	37	57
VK2ADE	17,780	91	25	45
VK3CX	7,224	64	18	24
VK4CG	4,466	53	14	15
VK6RU	66,992	237	40	66

Carolines Is., Western

21 Mc.—				
KC8CG	59,730	326	24	42

Hawaii

All Band—				
KH6LJ	395,784	961	64	74
KH6PM	186,960	522	59	64
KH6SP	110,522	537	39	34
KH6MG	18,305	177	18	17

Marianas Is.

All Band—				
KG8AGC	21,508	115	38	38

New Caledonia

All Band—				
FK8AH	22,889	184	22	25
FK8AO	8,640	84	22	18

New Zealand

All Band—				
ZL1BY	194,680	434	62	93
ZL1MQ	107,282	376	47	54
ZL2GS	82,610	263	46	64
ZL1MT	9,240	75	29	27

14 Mc.—				
ZL4CK	16,203	167	14	19

7 Mc.—				
ZL3LL	7,511	93	12	17

Philippines

All Band—				
DU7SV	126,452	428	47	54

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Geloso M401—Ask for Type M400, complete with base	£9/18/1
Geloso M401/V—Ask for Type M401, complete with vol. control	£7/16/2
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Geloso 1100/V—Ask for Type 1100, but with volume control	£8/1/6
Geloso B80/1100—Table mount, type 1100, without base, with switch	£8/7/3
Geloso B80/1100/V—Ask for type B80/1100 with base and vol. control	£8/19/5
Zephyr 1XA—Crystal Insert with Zephyr-fill filter and hum shield	£2/5/9
Zephyr 6XA—Crystal Insert with hum shield	£1/9/7
Zephyr 11XA—Crystal Insert with Zephyr-fill filter, hum shield	£1/18/6
Zephyr 8XA—General purpose hand type Crystal for recorders, etc. (swivel for stand use type 119)	£2/6/9
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Zephyr 6XA—General purpose Crystal, hand or stand type	£7/14/8
Zephyr 9XA—Same as 6XA but having more high freq. response for slow speed recorders, etc.	£7/14/8
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Zephyr 90MD—As above, 50 ohms	£9/8/5
Zephyr 95MA, 95MB, 95MC—As above, small cage, chrome plated with fixed head. 95MA, grid; 95MB, 500 ohms; 95MC, 200 ohms	£9/19/5
Zephyr 95MD—As above 50 ohms	£7/19/5
Vitavox Type "A"—Black, bronze, complete in storage box	£18/2/-

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DX ACTIVITY BY VK3AHH†

PROPAGATION REPORT

3.5 Mc.: Only openings to North America were observed during the month. Times were between 0800z and 1200z.

7 Mc.: Due to commercial interference, this band now appears to be absolutely useless for Amateur DX operation. The only breakthroughs reported were to North America and the Pacific Islands between 0800z and 1400z.

11 Mc.: Activity and conditions are such that it is difficult to mention any definite times of openings. Fair to good signals have been reported and observed from all continents. Conditions seem to follow the usual pattern: Europe around 2000-2300z, South America 0500-1400z and 2000-2200z, and Africa 0800-1400z.

21 Mc.: This band showed interesting openings to Europe over both long and short paths (0600-0800z, 0900-1400z and 2100-2300z). Other times seemed to be as usual.

27/28 Mc.: Good openings have been reported to North America, Africa (0500-0930z) and South America (2200-0200z).

NEWS AND NOTES

Christmas Island is represented by VE7ASO/VR3, who is active on 28 Mc. phone (from 3IE, 4HR).

CR10AA has been heard and worked on 14 Mc. (from 3CX, 3JA).

KC6AL represents the Eastern Carolines!! (thanks 5WO for correction).

ZD8SC, Ascension Is., and FE8AE, Fr. Camerons, are supposed to be active on 21 Mc. c.w. (from 5WO).

Thanks to VK3AXU for latest information on B.B.C. transmitting frequencies.

QTHs OF INTEREST

- (from 3JA, 4SE, 5WO, 7LZ, BERS195, Rod de Balfour, and Norman Clarke)
- CX10R—Hugo Daniel Velazquez, Paso de los Toros, Tauerembo, Uruguay.
- KGIAR—Clay Blakeslee, 1983 D. A.A.C.S. Sqdn., A.P.O. 23, P.M., New York City, U.S.A.
- HB9IX—Dominik Reichmuth, Sedilles/Vaud, Switzerland.
- VU2RT—Buddy Padmanabha, Box 2487, Calcutta, India.
- YNIHF—Howard Fowler, U.S. Embassy, Managua, Nicaragua.
- FRY/FC—Box 130, Bastia, Corsica.
- KP4ABD—Box 2566, Rio Piedras, Puerto Rico.
- KC6AL—Don Lynch, C/o Weather Bureau, Ponape, Eastern Carolines.
- VQ5EK—W. K. Campling, Box 1803, Kampala, Uganda.
- Z57C—C/o. P.O. Goedegun, Swaziland.
- CR6CV—Americo Silva, Box 3078, Luanda, Angola.
- VP5DC—Via WANMO.
- VP5DX—Harry Forkes, 2 Wexford Rd., Kingston, Jamaica.
- MP4KAC—C/o. Kuwait Oil Co., Kuwait, Persian Gulf.
- VQ2DT—Box 77, Livingstone.
- FB8BZ—Box 1171, Tananarive.

ACTIVITIES

3.5 Mc.: We are common DX on this band, and that is all 3AHH's log shows this month!

7 Mc.: Apart from Ws, Laurie 2AMB reported DU7SV.

14 Mc. C.w.: Frank 2QL: EA9DF*, VR1B* and ZP9AY, FK7GB, 2AMB: YJ1AA*, VR1B*, ZD8BX*, LU6AX*, LUBMAH*, FO8AB*, VP-9BM*, ZCALP*, EA9DF*, 4X4BR*, VQ6LQ*, VQ5GC*, YV4AU*, ZS4GD* and YJ1RF, KE-1MB, CO2OM, CO2BM, CO8RM, LU8BAJ, LU-1DW, KC4USV, 4X4FW, ZS6AIZ, ZE6PU, CE-3RE, VQ3FN, FB8BX, ZD6BE, JZ0PS, Neville 2APL: KV4*, VR1B*, LU8GC*. Alan 3CX: FB8BZ*, VP7*, KP4*, ZE2PJ*, KG6IG*, KG-1BO*, FQ9V/FC*, ZP9AY*, EA9DF*, KV4*, VP9*, VP6LN*, TZ2WR*, VQ5GC*, ZS4*, VP4KL*, KC4USV*, VQ8U*, VR1B*, GD8HQR*, VK1GA*, FMTWP*, P6P*, CR10AA* and Z57D, HIBFR, AC35Q, Jack 3JA: VP2DA*, YJ-1AA* and CR10AA, Ken 3KR: FMTWP*, Stan STE: KTIJS*, LU3BS*, LU9DL*, PY2QH*, VR1B*, ZB2I*, 4X4FR*, Ivor 3KB: OY7ML*, FB8BZ*, Hans 4HR: EA9DF*, OK3KW*, ZS*, OQ5*, Syd 4SE: LU8BAJ*, LU5HAQ*, VE1AE* and CX2BZ, ZK1BL, VP7NS, VQ5GC, SV1SMX.

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

* Call signs and prefixes worked.
z—zero time—G.M.T.

YJ1AA, CO3YP, HZ2CY, EA8BM, ZS6QW, Doug 6BY: ZD4CC, Joe 5JO: HP1EH*, ZS-60B*, ZS6SO*, ZS6VV*, ZS4TR*, HP3FL*, TIERMA*, Ray 5RK: VE1AE*, Austin 6WO: VR1B*, Col 7LZ: VR1B*, XE2HU*, LU6SC*, VK1GA*, HC1KD*, Eric BERS195: FB8Z*, FB8BR, KC6AL, JZ0PS, LU7XP, MP4QAL, KGIAR, ST2NG, SV0WL, VE8VN, VK1GA, VK1PA, VP9BM, VQ5GC, VQ8CB, VQ6LQ, VR1B, XE1MB, XE2LA, YI2DX, YJ1AA, ZC-4BX, ZEBJU, 457MR, 4X4FW, 4X4IB, LU0DJW/MM. Dave Jenkins: VR1B, KP4ZW, EA8BF, CE3DZ, LU7XP, KZ2OM, YJ1AA, 4S7PT.

11 Mc. Phone: 2AMB: CO1AF*, VP1JA*, CN-8MN*, OZ5KQ* and T1HP, T120A, ZS6WS, ZS6WV, HC2BH, HC1FG, ZK1BL, VP2KM, FN7WQ, YV5AZ, YV5AG, YV5CI, FB8Z*, ZD8BX, KC6AL, XE2KW, HK5ER, FUB8C, Neil 3HG: YV5BS*, FB8*, 8KE, KP4*, CO2MO*, GW4CC*, John 3AG: OA4DR*, HHIHB*, CO3RC*, VP1VR*, HP3FL*, KP4ZC*, XE3AX*, VP2DA*, OZ9HS* and HBI, Dave 3ZAT: GW-3FVI, YV. 4HR: HB1OP/HE*, 5WO: HP3FL*, VQ8CB*, FB8Z*, VR1B*, ZS7C*, VP2DA*, PY2CK*, YV5EC*, EA7EM*, HB1OP/HE*, 7LZ: YV1BI*, HC2BH*. Dave Jenkin: YV1BE, CO-3RC, Rod de Balfour: VR1B, CTSAN, KP4IF, CO2BL, YS1MS, Norman Clarke: GWACC, VR1B, CN8MM, ZM6AT, EA7CP.

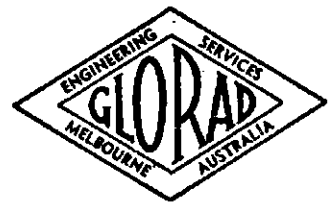
14 Mc. s.s.b.: Jack 3WR reports that 3ARE has now contacted s.s.b. stations in 37 countries. Approx. 50 countries are supposed to be represented on s.s.b. Additions to the list of VK-s.s.b. stations published last month are: VKs 2BP and 2LJ.

21 Mc.: 2QL: OQ5QS* and ZS1KD, VQ2GW, CN8AF, KZ2OM, 2APL: CO2CV*, CO2AY*, DL*, G*, KZ5JB*, 3HG: OH*, OA4AU*, DU*, BVIUS*, CN8MM*, VP5BE*, FB8BZ*, LU3PF*, KP4ADX*, XE1RE*, ON*, ZE2JK*, and CR5SP, 3JA: VP6GN*, VP6AM*, CE2AY*, VP4LF*, ODSAV*, FB8BZ*, VP5EK*, ZS9G*, MP4KAC*, VQ2DT*, VQ2GW*, VP5DC*, VP5DX*, XE1RE*, CO1AH*, EA9AZ*, CR7CN*, Percy 3PA: PJ-2AN*, VP1EE*, YNIHF*, HP3FL*, KV4*, HC-1FS*, HC4MK*, LU3AX*, LU3PF*, LU6QB*, VQ4EO*, VQ2GW*, VQ2DT*, OQ5AG*, ZS9G*, ZS3G*, ET2PA*, a long series of ZSs, EA9AZ*, EA*, EI*, GW*, GC3EML*, GD3GMH*, CTI*, ODSAV*, MP4KAC*, XZ2OM*, VS*, VS1*, BVIUS*, FUB8C*, ZM6AR*, G*, SM*, F*, DL*, HB*, OE*, I*, ON*, PA*, OH*, 4HR: ELAA*, 5BY: FA8*, 5WO: F*, HB1LG*, G*, ZS*, FF-8AF, GC3EBK*, VP6FR*, KP4ADX*, HC1FS*, MP4KAC*, 7LZ: ZS*, G*, EI*, VP6WR*, KP-

4ADX*, LU3PF*, VS6*, ON*, BVIUS*, VR1B*, DL*, ZD8BX*. Dave Jenkin: HC1FS, G, HB, LA, LU2EB, DL, ZS, SV0WO, VP6GN, VU, VQ2GW. Rod de Balfour: ZM6AR, LU3PF, HC1FS, G, F, OH, I, DL, 27/28 Mc.: 3HG: Ws*, ZS*, CR7AF*, 4HR: VQ2GW*, 5WO: W*, KP4PQ*, PJ2AA*, CR7AF*, CR7BB*, VQ2AV*, ZS1MR*, ZS5MP*, ZS2AX*, ZS6ANN*, ZS6LF*, ZS2KF*, ZS6LR*, 7LZ: ZD6RD*, YNIHF*, VE7ASL/VR3*, HK4AM*, ZS5LR*, ZS5MP*, LU3AT*, LU3BQ*, LU5AE*, KR6QI*. Rod de Balfour: JABBE, VE7ASL/VR3, XE2PY.

Rare QSLs were received by: 2AMB: XE2NT, CO2BL, HP1EH, OA4AW, YV5FV, 457MR, FB-8BR, 3JA: CP5EK, ETSLF, 4SE: OA4J, LU-1IDCQ, CR6CV, 5WO: FB8Z, VQ5EK, ZK1BL, FORAN, KC6AL, BERS195: VE8BC, VU2RT, ZS5CV, HB9J/MM, SM8AIS, Rod de Balfour: JABBE, EA2CK, OE5JK, Norman Clarke: PY-1NC, EA2CQ, CX1OR.

Thanks to VKs 2QL, 2AMB, 2APL, 3CX, 3HE, 3HG, 3JA, 3KR, 3PA, 3TE, 3WR, 3KB, 3AGD, 3AXU, 3ZAT, 4HR, 4SE, 5BY, 5JO, 5RK, 5WO, 7LZ, and BERS195 (VK3), Dave Jenkin (VK3), Rod de Balfour (VK7), and Norman Clarke (VK2).



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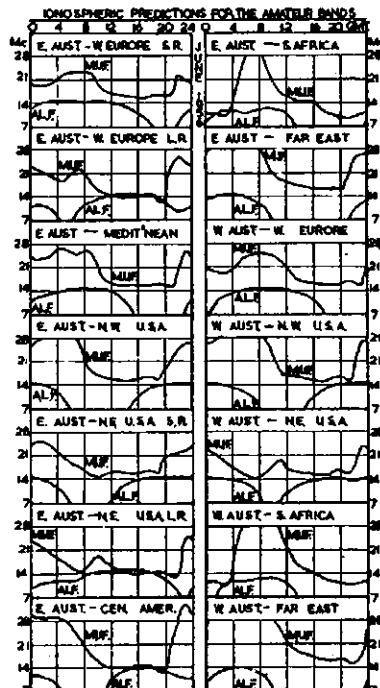
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IONOSPHERIC PREDICTIONS FOR AMATEUR BANDS, JUNE, 1956



SHORT WAVE LISTENERS' SECTION*

Short wave listeners pay heed! The bands are becoming better, and now winter is upon us, it's much nicer to sit inside in the warmth with your rx. You might say there's nothing to listen to, but just after turning on my rx recently I heard five stations, namely VF2, VQ5, KV4, 11 and HB9, in almost as many minutes. So get those rx's going and see just what you can do.

HAPPENINGS OF THE MONTH

Well boys (and girls, if any), I'm happy. I'm almost jubilant. In response to my previous appeals I have received correspondence from VK4, VK5 and from my other two readers—local VK3s. Nothing yet though from VK2, 6, 7 or 9. What happens in these other States? Don't they have any rx's? If you do, what about writing and letting us know all about it?

Here in VK3 we have been having a very interesting time. At the April meeting of our Group, Hans 3AHH (ex-DL3EC) presented us with a talk on "Amateur Radio Overseas." This was a very interesting talk with Hans covering a very wide scope of radio activities all of great interest to us here. We thank you very much for coming along and assisting us in this way, Hans.

On Sunday, 29th April, the Group visited the police headquarters radio station, VKC, better known as D24. Seventeen persons participated in this visit, including several Amateurs who we were very pleased to have with us. Senior Parkinson, who conducted the tour, first showed us the control room which included two very interesting console units, the headquarters switchboard, and many large maps and diagrams. The flashing lights on these equipment were very spectacular. The operator on duty obligingly called up the station at Sale to give us a demonstration of the workings of their country network. Several calls were made to and heard from the mobile units working in the suburbs. The view from the roof was next seen, then the transmitter room. A look over the police garage and the old Melbourne gaol concluded our visit, which everyone agreed

* Compiled by: Ian J. Hunt, WIA-L3007, 101 Robert Street, Northcote, Vic.

was very worthwhile. Our thanks go to Sgt. Mechan, Senior Parkinson and members of the Police Wireless Branch for their efforts in this regard.

As previously mentioned in these notes the VK4 Division has now decided to cease hiding its light under a bushel. E. Bryant, whose first name I'm not sure of, has forwarded some quite interesting information. A Group has been formed in Queensland but their membership is not very great. So rally round you VK4 boys and support this Group. Write to E. R. J. Bryant, 50 Marmion Parade, Taringa, S.W.6, Brisbane. Our correspondent tells us that he is using an AR7 and two home-built rx's with dipole antennae cut for 14 Mc. His antennae were attached to a mast 80 ft. high, but in doing some maintenance work, he had trouble with the rope halyards and now his antennae go only to a 56 ft. pole. The antennae are fed with 75 ohm twin flex through an antenna tuner. A 150 ft. doublet is used on bands other than 14 Mc. Most of the chaps in the VK4 Group are evidently using household d.w. sets with a length of wire attached to the nearest tree. Most of them are still going to school and therefore cannot afford to buy other gear. We hope to hear more of the VK4 Group in the near future. Don't forget to write and let us know all about your activities.

Len Cragen, writing on behalf of the VK5 Group, tells us that Mac Hilliard returned safely home. Their meeting for the month of March was held at the Central Mission room, a total of ten members attending. Final arrangements for a VK-ZL Contest were made at this meeting. Unfortunately information regarding this contest, which was to be held during the month of April, was not received in time for publication in "Amateur Radio." Still, we hope to hear the results of this contest very soon. Len also forwarded reports on stations heard by s.w.l.'s in VK5. Thanks for your letter Len and keep sending information along to us.

Alan Holmes, from Wangaratta, representing the country VK3s, writes that he is using a centre fed antenna, 33 ft. long and 35 ft. high. His rx is an American RCA AR88D, 14 tube

job, with a one-tube preselector ahead of it. Alan says it works out really fine. He previously used an Eddystone "640" and an AR8. Hope to hear some more from you too Alan.

A card has been received from an s.w.l. in the United States, namely, H. F. Southwick, 316 Bank Street, Fall River, Mass., U.S.A. He is using a National SW54 rx and heard the following VK stations on 40 mxc c.w. during March, between 5 and 8 a.m. E.S.T. there: 4FB, 2MF, 2EX(?), 5MZ, 3AHH, 3OH, 4JF, 3FC, 3APH, 3ATO(?), 2EY, 7RY, 3XB and 4BM. He states that other VKs were heard but were too weak to copy, also that there has been lots of QRN during the month.

Jack Keenan, who holds the listener's number ISWL5955, has written stating that he's been in Australia for five years and didn't know until recently that we had an S.w.l. Group. Come along to our meetings Jack, we'd be very pleased to see you. Our Group meets at the W.I.A. Rooms, 191 Queen St., Melbourne, at 8 p.m. on the last Tuesday of each month. Any other interested persons are cordially invited to come along.

COMING EVENTS

Details of our programme arranged for the next five months are given on page 17 of "A.R." for May, 1956. We are also making arrangements for a visit to the City West Telephone Exchange and to one of the city newspaper offices. Come along to our meetings and find out all about our activities. Also, if you have any suggestions for us, be you an Amateur or S.w.l., don't fail to let us know.

AMATEUR BAND HAPPENINGS

Owing to lack of space, no calls heard appear this month. In future, in the interests of brevity (good word that) I have decided to use prefixes of stations only. A very good list of call signs can always be found in the DX Activity column written by Hans 3AHH. Some of you may read his page by chance now and again. Anyway, I would like your comments on this idea of prefixes only, but if you don't like it, I'll soon change back to the other method.

Well chaps, I'm afraid my space is running out and the editor will be after me. Hope to hear from lots and lots of you soon, cheers for now and all the best to you in your listening.

SPECIAL

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

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BRIGHT STAR RADIO

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



FIFTY-SIX MEGACYCLES AND ABOVE

NEW SOUTH WALES

The big event for the month was the field day held on Saturday and Sunday, 14th and 15th April, in conjunction with the Bushwalkers' Association. It was a Search and Rescue exercise and was held in the Kurrajong-Bilpin area. Eleven members of the Group and thirteen Bushwalkers took part in the two-day event. Most of the "bods" rendezvoused at Parramatta railway station at 8 a.m. on the Saturday morning and then proceeded to the base location at the top of Kurrajong Heights by car. At approx. 2 p.m., after the briefing and lunch had been disposed of, four search parties, consisting of one v.h.f. member with a walkie-talkie and several bushwalkers, dived into the bush at various points and proceeded to carry out the search. At the same time several mobile stations scattered around to different points of the landscape to act as links between the walking parties and the base station.

As the daylight faded out the parties made camp for the night, some not quite so soon as others—the terrain was not overabundant with flat camping areas. After all, it was the Blue Mountains area! Perhaps this explains why all the parties were up, breakfasted and ready to proceed by 7.30 a.m. on Sunday morning! The weather on the Saturday had been dry, but cool and blowy. During the night there was some rain, but Sunday morning saw a worsening of the weather situation. Cold rain and cloud spread over the whole area.

From the top of Kurrajong (you're right, that's where your scribe was) it was quite an impressive although hardly cheerful sight to the westward as the clouds closed in, blotting out ridge after ridge. By mid-morning the weather was so bad that it was decided to recall all parties. This was where the radio communication really proved its worth. The walking parties were directed to proceed along specified routes to hit the roads at known points and the mobile cars, plus several cars from base, were directed to these spots and everybody was returned to base in a very short time. Luckily for us, the weather cleared after lunch, which made the return to Sydney a much more pleasurable affair.

Despite the weather the event was judged to be a successful one. The bushwalkers were very pleased with the way that radio communication expedited their control of the search and the v.h.f. members were very pleased with the success of the communications. One of the outstanding things in the communications set-up was the fine signals emanating from the crystal-controlled walkie-talkies. At no time was any link out of action due to inability to make contact and during practically the whole exercise base station was in direct communication with the walking parties. We think that in future exercises of this nature the mobile cars as relay stations will prove unnecessary.

Talking of future operations, we heard 2APQ saying that next time he would lend someone else his walkie-talkie; he took a dim view of taking his morning shower under a waterfall. Your scribe took a dim view of the bush roads; he took a couple of hours to wash them off the car when he got home.

The following members were buzzing around the area during all or some of the week-end: 2HL, 2VL, 2APQ, 2ZAR, 2ANF, 2OA, 2ZAV, 2AJZ, 2AJA, 2ATO, 2AZO, 2HO, 2ZAU, 2ZAB, 2CE. Es Griffiths, Darrell Price and Wal Jacobs.

On Wednesday, 2nd May, we held a much less strenuous event—a night hidden tx hunt. Roy 2HO, accompanied by Rix 2AET, set up in the bush at the back of Killara. Five cars faced the starting line at Ryde—2AWZ (on his own), 2HL with 2NP as his navigator (?), 2AZO/2ATO, 2AFM with three sources of good advice, and 2OA with 2APQ swinging the beam. Promptly at 8 p.m. Roy's signal came on the air and we were off. We cannot tell you all the details of what went on during the trip to the location, but we can tell you how the hounds arrived. Yes, we were first in again. "Four-in-a-row Winchy" they call us now! But we are not saying a word about all the wrong cars we investigated in the bush along the Arterial Highway! We still blush at some of the things we found. However, we eventually found the tx after breaking two springs, four shock absorbers and two necks. At least they weren't broken when we examined them, but we still don't know why not.

At 9.30 p.m., when the transmission was supposed to cease, nobody else had arrived, so the tx was allowed to carry on. A few minutes later 2AFM (the other half of the Parramatta team) turned up, closely followed by 2AWZ and 2ATO. However, no sign of 2HL/2ANP, so we started on the hot dogs and tea. At ten o'clock still no Horrie, so the tx was turned

off and the rx turned up. There was Horrie, flying blind. However, we managed to talk him down and he arrived before all the snorkers had disappeared.

On 30th April, 2ADT challenged 2RU by working 13 JAs on 50 Mc. and brought the score level by working another one the next day. Isn't 50 going to close this year? Doug 2ASA is safely back from his trip down south. We leave the VK3 scribe to report on his doing down there, but we can assure them that Doug is not worn out. He has since put up a 6/5 and is now checking it against his 12 el. beam. We look forward to some 144 Mc. activity in the Griffith area before too much water has flowed under the bridges. Adrian 2HE is going down there shortly to take some gear and show them how to get going on "two." Two more new stations have popped up on 144: 2ZBB and 2ER. Now that Eric 2AFM has got his gear going we only need a few more and 144 Mc. will be sounding like 14 Mc.!

The April meeting of the Group was held at the Petersham Technical College on Friday, 6th, with an attendance of 38. 2ANF, 2APQ, 2VL and 2AUI gave us the low-down on walkie-talkies. The May meeting was held on 4th May at the same place. This was our annual meeting at which we elected our officers for 1956-57. In a most democratic manner the following officers were elected (unopposed): Chairman, Perce 2APQ; Vice-Chairman, John 2ZAV; Sec., Bob 2OA (you see what I mean about "a most democratic manner"); Committee: Harry 2HL, Eric 2AFM, John 2ATO. After the elections, the Chairman read his annual report. Roy made it plain that the v.h.f. boys play a significant part in the Institute's activities.

During the evening we were given a lecture on "V.h.f. Propagation" by Prof. Yardley Beers, W2AWH. Yardley gave us an insight into the various ways our signals get out to distant places. During his lecture he gave it as his opinion that the Sydney-Auckland path was ideal for transmission by ducting. After this, we are looking to Norm 2ALJ entering the DX lists. Inferentially, Yardley also gave us a good case for a power increase to one kilowatt—at least on the v.h.f. bands—to do some studying of "scatter" effect. At the end of his lecture, Yardley gave us a few sidelights on v.h.f. operation in New York from which we gathered that the average W is using much the same gear as we do.—2OA.

HAVE YOU RETURNED YOUR QUESTIONNAIRE YET?

VICTORIA

Although the weather wasn't the best at the last fox hunt, it certainly didn't deter the hounds even though it gave them an added difficulty in tracking down the fox as the frequent showers played tricks with the receiving aerials, nevertheless all hounds made several catches. During this hunt, the fox 3LN found a very excellent hiding place in which he managed to remain for quite a while without being discovered. In fact it was such an unusual hiding place that he intends using it again on another hunt and feels so sure that he will never be discovered in it that he has offered three points to any hound who catches him there instead of the usual one point. After a tour round the suburbs in which the hounds found themselves in some very queer places, the hunt eventually finished up at the home of Ray 3KD in Essendon where during supper the gang was entertained with music on Ray's hi-fi equipment. The winner for the evening was Ray Price with Ray 3KD as navigator, those two will have to be handicapped. Second was Roy 3ARY and third was Tom 3AOG with XYL VI as navigator. Many thanks to Ray and his mother for making their home available to us to finish off a pleasant evening.

The City-Country Get-together of the V.h.f. Group was again a great success. The attendance was wonderful, in fact we had difficulty in finding seats for everyone. There was a particularly large representation from the Ballarat district and those from the country who made the trip included 3ZBB, 3ZL, 3AMH, 3ARI, 3ZBS, 3ZAT, 3FO, 3VU, 3GM, 3VA and 3DS. The Geophysical Year was discussed and a recording made by "Unesco" on the event was played and a number of 6 mx stations promised their support. Any other 6 mx stations who could assist in this project, which will be running from 1/7/57 to 21/12/58, are requested to send their names to 3LN. In the main this will consist of observations of signals

on 56 Mc. whose great circle path extends southwards and which could be affected by auroral phenomena.

V.h.f. records were also discussed and the best known records, which will become the Victorian State records, were: 288 Mc.—3GM on Mt. Bunninyong to 3ZBF-3AAF on Mt. Dandenong, a distance of 80 miles, 144 Mc.—3BW at Portarlington to 2WH at Forbes, a distance of 403 miles.

The winner of the third V.h.f. Field Day was announced, this was Reg 3ZAD, closely followed by George 3GM second, and Len 3LN third. Two short lectures were then enjoyed. The first was given by Ian 3ALZ on his 2 mx gear, and the second by George 3GM, who had brought along his 4/4 collapsible beam which he uses on field days. A most enjoyable and friendly evening then concluded with a bite of supper and a cuppa to warm up the country visitors before they set off on their long journey home.

George 3ZCG, who is endeavouring to get himself established at his new QTH at East Melbourne in the Gippsland area, is using a three el. yagi until his 16 el. array is completed. He is at present busy building a xtal locked converter to feed into his AR7. He is keenly interested in mobile work and has a collinear stacked vertical antenna for working mobile on 288 Mc. as well as a quarter wave whip. The tx side of his transceiver is a mod. osc. with 3.4w. input to a CV6. He hopes to make a trip to Melbourne soon to make tests from Mt. Dandenong and Mt. Donna Buang on 1 mx.

Ian 3ZAM, who is doing a two-year electronics course in England, hopes to be lucky enough to manage a short break away from hard studies to do a six-weeks' tour of the continent by car with four friends. We hope he makes it, it certainly wouldn't be hard to take. A new call being heard on 2 mx is that of Leo 3KO. Leo, however, is by no means a new call in Amateur Radio, he's one of the real old-timers. He is making plenty of contacts using a dipole, but is looking forward to even better results when he gets his five el. beam erected. Another new call on 2 mx also is that of Ian 3ZDG. There's two more stations for those trying to get their 100 contacts' certificate.—Phyl Moncur.

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 No. rles	Cer. Cnt- No. rles	Call No. rles	Cer. Cnt- No. rles
VK4FJ	21 188	VK3JD	1 155
VK3ATN	28 177	VK4KS	9 152
VK3BZ	3 176	VK6KW	4 150
VK4HR	12 178	VK3LN	11 141
VK6RU	2 170	VK4RW	23 141
VK3EE	10 163	VK3AWW	14 140

Amendments
VK4DO .. 15 120

New Members	
VK5CE	34 101 VK3VQ .. 33 100

C.W.

Call No. rles	Cer. Cnt- No. rles	Call No. rles	Cer. Cnt- No. rles
VK3BZ	6 222	VK3CX	28 185
VK4FJ	29 218	VK2EO	2 183
VK3FH	15 215	VK5BY	45 181
VK4HR	8 206	VK4EL	9 175
VK3KU	48 201	VK3CN	1 163
VK3KB	10 200	VK8RU	18 161

Amendments
VK4DO .. 20 145

New Members	
VK2OI	49 108

OPEN

Call No. rles	Cer. Cnt- No. rles	Call No. rles	Cer. Cnt- No. rles
VK3BZ	4 231	VK3JE	12 198
VK2ACX	6 225	VK2NS	16 195
VK4FJ	32 224	VK3HG	3 181
VK4HR	7 221	VK4EL	10 175
VK3KU	61 209	VK6KW	13 171
VK6RU	8 204	VK2DI	2 170

Amendments
VK4DO .. 15 170

New Members	
VK3VQ	46 127 VK5JT .. 63 102

FEDERAL, QSL, and DIVISIONAL NOTES



FEDERAL

Fed. President: W. T. S. Mitchell, VK3UM.
Fed. Secretary: L. D. Bowie, VK3DU, Box 2611W, G.P.O., Melbourne.
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: Jim Corbin, VK2YC.
Secretary: Harry Hickin, VK2ACH, Box 1734, G.P.O., Sydney.
Meeting Night: Fourth Friday of each month at Science House, Gloucester Street, Sydney.
Divisional Sub-Editor: Stan Bourke, VK2EL, 17 Clisdel 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 Kahibah Rd., Highfields, via Adams-ton; Coalfields and Lakes: H. Hawkins, VK2YL, 9 Comfort Av., Cessnock; Western: W. Stitt, VK2WH, "Cambijowa," Forbes; South Coast & Southern: E. Fisher, VK2DY, 2 Oxlede St., Warrawong; Sth. Western: J. W. S. Edge, VK2AJQ, Wallace St., Coolamon; St. George: Chas. Coyle, VK2YK, 84 Carlton Cres., Kogarah; Western Suburbs: Barry White, VK2AAB, 33 Flavelle St., Concord.

VICTORIA

President: G. Dennis, VK3TF.
Secretary: F. G. Ball, VK3YS.
Administrative Secretary: Mrs. May, C.O.R. House, 191 Queen St., Melbourne.

FEDERAL

FEDERAL COUNCILLOR IN VICTORIA

Yet another change of Federal Councillor comes to notice. Mr. Dave Wardlaw, VK3JADW, has taken over the duties from Mr. Russell Bradshaw, VK3SX. Dave is well known for his efforts in various contests and all wish him success in his new sphere.

BAND CHANGE IN GREAT BRITAIN

The Radio Society of Great Britain has been advised by the G.P.O. that the International implementation of the Atlantic City high frequency broadcasting bands is now under consideration and that the International Telecommunication Union proposes to recommend a target date of 1st March, 1956, for clearing other services from the bands allocated exclusively to broadcasting. This will necessitate withdrawing from Amateurs the use of the 7150-7300 Kc. band and restricting their 7 Mc. operation as from 1st March, 1956, to accord with the Atlantic City allocations, i.e.:—

7000-7100 Kc. exclusive use.
7100-7150 Kc. shared with broadcasting (in which broadcasting has priority.)

INVITATION TO U.K. VISITORS

The London Members Luncheon Club of the Radio Society of Great Britain has requested Federal Executive to inform members of the W.I.A. of a standing invitation to their monthly get-together. This informal meeting of members of the R.S.G.B., usually on the third Friday, takes place at the Bedford Corner Hotel, Bayley Street, Tottenham Court Road, London, W.1, and they would be delighted to have as guests any members of the W.I.A. who happen to be visiting England.

A telephone call to the Secretary of the Luncheon Club, Mr. Frank Fletcher, G2FUX, at Rulsip 2763, or R.S.G.B. Headquarters, Holborn 7373, will help in getting acquainted. Alternatively, a letter to Mr. Fletcher at 11a Ickenham Road, Rulsip, Middlesex, will receive prompt attention.

Federal Executive hopes that any members travelling abroad will avail themselves of this facility and thus tighten the bonds between the R.S.G.B. and the W.I.A.

FEDERAL QSL BUREAU

RAY JONES, VK3RJ, MANAGER

Alan McLeod, VK3AHM, forwards for information the cover of a letter he forwarded to 3W6AA, and which has been returned to him from Harold. The only endorsement borne by

Meeting Night: First Wednesday of each month at the Radio School, Royal Melbourne Technical College.

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: A. D. Buchanan, VK3FD, "Booroodal," Wahrling; Far North Western: M. Folie, VK3GZ, 101 Lemon Ave., Mildura; Eastern: J. Spark, VK3AJK, 20 Marshall Ave., Moe; North Western: C. Case, Cumming Ave., Birchlip.

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-Editors: F. B. Bond, VK4ZM, and W. J. Rafter, VK4PR.

QSL Bureau: Inwards—J. Files, VK4JF, Wanda St., Buranda; Outwards—Miss Clair O'Brien, 93 Jardine St., Stafford.

SOUTH AUSTRALIA

President: W. J. Bullin, VK5KX.
Secretary: B. 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: J. M. Coulter, VK5JD, 69 Conmurra Ave., Ackland Gardens.

QSL Bureau: Geo Luxton, VK5RX, 27 Belair Rd., West Mitcham, S.A. (Inwards and Outwards).

WESTERN AUSTRALIA

President: F. A. T. Tredrea, VK6FT.
Secretary: J. Mead, VK6LJ, Box N1002, G.P.O., Perth, W.A.

Meeting Place: Perth Technical College Annexe, Mounts Bay Road, Perth.

Meeting Night: Third Tuesday of the month.

Divisional Sub-Editor: J. R. Elms, VK6BE, 29 Central Road, Kalamunda.

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 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, 36 Mark St., Burnie, Tas.

PAPUA-NEW GUINEA

President: F. M. Nolan, VK9FN.
Secretary: D. F. Lloyd, VK9OQ, C/o O.T.C. Receiving Station, Port Moresby.

Divisional Sub-Editor: R. B. Monfries, VK9RM, Wau, T.N.G.

QSL Bureau: D. H. Beadel, VK9DB, C/o P.O. Box 107, Port Moresby.

the envelope is in handwriting and appears to read "Inacheminalue." Does the return of this card mean that "Phan" is short for "phantom"?

The V.E.R.O.N. staged their P.A.C.C. contest during last week-end in April (c.w.) and first week-end in May (for phone). Like most of the European societies who stage DX contests, insufficient advance information is given to enable the event to receive the requisite publicity. Logs are due with the V.E.R.O.N., Keizerstraat 54, Gouda, Netherlands, by 15th June.

The many VK stations who have in the past two years made contact with Dominik Reichmuth, HB9IX/MM on 7 and 14 Mc. c.w. will be interested to read that he has resumed life ashore. During his voyages Dominik visited Australia thrice and was much impressed with what he saw of VK. He has QSLed all contacts, but anyone who missed out will receive a duplicate on application to him care Overseas Telephonic P.T.T., Sedellies, Switzerland.

A number of VK stations contacted SM8AIS during the period Dec. '55 and March '56. The call was used by Gunnar Nilson, of Karlskrona, Sweden, while aboard H.M.S. Golland during a training cruise from Gotherburg to Luanda (Angola) and return. A very attractive QSL card was issued for the occasion and Treb BERS195 reports that some have reached VK. (Mine is unsighted so far, but that's nothing new as QSL Managers invariably have a battle to get their own cards.)

The following change of address is reported for the KZ5 QSL Bureau, which is now located: KZ5KA, Catherine Howe, Box 462, Balboa Heights, Canal Zone.

Enquiries are coming in soliciting QSLs from VK1DC, VK1HH and VK1ZM of the 1955 Macquarie team. Enquirers appear to think that the boys have had enough time to catch up on their "home work," and get around to QSLing.

Jack Elliott, ZL3CC, spent six weeks in Australia during April/May. Jack, who is no stranger to this country, having been here twice previously, had a good run around VK2, VK4, VK5 and VK3 in that order. Jack, who is holding back the ravages of time very successfully, said he was happy to meet us, sorry to part, and will be happy to meet us again.

It is with regret that I record the passing at end of March of Dick Rowe, ZL3GR. Dick, who had never had a day's illness and who regularly played competitive tennis, died at the age of 48 after a few hours illness following a sudden thrombosis seizure whilst at a function. Dick was one of three Amateur brothers. Elder brother, ZL3GB, passed on ten years back, whilst surviving brother is Harold ZL3JA, of Christchurch, well known to DX men on 14 Mc. To him we extend our sympathy in his loss.

Tasmanian Amateurs are endeavouring to arrange an Olympic Relay of greetings from Mt. Olympus in Greece to a VK7 station near Mt. Olympus in Tasmania, on the occasion of the opening of the Olympic Games in Melbourne in November. Under the sponsorship of Lon Jensen, VK7LJ—a real old timer—they are sparing no efforts to bring their plan to a successful conclusion.

FEDERAL AWARDS

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

Additional certificates have been awarded to PY2CK, JA8AA, VS6CG, and CESDZ. Total certificates issued to date, 31.

Readers are asked to note the new address of the Awards Manager: G. Weynton, VK3XU, 5 York Street, Bonbeach, Vic.

NEW SOUTH WALES

The New South Wales Division held its Annual General Meeting at Science House, Gloucester St., Sydney, on Friday, 27th April, 1956. Although the attendance of approx. 85 was rather disappointing, those who attended enjoyed the discussions on a wide range of subjects which followed the adoption of the annual report. The following members, being the only nominees, will comprise the Council for the coming year: Vince 2VC, Jim 2YC, Barry 2ZAG, Ed. 2EN, Harry 2AHP and Barry 2AAB. We were pleased to welcome the "Happy Wanderer," Dave 2AYE to the meeting, also 2AEU, of Lismore.

In reviewing the year, President Jim 2YC spoke of two very gratifying results of the Institute's year in VK2. The first of these is the unquestioned rise in the status of Amateur Radio in the eyes of the general public—the New South Wales Division's Emergency Network gaining official recognition in the State Emergency Scheme—and the rise in membership, which is now close to the 800 mark again. The highest membership ever in this Division was 860, so let's see if we can make it a record year.

Congratulations to Frank 2APF, of Tamworth, for some really good long-distance, low-power contacts on 144 Mc., and to Jack 2ADT, of Inverell, for emulating Major 2RU's splendid example in working that long list of JA stations. Jack reckoned that long list of JA stations cycle would bear watching and the result was 17 JAs in a couple of hours with three watts and the trusty old zepp, just 28 days later than Major's effort. By the time this appears in

print we will know whether it came around again!

Congratulations also to the operators of 2AQZ/Portable and to Max 2ARZ on winning the Outright (open) and N.S.W. (c.w.) sections respectively in the 1956 National Field Day. Nice work!

HUNTER BRANCH

The University of Technology was the location of the April meeting of the Hunter Branch, held on 13th April. Three lecturers had been arranged for the meeting, and these were delivered by, firstly, Doug 2ADS, who described the construction and operation of his Harmonic Oscillator driving a 2E26 on 144 Mc.; Ken 2ANU and Geoff 2VU, who described the gear used and results obtained in operating "Mobile 144 Mc."; and thirdly, Ken 2KG described his gear and spoke on "Walkie Talkie 144 Mc." This feat of 144 Mc. gear and explanations of techniques used was much appreciated by members present, especially Rodney 2ZBE and Athol 2ZAE.

After the questions and discussion on the lectures had ceased, the matter of making our Blackalls Field Day, held on the Six-Hour Day week-end each year, into a two-day Convention was discussed and decisions arrived at to finalise the matter. The hidden tx hunt at this Field Day will carry a first prize of £10/10/- and a second prize of a Rebecca tx. The first prize in the blindfold tx hunt will be £5/5/-. If these tx hunts are of interest to you, keep the dates in mind—29th and 30th Sept., and follow these notes for further details.

On Easter Sunday Major 2RU worked 13 JA stations on 8 Harry 2OPERATING on 15 mx now. Alex 2JZ is working a fair slice of the DX on 20. 2AQR has taken up residence at West Wallsend, but has not yet got his gear on the air. Ron 2ASJ worked three V stations on c.w., using his foot operated key. Alan 2KB has been heard working DX on 20 c.w. Ted 2ABW has been using 2w. portable from the Hawkesbury area; Ted will tell any enquirers how to instal a 66 ft. long straight wire on a 30 ft. long launch. Harry 2AFA is on more at night, now that he is one of our retired gentlemen. Les 2AOR has completed a new modulator and has had good results from it. For up to date news on the Hunter Branch, listen to 2AWX each Monday night at 8 p.m. on or about 14.05 Mc.

Our June meeting will be held at the University of Technology at 8 p.m. on 8th June. The lecturers at the meeting will be Harold 2AHA, Dave 2BZ and Bob 2KF—their subject, "Portable on 80, 40 and 20 mx."—2AOR.

TAMWORTH

Noel 2ASQ has been busy re-building his final one again, this time with a pair of 6146s in a pi tank and results have been very good so far, yet he cannot beat 2APF for signal reports on 40. Syd 2APS has been heard on a few times on his super dooper. Merv 2ATD has not been on much this month due to pressure of work, but is moving the rig out of the lounge room (order of the boot!). Sam 2ZBL still awaiting his new call, is busy building up something to make a noise on 80 and 40 mx. Frank 2APF had a visit from Bob 2ARG on Sunday. Bob (his two metre gear with him) and 2ARG, 2APF and 2ASQ adjourned to the Oxley Lookout and chased 2 mx signals for two hours. No stations were heard up at the Lookout, but reports later gave 5 x 8 in Muswellbrook (2ANU) and subsequent nightly skeds have shown a permanent opening from 2APF to 2ANU.

On Anzac Day, Hugo 2WH heard a burst from 2APF of very short duration. 2APF wishes to thank Bob 2ARG for the use of his tx and rx, without which these experiments would not have been possible, and all who participated. 2APF has re-built his modulator, now using 807s in AB2 and was sorry to dismantle the original 6L6 AB1 job which gave such good service for twelve months. Last minute news has been received from Dave 2EZ in Newcastle that 2APF was heard there at excellent signal strength. Power used at 2APF on 2 mx is 10w. input.—2APF.

SOUTH WESTERN ZONE

The arrangements for this year's Convention at Griffith are well in hand, the Committee at Griffith are hard at work with details. Ted 2AXD at Griffith, has been heard expounding the workings of the AT21; pleased about the xtal mike Ted? John 2ZBY is active on 2 mx from Air Force School at Uranquinty and has had several contacts with your scribe at Coolamon. John has a good sig using 522 tx-rx modified and 4 el. beam. John will be going down to VK3 for some time shortly, so he will be a new one for v.h.f. down there and a loss to our zone here. I hear George 2ZAZ is nearly ready for 2 mx contacts, so it looks like we may hear 2 mx sigs from Griffith soon.

Dr. Rofe, 2HE, is to make a trip to Griffith in May, to talk and demonstrate 144 Mc. gear, so Adrian may live up the Griffith v.h.f. gang. Stan Abbey, associate, of Coolamon, has a new set-up, rack and panel rx with band-switched converter 80 to 10 mx, so it looks like Stan is after the DX. Jock Ashley, associate of Coolamon, is also experimenting with antennae on the DX bands; did try a vertical on 21 Mc. I hear you are going to try something else Jock; what, too much car ignition? Have not heard the Tumut or Wagga gang for sometime. How about a line on what is cooking?—2AJO.

UPPER HUNTER GROUP

During the month Geoff 2VU and Ken 2ANU lectured at a meeting of the Hunter Branch on 2 mx mobile in the endeavour to excite more local activity. How about it chaps? Remember those 522s becoming available.

Roy 2RC at Denman busy negotiating for a farm at Pikes Gap. You will be able to do it all by remote control Roy! Nev 2OS tied up with local broadcast station; given Amateur Radio away altogether Nev? How about 2 mx? Geoff 2VU busy with the paint brush and temporarily QRT as he had to move the rig. Bob 2ARG's airborne mobile created great interest on 2 mx. Received \$9 from Sydney to Tamworth by 2ANU and associate Darnell Price, who brought a 2 mx rx home on holidays to Muswellbrook.

Another link has been forged in the 2 mx chain. Ken 2ANU has been copying Frank 2APF in Tamworth each night from 22nd to 28th April. Frank was using Bob's (2ARG) mobile rig and the distance was 95 miles.—2ANU.

EASTERN SUBURBS

2ATA is making quite a dent with his new beam, on the 14 Mc. DX, and in the same area 2AIG is still having lots of c.w. DX for with his rotary compressed dipole. When are you going to add a parasitic element Ray? 2ASE is not heard much when ordinary mortals (local) are active, for Ernest, who is in retirement, puts in an appearance on 40 mx phone in the small hours, and then catches up on slumber in the daytime. 2DV has been heard netting a little c.w. DX on 14 Mc., and on phone 2YF has appeared for a brief spell.

On 144 Mc. Ivan 2TN was heard for a brief interlude using an indoor contraption he brought back from a visit to U.S.A., known as a "Rabbit's Ears" antenna, otherwise, a contorted dipole. That DX king, Vince 2VA, is getting in some nice overseas QSOs with his new s.s.b. outfit, which is a pleasure to listen to. Makes me wonder why we still tolerate frequency-grabbing carrier waves! Horrie 2FA has completed his new table-top t.v.i.-proofed tx with 1646s in the final, and with his trusty 2 el. array can more than hold his own against quads, rhombics, etc. Bill 2YB was heard for a brief interlude on 40 phone.

2NO had bad luck, being taken ill during his annual recreation leave, but managed to get into the shack for an occasional QSO on 40, 20 or 2 mx. After being in for 22 years the main pole needed attention, so 2ASE came around and gave a hand to get it down. After it was rendered horizontal, it was found that the hardwood sleeper to which the pole was bolted had rotted completely through. Lady Luck had intervened that time! Tests with indoor skeleton slots and plain dipoles on 2 mx indicate that for contacts around Eastern Sydney, 2NO has no need for outside arrays and considers that with limited activity on two, turning mechanisms can be put to more useful work in the h.f. regions. Dave 2AYE has been ashore for leave and has visited a few shacks. When can we expect to hear from 2AYD marine mobile?—2NO.

COALFIELDS AND LAKES

It's months since we had notes from this zone, however it is hoped to have them in each month in future. Bob 2KF from Kurri Kurri is the only one active there; Bob works most bands, but prefers the v.h.f.s; has nice beam, too. Major 2RU, after his 50 Mc. JA contacts, is keeping a close ear on the band for future happenings; works 7 Mc. also. Heard Len 2AMU also from Gosford on 7 Mc.; given the "stars" away Len? It is pleasing to know that Jack 2ADT, an ex-zone Amateur, got among the JAs on 50 Mc. also, collected 17. Jack of course now resides at Inverell.

Geoff 2VU still going strong from Singleton; specialises on 144 Mc. and has Ken 2ANU at Muswellbrook a constant check point on 144 Mc. Cessnock has a new Amateur, Duncan 2MC; has been only active a few times as yet with an AT5. Chris 2PZ active again after long absence, mostly on 7 Mc. and also busy building television rx. Harry 2YL working all bands, 3.5 to 28 Mc., using GO9 unit with very good results; listening on 144 Mc. and hoping to get rig there soon.—2YL.

VICTORIA

Mr. Wally Hunter, of Zephyr Products, was the lecturer at the last general meeting and he gave a general talk and discussion on microphones. He discussed his subject in very great detail and members attending the meeting gained a lot from his talk as was evidenced from the many questions they put to him and which he seemed to be most happy to answer. Among those present was a visitor from G. land, George G3SW, who after being welcomed had a few words to say to the gathering. He told us the mostly works on 21 Mc. Members were very sorry to learn that George 3AG had been involved in a bad motor car accident and had suffered a fractured skull and chest injuries. The following new members were welcomed: L. G. Walters, 3CN (formerly 2ALW), S. R. Brooks, 3ZDB, as full members, and A. C. Stebbing and A. B. Holmes, Associates, and D. G. Statches, Junior Associate. John Adcock, JACA (hero of the Z calls) put forth a motion that Federal Executive be asked to approach the P.M.G.'s. Department to obtain permission for limited licences to operate in the 56-60 Mc. band and thus help to populate that band. At the next general meeting to be held on Wednesday, 6th June, Mr. Campbell, of Masse Batteries, will give a lecture on Storage Batteries. He will also have on display samples of batteries, both lead acid and nickel iron types. In July the lecturer will be Mr. Jack Vertigan, 3WR, who will lecture on Single Side Band Techniques.

The Victorian Division Council has elected the following office-bearers—President of Division and Chairman of Council, G. Dennis; Vice-Presidents, H. Hodge and J. Marsland; Honorary Secretary, F. Ball; Treasurer, J. Marsland; Fed. Councillor, D. Wardlaw; Membership Qual. Committee, H. Hodge and K. Pincott; Communications, H. Charles; Contest Committee, D. Wardlaw and H. Hodge; Tech. Maintenance, F. Ball, A. Elliott and D. Wardlaw; Instrument Librarian, C. Buckingham; Book Library, R. Henderson; 3WI Broadcast Scriptwriter, Phyl Moncur; Disposals Committee G. Dennis and R. Bradshaw; TVI Advisory Committee, H. Hodge; Olympic Games Committee, H. Albrecht and S. Dixon; Class Manager, G. Manning; QSLs Inwards, N. Storck and I. Hunt; QSLs Outwards, I. Stafford and J. McKendrick; Publicity Officer and Div. Sub-Editor, Phyl Moncur; Publications Committee; Editor, J. Marsland; Associate Editor, R. Higginbotham; Technical Editor, K. Pincott; Technical Staff, D. Norman, F. Duncan, R. Fisher, and A. E. Morrison, of Queensland.

80 METRE TRANSMITTER HUNT

A good crowd turned up to the last hunt when Roy 3ARY, assisted by Ray 3KD and Ray Price, hid the tx. The signal was very strong at the starting point and after travelling only a few miles and arriving in the region of the Boulevard, it was very evident from the key-clicks in the rx that the tx wasn't very far away, but from then on it was a really difficult task tracking down that tx. The boys had hidden it well into some scrubby bush high on top of a cliff that runs alongside the Boulevard near Kane's Bridge. They had gone out at 7.30 a.m. to erect the aerial which they strung high across the road and they had to get there early to get it up before all the traffic came along. The three of them had a considerable amount of enjoyment in watching the hunters driving up and down the Boulevard just below where they were hiding. The last part of this hunt was definitely a job on foot as those trying to track down the tx eventually realised and Ed 3EM was first to locate it, followed by 3ALY then 3ZAD. The hunt finished up with a picnic tea down by the river and a camp fire and barbecue.

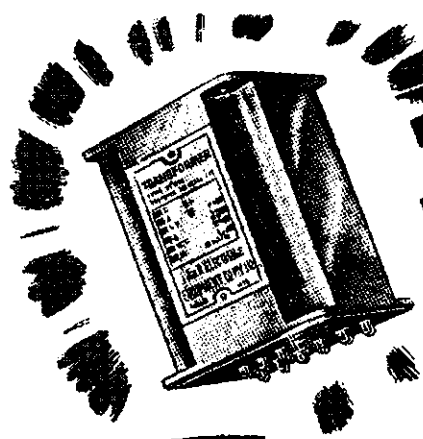
The next hunt will be held on Sunday, 17th June, when the winner, Ed 3EM, will hide the tx.

BI-MONTHLY SCRAMBLE

The results of the Scramble, held on 2/4/56, are as follows: Winner Section C—3YS, 17 pts.; Winner Section D—WIA-L3015, 7 pts. Logs were received from 3YS, 17 pts.; 3ZBE, 13 pts.; JAAP, 13 pts.; 3ZAQ, 12 pts. Listeners, WIA-L3015, 7 pts. Checking 3HE and 3ADW. The next All Band Scramble is to be held on Queen's Birthday, Monday, 4th June. For rules, refer to copy of "A.R." for Sept., 1955.

EASTERN ZONE

Well chaps, only a few more days to the Zone Convention and hope all of you will be there on 2nd and 3rd June at Morwell. The meeting place is at the Church of England Community Hall at the corner of Princes Highway and Latrobe Road. Dinner will commence at 6 p.m. and the Convention proper at 7.45 p.m. During the week-end there will be an inspection of the Yallourn coal mine, briquette plant and power house. It is hoped to have



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 See "Radio and Hobbies" of February, 1955, 17 watts U.L. Amplifier.

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 Primary: 4,500 ohms.
 SCREEN TAPS: 10% of Plate Z.
 F.R.: Plus or minus 1 db 10-60,000 c.p.s.
 Leakage Inductance: 1/2P/3/2P: 15 mH. Maximum.
 Prim/Sec: 15 mH. maximum.

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 19% Screen Taps.

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some visitors up from Melbourne this time, so it should be a great success.

Many stations are still inactive on the hook-up on 80 mx, in fact there are more on the 2 mx hook-ups these days. Ron 3PR still being the main backbone, ably supported by Ian 3AAV, who has 80 and 40 mx gear permanently installed in his car. David 3DY has been coming on the hook-up working mobile with good signals. Jack 3AJK should have his new rig going by now, also on 2 mx. Is all we heard of him, must have been talking in his sleep.

Activity in the zone is still running high, so keep it up chaps. Bill 3TY has gone to Swan Hill, sorry to see you go Bill, and wish you all the best on behalf of the boys. Graham 3QZ is still coming on 80 and 2 mx with good signals. Peter Thorne should have results of exam anytime now so wishing you luck Peter. Terry Pheby, Associate and S.W.L., is getting cards from overseas, likewise is Des Stanches, another S.W.L. and Associate. Well, 73 chaps, see you all at the Convention, we hope.—3AJK.

NORTH EASTERN ZONE

Syd 3CI's v.h.f. beam fell on his cubicle quad and damaged it recently. Ken 3KR worked an FM7 on 20 mx a while back. Bill 3JP is still on that garage and Ray 3FI can now see the shape of things to come in his new shack. Keith 3DW is likely to be tied up during the evening with his new job. Jack 3PF is missing and the Eastern Zone are fortunate as Vic 3ABX has gone to Yallourn. Ron 3AQG now has his three-band tx finished. Howard 3YV is in a little trouble with his latest tx. Jim 3JK is quite active with his equipment to work DX on 10, 15 and 20 mx. Brian 3AMZ has been on 80 mx when studies permit. Gordon 3AGV is expected to be portable, holidaying in the zone. Jack 3AKC has altered his converter to 21 Mc.

Vern 3AXW is quite a follower of the 7050 Kc. zone hook-up at 1330 hours each Sunday. Les 3ALE is quite active and Bruce 3AGG is experimenting with the cubicle quad. Murray 3HZ is busy moving in to that new house now. Des 3CO was expected to spend an interesting annual leave on a trip to Goodwindi and back. Our Secretary, Assoc. Earle Scoones was away on a study course in Melbourne recently.

The Zone Annual Convention should be held later this month (June) so keep listening to 3WL for further details.—3FD.

FAR NORTH WESTERN ZONE

Activity in the zone is brightening. 3TI has installed an all-band final which is reported to be working satisfactorily on 80 and 40 mx. 3AUG spent many months re-building rx to the 80 and 40 mx band and we hope he will be operating on these bands as well as 20 mx in the very near future. 3AJU has been very quiet for the past two or three months, due to harvesting operations and later holidays in Sydney. 3FC in Ouyen, still busy working DX. 3CZW also at Ouyen is the two metre king of the zone. Max consistently works 5BC at Remark, distance of 115 miles airline from Ouyen. From 18th Dec. he has had 65 contacts with Hughie 5BC.

We understand there is a new licence issued in Ouyen to Cor, believe the call to be 3AVT. Congrats Cor, hope to hear you on the air soon. 3APF has been busy re-building his tx and it is now operating quite well on 40 mx. 3MF and 3SN are too busy to spend any time with Amateur Radio. Have not heard 3AKF on the bands for a long time, used to hear him occasionally on 80 mx. After a silent period of three years, 3GZ was again active on 40 and 20 mx working the odd bit of DX.—3GZ.

SOUTH WESTERN ZONE

The zone is still very active and since the usual Sunday hook-up has been on 40 mx frequency 7050 Kc., there has been a good number in on it. It is also great to hear Bill 3BU come in on the hook-ups, but there are still more from that area we would like to hear on, so what about it—burn those cobwebs out of the tank coil. 3IC visited 3XI last month whilst on his way through Warrnambool on holidays, sorry I missed out on seeing you Bob. 3ARJ has been having some good QSOs in various parts of the United States on 14 Mc., keep it up John. Although Ted 3PS has been inactive for approx. three years, it is hoped that he will be pushing a little r.f. about the sky shortly so that will be another one returned to the fold.

Jim 3ABT has been heard here at Warrnambool. There is one very important thing that I think you will all agree on and it is how gratifying it is to all zone members to know that we won the Kinnear trophy. Harry 3HF still has his nightly QSO with WBCR and W4DPI. Les 3DX has been cleaning his shack up so may hear him in the near future. Would like to have one of the boys from Ballarat come on at 10 o'clock each Sunday on the

hook-up, so how about it chaps? 3XI and 3ANQ would like some of the Melbourne boys to shoot a signal on 144 Mc. towards Warrnambool. Leigh 3II, who is en route to the Northern Territory, has been contacted a few times by 3AGD, but he won't be on again for a while as the Type 3 is in his car on the railway. Also Maurie 3AMA is to join him on the return trip.—Bill Wines.

GEELONG AMATEUR RADIO CLUB

A very enjoyable evening was held in the club rooms recently when Mr. J. Fisher entertained members with a description of a recent Journey to Central Australia. Many coloured slides accompanied his talk and the section on Ayers Rock was particularly interesting. The President, 3AJF, suitably responded on behalf of members. Bill 3BU is to give his "movie" evening of current club happenings on 20th June. All friends and members are cordially invited to view the screening in the club rooms at 8 p.m.

The activity on 2 mx continues to expand and many Melbourne stations are being contacted—3XH, 3AWZ and 3ZAV are anxiously tuning the band most nights about 9 p.m., but the only stations heard often are 3ZBE, 3ZAI, 3BQ, 3ALZ and 3ALY. What about turning the Melbourne beams west, our rx's are good enough to receive you.

Members here are greatly impressed with the improved "A.R." of May last and are in full accord with any proposed changes. Now that new regulations permit freer use of portable equipment, Geelong members would like it known that at least four portable stations will be in operation on 80 mx on the hour each Sunday afternoon in future. What about a few contacts?—3AWZ.

MOORABBIN RADIO CLUB

The club's last meeting was held at the club rooms on 20/4/56, about 25 members being present. Jack 3RV lectured on his v.h.f. activities up at the Eildon War project. Jack explained how the v.h.f. hook-up kept the wheels turning up at Eildon to split second timing. The meeting wound up with the usual supper and natter. Thanks, Jack.

The following week one of the club members, Maurie 3AMA, set off from Geelong with Bob Andrews in Bob's Landrover to go cross-continent (mobile on 40 and 80 mx) via Broken Hill, Charleville, Cloncurry, Tennant Creek and finished up at Alice Springs for the Rev. John Flynn's memorial opening of a church in his memory. Keeping in constant touch on the Amateur bands with VK3 Amateurs, Maurie also had a special permit and xtals to operate and keep in touch on the Flying Doctor frequencies (an old job familiar to Maurie's early career in radio). Tom 3TL at Alice Springs passed on all progress reports on the later leg of the trip.

QUEENSLAND

BRISBANE AND DISTRICT

This month's issue has caught us by surprise so please excuse us if we don't give you as much as you want. Winter is drawing on and the temperature is on the way down to the seventies (at 33 Division please note). One consolation, DX conditions are on the up grade on most of the h.f. bands, some remarkable things are happening, with the events on six metres being the most remarkable.

"A.R." let all licensed Amateurs in VK know that we are now on five metres. Unfortunately, all the boys aren't W.I.A. members and activity continued on six. Then it happened! Six opened with a vengeance and, of all things, the JA stations started to roll in and as no one had been informed officially, everyone with six metre gear got on and "worked DX on six." The quaint part of it, most of the JAs were using antennae for cross-town QSOs and hardly any had directive arrays. Well, the lucky few, who usually pass their time with cross-town QSOs on six, were up to their necks in DX. This should be a good argument for six metres to stay in Amateur hands. If there had been any t.v. stations active on Channel 1, just imagine what those signals would have done to the "pretty pitchers."

Talking about DX on the "a.c. bands," your Secretary called into Jack 4JO's QTH around 7.15 a.m. on the way to work. Jack put his head out of the window and beamed "I've just been working DX." When asked what DX he worked he replied "a station in Maryborough" and this brought the "d.c. band" man's reply "That's not DX." "It is on two mx" said Jack with his mouth spread from ear to ear in an immense grin.

The h.f. bands have been mighty good with DX just pouring in—the sunspots, you know. At the annual dinner, Prof. Webster answered a

question that had been puzzling 100 per cent. of your sub-editorial staff. When the solar explosions occur we have black-outs on the bands, but we look forward to sunspot activity for good conditions. Now here's the score, the solar explosions, or Derringer Flares to give 'em their real scientific name, cause a great stream of cosmic rays to approach the earth. The cosmic rays bombard the ionosphere and cause the D layer, which is the layer nearest to the earth, to become highly ionised and this saturation of the D layer causes the radio waves from the earth to be absorbed instead of reflected or pass through to higher layers to be reflected. Well, during the short period at sunrise and sunset when all the layers come together, the D layer, being a generous type, and being saturated with ionisation, passes on its "charge" day by day until the generous one becomes normal and the upper layers are "re-charged." Well, you know what happens then, we're in business again.

Although Ipswich is not heard in Brisbane unless the skip is extremely short, we can hear stations further away working the gang in Ipswich. One Ipswich station is working 'em and that station is 4YA—good to know you are active again, Bill. Get on 40 or 80 and say a few words to your Brisbane pals. I wonder if any of the Ipswich gang will be at the Queen's Birthday long week-end down at the South Coast for the Convention. We will be seeing you fellows.

A visitor to the last general meeting was Les 4NV who had a remarkable little transistorised device. A hearing aid with a built-in broadcast rx. Les, who is a G by birth and now a VK, had just returned from a business trip over to the Continent and brought quite a lot of new hearing aid gear back with him. Another visitor to the meeting was Peter 4EB who has just gone into double harness and now has an XYL. Again, congrats, Peter.

Well, that's it, gentlemen, hope you aren't disappointed with our effort, but we are still suffering from the "after-effects" of the rain.—4ZM and 4PR.

TOWNSVILLE

There was quite a nice crowd at the April monthly meeting of the T.A.R.C. and real nice to see some new faces and quite a few of the old timers sent along an apology. After quite a discussion on finance, it was decided to make the next meeting a film one and a small donation is expected from each to help defray cost of returning films by air freight. Two students of the classes breached the barrier at the last A.O.C.E. and here's hoping that they will be successful.

Eric 4EL gives 21 and 28 Mc. a doing and has worked 114 countries on 21 Mc. Don 4PW from Yeppoon was a visitor to Townsville disposal sale, but did not buy, decided the money better spent on a holiday. Visited the writer's shack and much impressed by the water pipe mast for 2 el. beams. Vern 4LK had his wish fulfilled first week in May by working into Japan on 50 Mc. Bob 4NG had over 15 QSOs before band faded. Remember a few months ago when Japan reported hearing sigs on 50 Mc. and all the boys were trying to break through. Well first week in May quite a number of VK4s and a couple of VK2s managed QSOs before we lost this band altogether.

Norm 4NT put his rig on for the benefit of Mareeba Arts and Hobbies Fair and worked all and sundry. Allan 4BE out helping Bob 4RW to try and tame his 807 p.p. final on 10 mx, but still not OK, still taping off. Ken 4XD, of Cairns, opened up on skip on 14 Mc. and worked into Townsville to renew old acquaintances. Sorry to report that Ed 4WH is laid low with gall stones. Hope you are soon about Ed as they can be very painful. 4WI news coming in real well of a Sunday morning now, but not sufficient in the hook-up after. What about it boys, no news this month from Mareeba, Atherton and Cairns.—4RW.

SOUTH AUSTRALIA

The general meeting was held on the usual second Tuesday of the month and once more there was a grand roll call of members. John 5KX, the Div. President, was in the chair and after welcoming the visitors, he introduced the lecturer for the evening, Mr. Rob Gurr, 5RG. Rob took as his subject, Single Side Band Exciters and after outlining the advantages of using this form of transmission, proceeded to delve into the technical considerations. He discussed particularly the use of the xtal-lattice type of filter incorporating FT241A type harmonic xtals operating on their fundamental frequencies. By choosing adjacent channel xtals in the usual bridge circuit, two xtals will produce the necessary attenuation per stage that is required to achieve the suppression of the upper or lower side band. Rob has chosen 440 Kc. as his centre frequency in the exciter that

he produced (unwired in a new chassis and layout) for the edification of members. He contended that he would achieve similar results with the 10w. s.s.b. that he was now getting with 100w. a.m. By using frequencies around the 455 Kc. mark, i.f. transformers can be used in interstage coupling. The vote of thanks to Rob was carried with good volume of applause.

Following the smoko and distribution of QSL cards by George 5RX and Joe 5JO, the minutes of the previous meeting were read and confirmed. The old hairy one of 50-56 Mc. was brought out, dusted and given an airing. This can now be laid respectfully away following the receipt of notification from the Department last week. A much more disturbing matter that Amateurs had better do some real thinking on is the change from 144 to 146 Mc. This band is really an International band where 50 Mc. was a Regional Agreement! You are also urged to complain bitterly about the pirating of the 7 and 14 Mc. bands by commercials. Federal Executive needs all the information it can obtain to substantiate any claims which it will certainly make to the authorities. Send any loggings to me and I'll forward them on: date, time, and type of transmission are required. If you have any testing to carry out, settle on the commercial's frequency! Make quite sure that the interference is not second channel effect due to inadequate r.f. selectivity.

There has been quite a discussion in technical circles on the misused term "splatter." This can be caused by a variety of troubles ranging from de-tune p.a.'s to sharp cut-off tubes in the r.f. stages. If you are really confident that your tx is free from all the ailments that beset the average tx from time to time then what about writing up your testing and checking equipment for "A.R." and describe why you are so sure! There is a monitoring station in every State as well as an Amateur Advisory Committee and reports on signals can be initiated from anywhere in Australia. All such reports are forwarded to VK5 Amateurs from the Adelaide headquarters.

Now that t.v. licences are available to Amateurs, I wonder if Sid 5ME will be the first on in VK5. Congrats. on the t.v. certificate OM. The b.b.s.s. will have to look out, Warwick, with these up and coming youngsters! Anyone got a spare camera tube for 5W?

NORTHERN AREA

Amongst visitors to the shack of 5WI this month was John 5ZAZ, who was citying to assist as best man to another from Blinman. John has been horse-riding round the sheep station and finds the peace of the outback preferable to the racket of city life. He is hoping to drop the Z as soon as possible.

Thursday nights at 1900 hours a slow morse session comes from the inland chaps and the frequency has had to be shifted slightly higher than 3504 Kc. because of interference.

5WC with Bernie at the mike was pouring a good signal down my feeders. Also Ern 5EN at Pirie had apparently cleared up the trouble of a few weeks ago and together with Comps 5EF and Les 5AX we had a really fine net for an hour. Les went mobile and managed to put an S5 signal into Adelaide on a loaded whip and 2w. input to the final. Ron 5AP on the job on Sundays and earlier in the month we had quite a net with Reg 5UF adding to the gathering. Ron 5FY, Hon. Sec. of the Woomera Club, reports that there are 12 members in the club now with call signs, 5FF, 5QW, 5JE, 3ARO, 5ZAS scattered between them. Ron is preparing a story for "A.R." on the club which will give you some idea of how they have progressed over the last three years.

Correspondence to the Club can now be sent to P.O. Box 38, Woomera. Ray 5FF found it necessary to resign from office and the new President is Keith 5ZAS, with Bernie 5QW as Treasurer. Ray 3ARO and Sid Murphy together with Ron make up the committee for 1956.

EYRE'S PENINSULA

From Lincoln Wally 5DF made an appearance recently using pr. 866s previously reported "one blue and the other red in the phase." Says that DX is good, but fishing is better and he'll stick to cycles and fire-fighting! No news regarding the others so gather that either DX or dianas has got them fixed up. Haven't heard a word from Bert 5DR at Cape Borda, but maybe will work you again over the holidays—whose did you say? Mine, of course. I'm always on holidays, like Doc and Bram—they're touring the "Apple Isle," so stand by VK7.

SOUTH EAST

Take a look at the weather charts for Tasmania. Erg 5naah and you'll soon find out who is the weather "5naah." Doc or Joe. Apparently Charlie 5ON had a restless night when camped at Pt. MacDonnell due to, so he thought, "them

there so and so semi-trailers with open exhausts." It couldn't have been that bad Joe, or you would have woken yourself up with your own snoring.

Claude 5CH brought along the new power supply for his proposed modulator to show and describe to the chaps at the monthly meeting—a really classy job was the vote. Looks like you mean business, Claude, pair of 813s, eh? Stuart still "Zephyring" about with little time to spare for the air—seems he might be running out of countries to work. John 5FD has gone motor cycle racing—only five spills during his last effort and is showing the strain somewhat, hobbling around at work. Col 5CJ has been heard on 40 mx occasionally, even up here too Col, but haven't made a QSO yet. Tom 5TW and Les 5ZAG still get together on the 2 mx weekly round-up with the boys. Bram 5AB is reaping the DX field with his antennae farm: 10 vee-beams and 20 relays or is it 20 vee beams and 10 relays, Bram? Erg 5KU managed a new country and is still listening for more, however very much interested in the construction of a new sail-plane.

Don't forget those technical articles, chaps. Keep them coming in, we are not up to our record yet.—5XU.

PAPUA—NEW GUINEA

Our Secretary informs me that the subs. are rolling in at a gratifying rate, including some who had previously let their membership lapse, so looks like the youngest Division is slowly and surely getting past the crawling stage. Judging by the keenness of some of our councillors we should begin to make our presence felt in forthcoming competitions later in the year. F.E. also advises that they are looking into the matter of us having the short end of the stick on the scoring, particularly in regard to the v.h.f. sections and their multipliers, where we are really out on a limb.

An appreciative note has been received, thanking our Division for a donation towards VK9WI, which brings us to the matter of our own rig for VK9WI. Negotiations are well under way by our able Secretary on the application for the maximum of half a gallon, to make the dissemination of news more satisfactory on the weekly Sunday morning round-robins. When this r.f. factory is exporting ergs in the grand manner, it will be a real leap forward in our progress and no doubt be the means of bringing many more into the fold. Particularly pleasing in this direction is the number of associate members joining up; our latest additions being C. Fonseca, better known as Fon to the gang, and I am informed he has a xtal rig all ready and only awaiting his ticket. It is quite a credit to his keenness, considering his isolation up at Lorengau on Manus Island and we all look forward to hearing from you Fon OM. Another new member in the same category is Jack Gray, and we would also be pleased to hear from you OT.

This Division also has another radio club, according to press reports in the local publication of news; this time in Rabaul and we look forward to getting the gen. on the set-up and wish the Copra City success in their new venture. Two affiliated clubs with our small membership is real progress in anyone's language.

Incidentally Bill 9BW. I had an interesting QSO with a W recently, and he dug up a photo of the gang at the pre-war convention at the Bulolo power house, and enquired whether yourself, 9RM, 9VG and 9WG of Salamau were still in the Territory. Boy, what a convention that was; could you ever forget it! If I remember correctly, it went non-stop for the entire week-end, but I couldn't guarantee to go that distance at the next one. How do you think you'd shape up, Bill?

Hope Reg 9ZAL makes the grade for an unrestricted ticket at the next exams. Jim 9AS joins in the hook-ups at every chance. He said 9AU usually QRL on the commercial circuit. 9OQ is now the latest victim to be bitten by the virus and has ticked off the States worked and now has his head down for the balance of the 48. 9DB has only two to go. 9RM has his nose in front for the first time with only one to go. Claude 9TZ is now putting out a consistent signal and in between tankmaking is putting up fancy sky wires to exhale a little extra r.f.; does a really commendable job with his 6v. powerhouse.

Also a letter from 9RC, who bemoans the cold of VK3 land and has not been enjoying the best of health since he left, but still managed to present his credentials to F.E. on behalf of VK9 Division and we are indeed fortunate in having such an able old-timer from the Territory to advise on conditions prevailing within the Islands. We all join in wishing you a speedy recovery Ron and look forward to the day when we can be in QSO with you with the new call sign.

One of the II-year-old lads of the Wau Radio Club managed to snare a W6 in his first QSO on c.w. and has been speechless ever since. Needless to say the club QSL was despatched air mail the same day! The rest of the pupils raced back to their buzzers to see who would be the next to qualify for the honour.

We have our general meeting coming up shortly now that 9FN is back from the big smoke (or is it the big wet, Frank?) and again takes the driver's seat for the elections of office-bearers for the ensuing year, including a vacancy for an editor of these notes, as I expect to be going finish within three months. So keep in mind your nomination for the job when they are called for at the general meeting. Let's all get together, and make this a really bumper year after such a good start.—9RM.

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: BC348L Rx with noise limiter, S meter and instruction book, £40; power supply extra. Two 7 Mc. xtals, £1 each. Power transformer, 400v. aside 150 Ma., 30 hy. 150 Ma. choke, best offer. W. R. Jardine, Box 145, Leongatha, Vic.

FOR SALE: Modified SCR522 Tx/Rx. Tx has tun. meter, ant. relay, vernier drive on all condensers, two xtals, 832A final. Pr. sup. 465v. at 300 Ma. with 5R4GY and two 6X5s with VR150 for —150v. bias. Rx has 6AK5s front end, Eddystone vernier dials, S meter, noise limiter, a.v.c. and 6 in. speaker. All mounted on AR7 type rack with grey steel panels. Complete 2 mx rig for £50. Rx only. £27/10/-. One only 813 with socket, £2. Labgear 80 mx wide band coupler, 35/-. Command v.f.o., 5.3-7 Mc., £4. 0-10 Ma. meter, 30/- 0-100 Ma. meter, 30/-. One only 2E28, £2/5/-. One only Wharfedale 25w. Hi-Fi Speaker, £25. L. A. Paul, 340 Rathmines Street, Fairfield, Melb. (JJ 1823).

FOR SALE: Xtals, many freqs., mostly FT243 holders. All £1 ea. Write for list. T. R. Naughton, Box 80, Birchip, Vic.

SELL: Small 25w. bandswitched Tx, 6AG7 v.f.o., 807 p.a., covers 80, 40, 20, 15 mx. Built-in 400v., 150v. reg., 6v. d.c. and ant. relay. 10" x 6" x 15" high. Phone/c.w., grey finish, metered, no bugs, no haywire. 144 Mc. Transceiver, 5" x 5" x 4", sep. vib. supply, uses 6C4 and 6BJ5, sigs hrd. over 100 miles, ideal port. Various quantities 6SK7, 6J7G, 7Q7, 7R7, pr. 6A3, pr. 6L6G, TZ40, 83, 884, 807, 6AK5, 9001, 6R7, 1D8. Type 3 Tx incomplete, modif. as per "S.W." mag. '55, plus spare pwr. trans., vibs., i.f.s., gang. National velvet vernier dial and 0-500 microamp. meter, 2". J. Griffiths, 2 Higgins St., Wangaratta, Vic.

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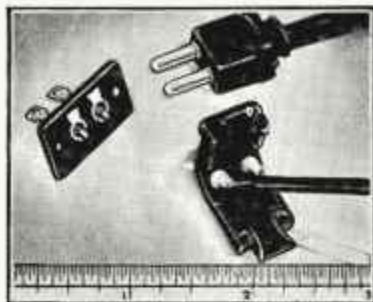
TV

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Plugs & Sockets for TV Aerial Terminations by BELLING AND LEE

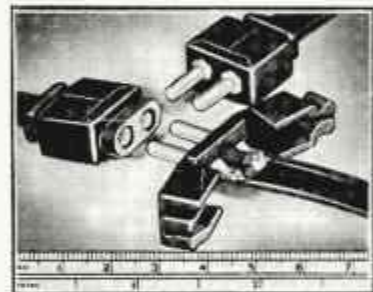
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L733/P—Free plug for twin feeder.
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These inexpensive plugs and sockets were designed for use with unscreened balanced twin feeder as employed in television and short wave installations. Accepts 80 or 150 ohm feeders. L733/J—Free socket. This is similar to L733/P, but is fitted with socket inserts as in L677/J.

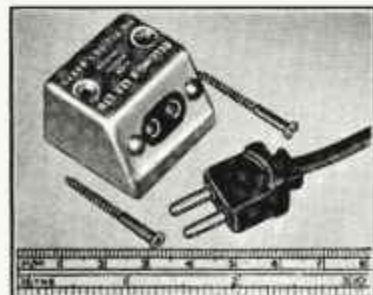


L733/J—Free socket.
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Australian Factory Representatives:

Co-axial Outlet Sockets



L753—Outlet socket box.

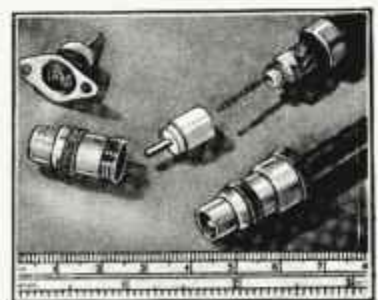
An improved surface mounting outlet box designed primarily for neat termination at the skirting board of television aerial installations. Will accommodate feeders up to 5/16 in. diam. The appropriate range of pins is listed under L1329, L734/P and L781.

This box is also suitable for certain laboratory and test bench installations.



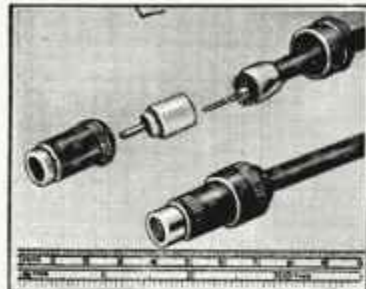
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This box has two standard outlet sockets and is complete with a "star" matching network which provides the coupling between the incoming cable and the outlets. When two receivers are connected, the input to each is 8 db. down on the input to the box. Designed for use in demonstration rooms, workshops and laboratories, etc., or where neighbours in semi-detached or terraced houses wish to share a television aerial installation. The appropriate range of pins is listed under L1329, L734/P and L781.

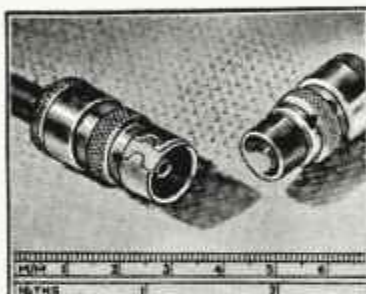


L731/P and L1329—Standard free plugs.
L734/S—Fixed socket.

Co-axial Outlet Sockets



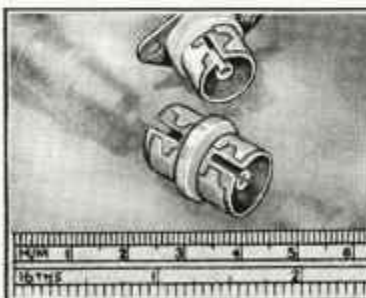
L781/T—Free plug, insulated.



L734/J/AL—Free socket.

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Complementary sockets for above range of plugs are L734/S, L694/S (fixed) and L734/J (free).



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New 1956 Australian Call Books now available	4/6 each
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THIS MONTH'S SPECIALS

VALVES: 6AG7 15/-. 6G8G, 6K8G, 7C5 10/-.

Filament Transformers, 10v. 3 amp., 12.6v. 2 amp., 6.3v. at 300 Ma., brand new	£2
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Filament Trans.: 230v. input; 2 taps 8.5v. at 8 amps.	35/-
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Bendix RA1B Power Supplies, 240 volt AC, 24v. at 1 amp. output 250v. HT	£5 each
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Gold Plated Marker and Commercial Crystals, price on request. Delivery in seven days.	

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2218.7 Kc.	5744.444 Kc.	7028 Kc.	7100 Kc.	8155.714 Kc.
3382.5 Kc.	5750 Kc.	7028.5 Kc.	7106.7 Kc.	8161.538 Kc.
3500 Kc.	5892.5 Kc.	7032 Kc.	7110 Kc.	8171.25 Kc.
3535 Kc.	6450 Kc.	7032.6 Kc.	7120 Kc.	8176.923 Kc.
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4285 Kc.	7004 Kc.	7040 Kc.	7125 Kc.	8183.5 Kc.
4495 Kc.	7005 Kc.	7042.65 Kc.	7126 Kc.	8317.2 Kc.
4535 Kc.	7010 Kc.	7045 Kc.	7130 Kc.	8320 Kc.
4540 Kc.	7010.7 Kc.	7047 Kc.	7134 Kc.	10.511 Mc.
5000 Kc.	7011.5 Kc.	7050 Kc.	7140 Kc.	10.515 Mc.
5050 Kc.	7011.75 Kc.	7053.5 Kc.	7145 Kc.	10.524 Mc.
5300 Kc.	7012 Kc.	7063 Kc.	7150 Kc.	19.530 Mc.
5360 Kc.	7016 Kc.	7064 Kc.	7156 Kc.	10.5465 Mc.
5456 Kc.	7018 Kc.	7068 Kc.	7162.5 Kc.	10.556 Mc.
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AMATEUR RADIO

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TECHNICAL EDITOR:

K. E. PINCOTT, VK3AFJ.

TECHNICAL STAFF:

J. C. DUNCAN, VK3VZ.
D. A. NORMAN, VK3UC.
R. S. FISHER, VK3OM.
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ADVERTISING REPRESENTATIVE:

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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 58 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., 58.6 and 146.25 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 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 3.3, 7, 14 and 144 Mc. Individual frequency checks of Amateur Stations given when VK9WI is on the air.

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EDITORIAL



THE AMATEUR IS A GENTLEMAN

When, following the Fall of Rome, the barbarian hordes enveloped the civilised world, much of the order and culture painstakingly built up over centuries was lost. The Dark Ages had arrived.

However, out of the turmoil that followed, there emerged a system of living which endeavoured to bring to men a better understanding of the problems of others. Though the strength of "ye strong right arm" was forever to be seen, the code of chivalry did much to improve the lot of men. As a result of being honourable, courteous, loyal, just and brave, the term of "Gentleman" was coined and proudly owned.

But it is a far cry from the knight on the lists at Ashby-de-la-Zouch to the Amateur in his shack in Sydney, Melbourne or elsewhere. Or is it?

Though time has passed, the term Gentleman still remains. Point number one in the Amateur's Code is "The Amateur is Gentlemanly. He never uses the air for his own amusement in such a way as to lessen the pleasure of others. He abides by the terms of his licence."

It is therefore important, that from time to time, we take stock of our actions in relation to the term "Gentleman." What of that section of the band for c.w. only? What of listening on the frequency before transmitting? What of allowing others to work that "rare one" by making a short contact?

THESE AND MANY OTHERS
ARE THE ACTIONS OF A GENTLEMAN.

FEDERAL EXECUTIVE.

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REPORT OF THE FIRST T.V.I. FIELD TEST

BY FIVE MEMBERS OF THE H.F. T.V.I. COMMITTEE OF N.S.W. DIVISION OF THE W.I.A.

EQUIPMENT USED

The v.h.f. receiver, built by VK2AOU, had the following circuit: 6AK5 triode connected as grounded grid amplifier (to prevent radiation by the following stage), triode 6AK5 superregenerative detector incorporating a Colpitt's hot cathode oscillator, 0-1 Ma. meter in the plate circuit (bridge) to compare field strength, 12AT7 twin triode as two-stage audio amplifier to identify signals received, and headphones.

The receiver was battery operated and portable. Ranges: 59-70 Mc., 83.4-99.7 Mc., 129-156.8 Mc., and 168-205.6 Mc.

FIRST TEST

The transmitter was the station of VK2AOU, which was described in "Amateur Radio," November, 1955, to January, 1956. On 14 Mc. and 21 Mc. it is an eight stage and on 28 Mc. a nine stage transmitter with fixed tuned band filters between the frequency multipliers and also between the driver and final. The final used a pi-tank followed by a low pass filter (described in November, 1955, "A.R.") and a multi-band antenna coupler. The transmitter was running with 100 watts input and a three element miniature beam, 44 ft. high, was connected. The sound of a clock was used for 100% modulation.

14 Mc. Tests: Near the transmitter the harmonics were weaker than the output of a small g.d. meter. With the p.a. off, nothing was heard in other rooms or underneath the beam. The next check was made outside the house, 20 yards away from the transmitter and beam. The only harmonics heard in the range covered by the receiver were the 5th and the 6th.

The 5th was right in the noise of the receiver and had only 0.05 times the field strength of the Sydney 92.1 Mc. v.h.f. f.m. transmitter.

The 6th harmonic was near the v.h.f. taxi signals which were not disturbed by the harmonic, because the taxi stations were much stronger. This 6th harmonic had about 0.1 times the field strength of the f.m. radio station.

There were no harmonics on higher frequencies or within t.v. channels. Even the 6th harmonic disappeared 50 yards away from the transmitter.

Further tests showed that the directivity of the beam had no effect on the harmonic radiation.

28 Mc. Test: The second check was carried out with the transmitter running on 28 Mc. Outside the house, 20 yards away from the transmitter, the third harmonic had the same strength as the f.m. radio station, but this signal was outside any t.v. channel, and Sydney t.v. stations will have a 10 to 30 times greater effective radiated power working from nearly the same location. The distance between the f.m. station and our test location was about 11 miles. There was no direct line of sight to the f.m. transmitter.

There were no higher order harmonics available outside the house (5th, 6th and 7th for example). The 2nd and 4th harmonics were not covered by this receiver.

The beam was two wave lengths from and parallel to the mains line, and this was apparently the reason why the third harmonic was detected weakly in the receiver noise for about 50 yards. The last signs disappeared at a distance of 100 yards. This happened also as soon as the car went in a side lane away from the mains line.

The low pass filter was later removed and the receiver meter was reading 100 times the field strength of the third harmonic in front of the house, as could be expected.

Conclusion: This Amateur Station is not likely to cause t.v.i. due to harmonic radiation. The suppression of harmonics is in the order of 100 db. or more. Even this very simple receiver, with only one tuned circuit, was not overloaded by the transmitter.

A short rod was used as the receiver antenna, about 6 feet above ground. Therefore the very much stronger t.v. stations should give satisfactory reception with indoor antennae near this location over a distance of 11 miles. Any interference resulting from the operation of this Amateur Station must be therefore the result of faulty t.v. receiver design (chassis not shielded, insufficient front-end rejection of signals near the t.v. i.f., 28-30 Mc. Amateur signals), or faulty t.v. set alignment.

It is entirely the responsibility of the t.v. set manufacturer and/or the service man to fix the trouble.

SECOND TEST

The transmitter was the uncompleted new station of VK2FA. The essential t.v.i. proofing additions are not yet incorporated. It is a commercial v.f.o., driver with Geloso pi-tank circuit, p.a. with pi-tank circuit, with a full size two element beam. The transmitter was shielded and then placed in a further shielding cabinet.

Again no harmonics were heard outside the house with the p.a. stage off. The distance to the f.m. radio station was only 5½ miles, and there was nearly a direct line of sight, therefore the field strength was about 100 times stronger than at VK2AOU's place (Beverly Hills). The meter of the receiver has a logarithmic sensitivity in this super-regen. operation manner, as was found with a calibrated signal generator. A signal just visible on the meter (in the receiver noise) gave 6° deflection with 10 times and 12° deflection with 100 times the input voltage.

Working on 14 Mc. only, the result was: Harmonics below the 6th were not covered by the receiver (fundamental near 14.3 Mc.) The 6th had about 1,000 times the field strength as of VK2AOU's transmitter, and was equal to the f.m.

station, a result which must be expected because the antenna coupler may reduce the harmonics by 20 db. at least, and the low pass filter by a further 40 to 60 db.

The 7th harmonic of VK2FA's transmitter was only 0.05 times as strong as the 6th. No higher order harmonics were detected. There was a weak signal from this transmitter near 61 Mc. which must have been a mixing product of the 4th harmonic plus the fairly strong 3.5 Mc. signal of the v.f.o., because this type of v.f.o. has a high output, but not much selectivity, and the two pi networks are not sufficient. The 7th harmonic disappeared at a distance of 150 to 200 yards. The 6th harmonic was just no longer heard at a distance of 350 to 400 yards.

This test was on a road which was about level with the beam, whilst on the low side of the road 100 yards were enough to make the 6th harmonic unheard.

Conclusion: The selectivity of the v.f.o. should be increased to prevent all harmonics of the 3.5 Mc. v.f.o. reaching the driver and p.a. An antenna coupler and a low pass filter will have to be added as is intended. A three section low pass filter may be sufficient for a 100 watt input transmitter. But even with the transmitter as it is now, at five miles distance with nearly a line of direct sight to the t.v. location, the t.v. signal may be strong enough to prevent t.v.i.

It may be mentioned that the 2nd harmonic of a taxi v.h.f. station, which was 1½ miles away, was just as strong as the 6th harmonic of VK2FA's transmitter 50 yards away from his station. The taxi station's 2nd harmonic was near 168 Mc.

Driving through Sydney and suburbs several tests were made to see the variation of the strength of f.m. radio and taxi stations. The interference from trams and some cars was very bad on the main roads.

—Hans Ruckert, VK2AOU.

— . . . —

BOOK REVIEW

THE RADIO AMATEUR OPERATOR'S HANDBOOK

This is quite a useful little publication, a wealth of information is contained in the 48 pages.

It contains lists of prefixes, zones, call areas, Q and Z codes, and QSL Bureaux along with some sound advice on operating technique. In the words of the preface, "A copy in your shack will save much time." Both licensed operators and s.w.l.'s will find this a very useful publication. It should be noted that the addresses for the VK3, VK5, and VK7 QSL Bureaux have, since publication, been changed.

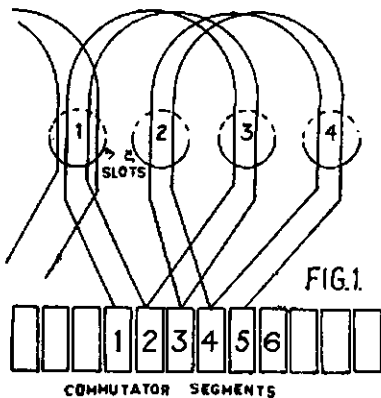
Our copy direct from Data Publications Ltd., 57 Maida Vale, London, W.9. Price 3/- Stg.

Converting the SCR522 Genemotor to 12 Volt Operation

BY N. C. WHITE,* VK5ZAW

A 12 volt genemotor was required for portable work on 144 Mc. by the writer, and that person, not having the necessary to purchase the correct article, studied the various advertisements for the easiest 24v. supply to convert. The SCR522 supply was available for a mere pittance and its output most suitable for portable work. A complete unit was purchased knowing full well that if it didn't work, enough copper was present to recoup financial losses.

Examination of the armature in the motor portion showed that there were twice as many segments in the commutator as number of slots in the armature laminations, this indicating four windings per slot (see Fig. 1). As it was necessary to get the same output with decrease in voltage input, it was realised that by selecting the two windings passing through the slot together and paralleling the ends, it would be possible for the armature to be converted without re-winding. This paralleling of the coils, doubled the current input thereby giving the necessary power to maintain correct output.

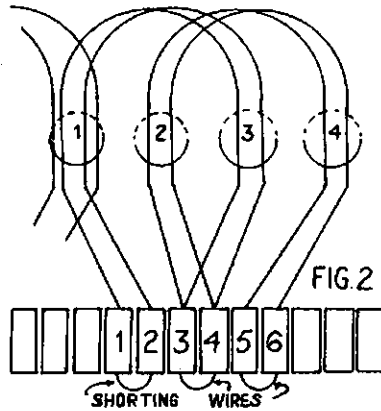


It will be seen from Fig. 1 that the two windings in slot 1 are connected in series by means of commutator segments 1, 2 and 3, and that this process is carried on right through the armature windings. If the ends of the windings were arranged as in Fig. 2, and the segments of the commutator shorted (e.g. 1 and 2, 3 and 4, 5 and 6) you would then have the armature conversion completed for 12v. operation. No other winding in the armature need be altered in any way.

The brushes were found to be quite capable of carrying the extra current and brush alignment is OK.

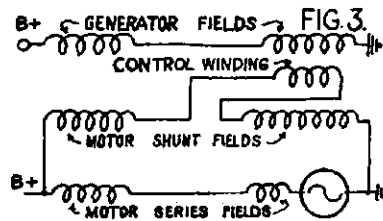
On investigating the fields several discoveries were made, namely, that the motor windings were compound wound and that the series fields were differentially polarised to the shunt field. As

there are only three turns in each series field, they are easily altered to accumulative polarisation by merely changing over the ends. By paralleling the series and shunt fields, it will be seen that the correct flux density of the field poles will be maintained.



The small winding in series with the shunt field (Fig. 3) is a form of control wound in with one of the windings of the generator field. The generator field windings develop like poles and therefore cancel each other, so it can be seen how this control winding, by varying the flux density of one winding, will regulate the output of the genemotor.

This is very nice for 24v. operation, now how about 12v.? The obvious move is to leave this control winding disconnected (do not short its ends together) and then connect the two generator field windings in parallel as shown in Fig. 4, making sure that the winding ends are connected so as unlike poles are developed.

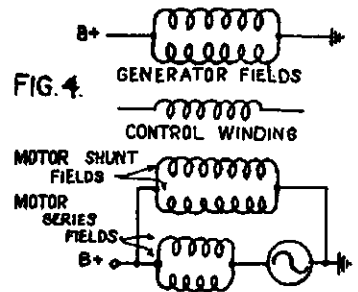


The voltage regulator can be discarded and a variable resistance of approximately 10 ohms (20 watt rating) inserted in the generator field. This is recommended as different equipment of varying loads and voltages are likely to be connected to the supply and complete control of output is necessary.

The relay can be dispensed with as it consumes current and a large current carrying switch substituted.

The filter system needs no alterations, as it was found on test that the genemotor on 12v. ran very close to its recognised speed.

As no suitable loads were available at the time of testing, globes of various wattages were connected. The largest, a 200w. 250v., was lit to full brilliance. It was also found that with the generator field disconnected, a 60w. lamp lit to 90%. No load voltage was 340v. and voltage dropped to approximately 260v. when the 200w. lamp was connected.



All diagrams show only field and armature windings altered, other windings are dispensed with for simplicity.

Go to it fellows, this unit is really worth the trouble to convert.

WATCH THOSE HARMONICS FROM THE 56-60 Mc. BAND

Editor "A.R.," Dear Sir,

Now that the 56-60 Mc. band is officially an Amateur band, may I point out the possible effects of second harmonic radiation when operating in this band.

The Visual-Aural Ranges operated by the Department of Civil Aviation operate on six frequencies, namely 109.5, 109.9, 110.3, 112.1, 112.5, 113.3 Mc., also ground to air communication frequencies are 118.1, 118.3, 119.7, 121.7, 122.1, 122.9 Mc.

As can be seen the danger frequencies in the 56-60 Mc. band are 56.05, 56.25, 56.65, 59.05, 59.15, 59.85 Mc. The bandwidth of aircraft receivers is up to 50 Kc. wide, so this would increase further the number of possible interfering frequencies.

The effect of interference on the V.A.R. receiver may be such as to give an incorrect course indication and at the same time, the cause not be apparent to the pilot, and even worse still, if the incorrect course is not noticed, it could be highly dangerous.

It would be to the benefit of all Amateurs operating on 5 metres to reduce if possible all harmonic radiation, and thus prevent any unnecessary trouble.

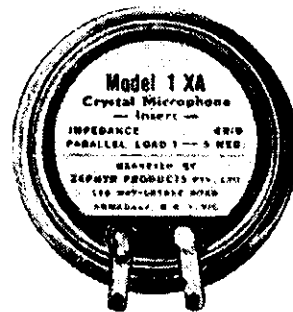
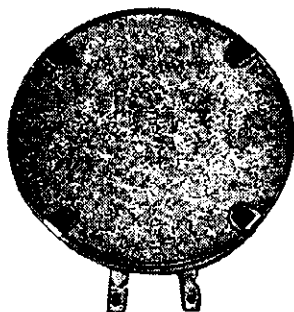
—P. D. FRITH, VK7PF.

* 3 Derwent Street, Cumberland Park, S.A.

MODEL "1XA" CRYSTAL MICROPHONE INSERT



AUSTRALIAN MADE — — FOR AUSTRALIAN CONDITIONS



FITTED WITH PLATED REAR SHIELD TO ELIMINATE HUM PICK-UP

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- 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.

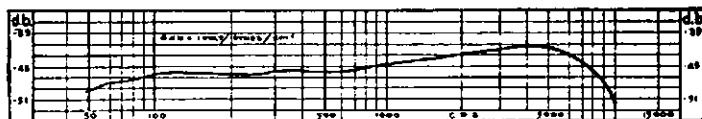
When mounted in a microphone cage, it is recommended that the insert be suspended in rubber, to eliminate shock and vibration.

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), ⅜" 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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REMEMBRANCE DAY CONTEST, 1956

The Remembrance Day Contest is an Australian annual contest 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 in each year, the date on which the 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 State each year is also inscribed on the Trophy.

For the purpose of the R.D. Contest all Amateurs within the Australian Capital Territory (VK1) are to be regarded as operating in VK2 Call Area with regard to Rules, Scoring, Return of Logs. All Awards will also be under the same conditions until such time as Federal Council agrees for it to be otherwise.

Again this year Amateurs in the VK1 Antarctica Call Areas can participate in the Contest. Scoring for contacts with VK1 (Antarctica) remain the same, namely, six points per contact per band for all States for contacts with VK1 (Antarctica).

RULES

1. The Contest will commence at 1800 hours E.A.S.T. on 11th August and continue through until 1759 hours on 12th August.

2. The Contest is open to all Australian Amateurs, but only members of the W.I.A. are eligible for the awards.

3. During the Contest, c.w., phone, or a combination of both may be used.

4. The Contest is an Interstate Contest, and Amateurs in each State will endeavour to contact Amateurs in all other States.

5. A station may be operated by more than one operator under the station call sign provided that operators, other than the station licensee, submit a separate log under his own call sign for contest purposes.

To implement this rule, the following procedure shall be adopted by all licensees other than owners of the station concerned.

(a) Licensees operating stations other than their own shall, for the purpose of these rules, be hereinafter referred to as "substitute operators."

(b) **Phone Contacts:** Substitute operators will call "CQ Remembrance Day," followed by the call sign of the station they are operating, and the word "log" followed by their own call sign.

(c) **C.W. Stations:** Substitute operators will call "CQ RD de" followed by a group call sign comprising the call sign of the station they are operating, an oblique stroke, and their own call sign.

(d) **Receiving Contestants:** Contestants receiving signals from substitute operators will qualify for points by recording the call sign of the substitute operator only (i.e. the last call sign).

(e) Nothing in (a), (b) or (c) above will preclude the station licensee from participating in the contest himself,

providing he submits a separate log under his own call sign.

6. All existing Amateur bands may be used, and all transmissions must conform with the Regulations as laid down in the P.M.G.'s "Handbook for the Guidance of Operators of Amateur Wireless Stations." Any breaches of these will lead to the disqualification of the operator concerned.

7. The arrangements of schedules for contacts on other bands will not be permitted.

8. All stations entering the Contest will call "CQ RD" if using c.w., and "CQ Remembrance Day" if using phone, subject to rules governing substitute operators under rule 5 (a), (b), and (c) above.

9. A State competing for the Trophy must submit a minimum of six (6) logs from financial members before becoming eligible for contesting the Trophy.

10. Only one contact per station per band is permitted.

11. Serial numbers to be exchanged during the Contest will be as follows:—

(a) For C.W. the first three figures will be the RST (telegraphy) report followed by the serial number of the contact commencing with any number between 001 and 100 for the first contact and increasing in value by one (1) for each successive contact. If any contestant reaches 999 he will then commence 001 and continue 002, 003, 004, etc.

(b) For Phone the first two figures will be the RS (telephony) report, followed by the serial number of the contact commencing with any number between 001 and 100 for the first contact and increasing in value by one (1) for each successive contact. If any contestant reaches 999, he will then commence 001 and continue 002, 003, 004, etc.

A complete exchange of serial numbers must take place before any points may be claimed for the contact.

12. In order that an equitable distribution of points for States with a large number of contestants compared with a State with fewer contestants may be determined, a sliding scale of points has been allotted as shown in the scoring table appended.

13. In addition to the points in the scoring table that may be scored by a contestant, a bonus of 25 points may be added to the total score for each State worked on 56 Mc. or above.

14. The log submitted must show in the following order: Date, time, band, emission, call sign, RST/No. sent, RST/No. received, points claimed. No log will be accepted unless laid out in this order.

15. A statement signed by the operator must be attached at the conclusion of the log stating that the Regulations (Rule 6) and these Rules have been observed. Any logs departing from this form will automatically be disqualified.

16. All logs must be forwarded through the Contestant's Divisional Council (for membership checking) to reach the Federal Contest Committee, Box 1234K, G.P.O., Adelaide, on or before 8th September, 1956.

17. Attractive certificates will be awarded to the winners of the phone, c.w., and open sections in each State; there will be no outright winner for Australia. Where a large number of logs are received from any one State, further certificates may be awarded at the discretion of the Contest Committee.

A contestant is deemed to have entered for the "open" section if his log reveals that he has, during the Contest period, made valid contacts on both phone and c.w.

18. The State to which the Perpetual Trophy will be awarded shall be determined as follows:—

To the average of the top six (6) 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.

Example: Total points equals—

$$\text{Aver. Score} \left\{ 1 \text{ plus } \frac{\text{No. of Logs}}{\text{No. of Licensees in Division}} \right\}$$

19. The logs which will be accepted for the multiplier under Rule 18 shall show at least five (5) contacts in the Contest.

20. The Trophy shall be forwarded to the winning State in its container and will be held by that State for a period of twelve (12) months when the winners for the succeeding year is determined.

21. The Federal Contest Committee shall be the sole adjudicators and their ruling will be binding in the case of any dispute.

SCORING TABLE

To

	VK1	VK2	VK3	VK4	VK5	VK6	VK7	VK9
VK1	6	6	6	6	6	6	6	6
VK2	6	1	2	3	5	4	6	6
VK3	6	1	2	3	2	5	4	6
VK4	6	1	2	3	6	5	4	6
VK5	6	2	1	3	5	4	6	6
VK6	6	1	2	4	3	5	6	6
VK7	6	2	1	4	3	5	6	6
VK9	6	1	2	3	4	5	6	6

VK1 Amateurs operating from A.C.T. will be classified as VK2.

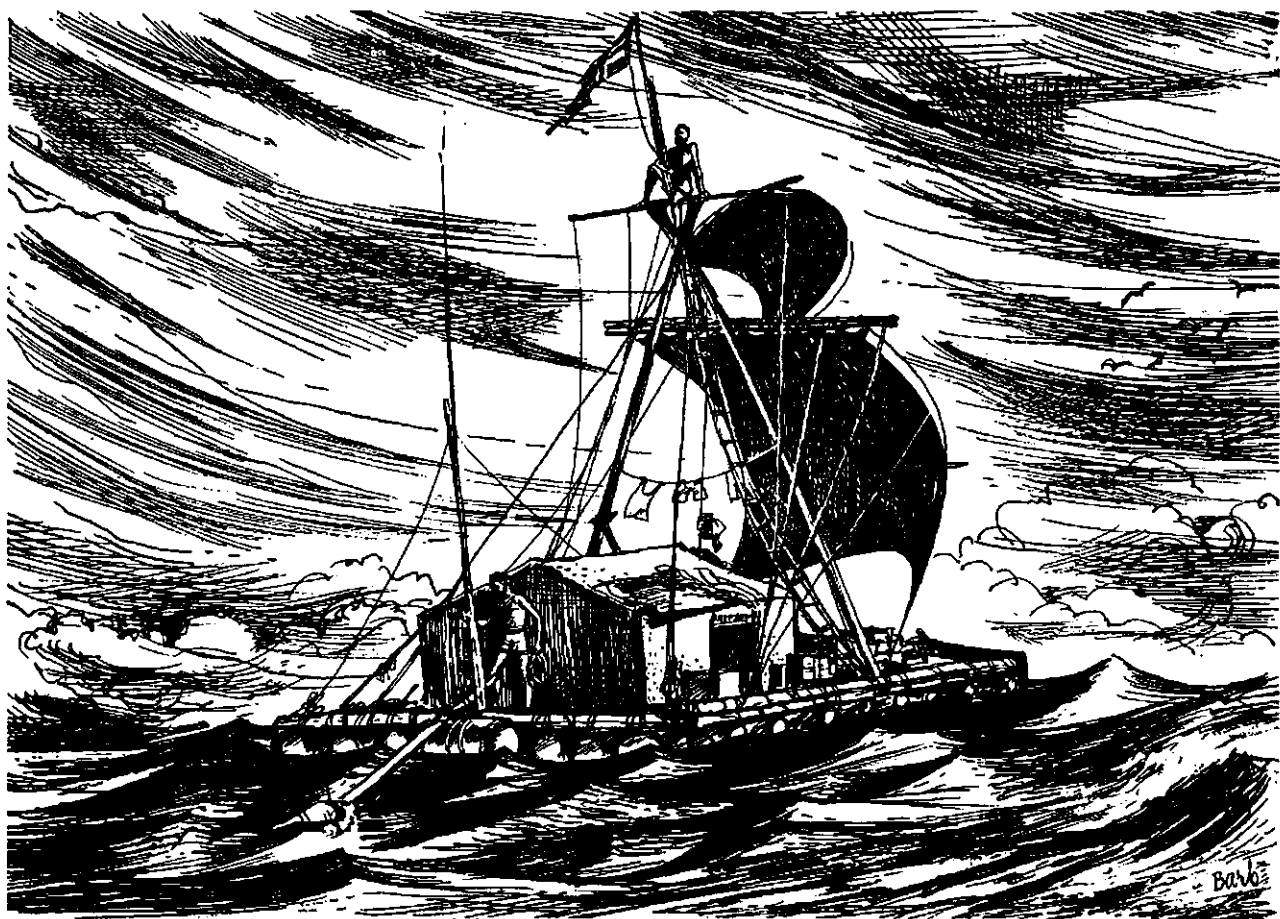
Note.—Read the table from left to right for points for the various States.

Examples:—

VK2 scores	1	point for a	VK3	contact.
2	"	"	VK4	"
3	"	"	VK5	"
VK6 scores	1	"	VK2	"
2	"	"	VK3	"
4	"	"	VK4	"

ERRATA

In the article, "Building a Panoramic Adaptor," June, 1956, issue, the author has drawn attention to an omission of the values of resistors R21 and R22. They are 470,000 (or 680,000) ohms. Also in Fig. 3, R14 should have been "V" gain, not "H" gain.



101 Days at Sea . . .

THE expedition by six men on board the "Kon-Tiki" must be one of the most exciting adventures ever undertaken by man.

The 4,300-mile journey on the balsa-wood raft took 101 days. Their only contacts with the world were temperamental short-wave transmitting sets and secret sabotage sets used during the war.

From the outset the wireless operators had a tough job. A sufficiently long aerial was a problem. They attached it to a kite but it was promptly blown into the sea. Then they sent it up on a balloon which burst in the strong sun. Salt water trickled into the battery cases and, finally, their pet parrot ate the aerial.

But, in spite of these difficulties, the "Kon-Tiki" managed to keep in touch with several

amateur radio operators, including a Norwegian who lived near Oslo.

This was almost a miracle, considering the short-wave transmitter, with its 13,990 kc. a second, did not send out more than 6 watts — about the strength of a small electric torch.

Improved Techniques. Amateur radio men everywhere have benefited from scientific discoveries which have revolutionised radio techniques.

In SHELL laboratories special resins* have been developed from petroleum and are now extensively used in the manufacture of enamelled wires, insulating materials, and condenser sealers found in radio sets of every type throughout the world.

*Epikote resins



**WIRELESS INSTITUTE OF AUST.
VICTORIAN DIVISION**

OLYMPIC GAMES ACTIVITIES

OLYMPIC DINNER

A special Olympic Dinner is to be held during the period of the Olympic Games in Melbourne, 22nd November to 8th December, 1956. The date will be announced in the near future.

STATION VISITS

For the special benefit of Overseas Amateurs visits will be arranged to a number of VK3 stations.

FIELD EVENTS

These events will be held in conjunction with Transmitter Hunts on one Sunday during the Olympic period.

Intending Amateur visitors are asked to get in touch with the W.I.A. office at 191 Queen Street, Melbourne, C.1, Vic., after their arrival in Melbourne. More detailed information will be published at a later date.

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Income Tax Returns compiled. Advice given. All types of books written up. Will call on enquirers.

H. HAZLE

396 Bourke St., Melb. MU 8096

AMATEUR CALL SIGNS

FOR MONTH OF APRIL, 1956

NEW CALL SIGNS

- VK— New South Wales**
 2GV—L. T. McLoughlin, Hunters Valley R.M.B. 113, Ellerston, via Scone.
 2AEA—R. W. Allison (Dr.), 88 Constitution Rd., Dulwich Hill.
 2AJO—J. W. S. Edge, Wallace Street, Coolamon.
 2ASZ—R. L. Lear, Station St., St. Marys.
 2ZAP—F. H. Wagner, 18 Lake Rd., Swansea.
 2ZBI—W. A. Thomas, 52 Springdale Rd., Killara.
 2ZDD—R. H. Dell, C/o. Mr. S. Davison, Cunningham Plains, Cunnigar.
 2ZDE—D. E. Woollett, 12 Broadarrow Rd., Beverley Hills.

Victoria

- 3DL—I. F. Amey, 14 Morgan St., Glenhuntly.
 3ET—R. D. R. Tracy, Station: Monash Rd., Olinda; Postal: 34 Docker St., Elwood.
 3KG—K. L. Green, 18 Clayton Rd., Balwyn.
 3AAI—N. K. J. Felstead, Lancefield, Woodend.
 3AGA—M. N. Russell-Clarke, 127 Manningham St., Parkville.
 3AIR—K. B. Ireson, Atkinson St., Templestowe.
 3ARG—R. E. Graemer, 21 Lyonsville Ave., East Preston.
 3AZO—J. A. Cunliffe, 21 Highview Rd., East Preston.
 3ZBC—J. T. Jarrott, C/o. Mr. L. Schulz, 159 Holmes Rd., Moonee Ponds.
 3ZBT—K. A. Thomson, 2 Edyvean St., Surrey Hills, E.10.
 3ZCC—N. R. Kay, 4 Curraweena Rd., Caulfield, S.E.8.
 3ZCD—D. G. Hawthorne, Flat 3, 11 Leopold St., South Yarra.
 3ZCL—M. A. Traill, 84 Argyle Rd., Kew, E.4.

HAVE YOU RETURNED YOUR QUESTIONNAIRE YET?

3ZCU—J. T. Cunningham, 11 Catherine Pde., Frankston.
 3ZCZ—M. R. Osborne, 14 Brenbeal St., Balwyn.

Queensland

- 4LX—M. J. Wratten, Station: 6th Ave., Palm Beach, Elamora; Postal: Clem St., Bras-sail, Ipswich.
 4OC—E. B. Connor, Cassowary St., Longreach.
 4QZ—C. W. Richardson, Hdq. North Eastern Area, R.A.A.F. Station, Camp Magnetic, Townsville.
 4SC—S. E. Brigg, 21 McKelligett St., Wandal, Rockhampton.
 4ZAI—L. F. Schmidt, 18 Marriott St., Coorparoo.
 4ZAJ—F. J. Edwards, 1 Market St., Warwick.

South Australia

- 5BT—D. G. Goode, Yankaila.
 5GP—G. D. F. Clarke, Station: "Donnachaiddh," 4 miles south of Narracoorte; Postal: C/o. R. P. Ender, Box 9, Narracoorte.
 5SB—D. S. Brown, Station: 6 Leichardt Cres., Fanny Bay, Darwin; Postal: C/o. Bureau of Mineral Resources, Box 449, Darwin, N.T.
 5ZAN—M. J. Goodridge, 63 Gray St., Plympton.

Western Australia

- 6RB—E. F. Robins, 148 McDonald St., Joon-danna Heights.
 6RH—R. A. Hallamore, C/o. A.N.Z. Bank, 84 St. Georges Ter., Perth.
 6TH—T. H. Talbot, "Wedderburn," Brunswick Junction.
 6ZAX—W. G. Redden, 40 Raglan Rd., Mt. Law-ley.

Tasmania

- 7BN—W. N. M. Nisbet, "Uneda," off Ormond St., Bellerive.
 7ZAF—T. G. Barnes, "Cotteswold," Main Rd., Tarooma.

Territories

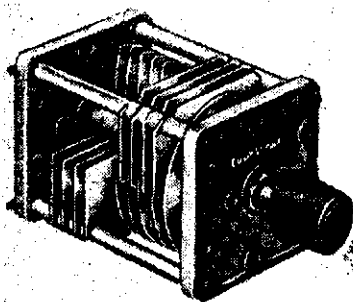
- 1IJ—D. R. Twigg, Macquarie Island.
 9AA—R. H. Harrison, C/o. R.T.C., Goroka, Papua-New Guinea.

C.W. BANDS: 3500-3550, 7000-7050, 14000-14100, 21000-21100, 28000-28100

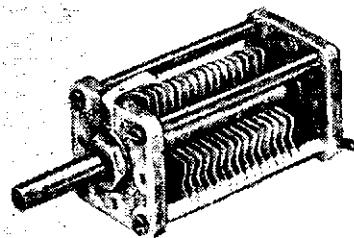
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We will be pleased to show you the full range of Eddystone Condensers and forward a Catalogue on request.



Cat. 832—50 x 50 pF. max. Transmitting, 0.080 inch spacing, 2,500 volts.



Cat. 738—100 pF., 0.030 inch spacing, double end plates and bearings.

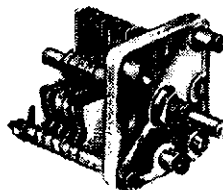
EDDYSTONE

TRANSMITTING AND RECEIVING CONDENSERS

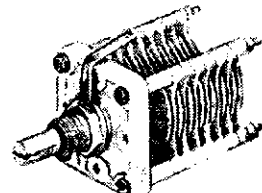
FROM THE HOUSE OF QUALITY PRODUCTS

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Cat. 815—00 pF. max. Transmitting, 0.048 inch spacing, 1,600 volts.



Cat. 387—15 x 15 pF. Butterfly Type, 0.052 inch spacing.

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AT5/AR8 Power Supply, Type "S", 240 volt AC	£25 0 0
Pye Power Supply, Vibrator type, 12 volt input, heavy duty	7 10 0
BC800B Transceiver, VHF, 16 tubes, new	9 10 0
BC800A Receiver, 15 tubes, may be modified to operate on 144 Mc. Amateur band	7 10 0
Tail End Charlie, RT34/APS13, ap- prox. 450 Mc., price with valves Without valves	10 0 0 5 0 0
Test Oscillator, Type 1.225, 150-225 Mc.	10 0 0
Wavemeter, Type SC164A, 145-235 Mc.	15 0 0
Signal Generator, Philips, 92.6 Kc. to 23.85 Mc.	25 0 0
Walkie-Talkie Sets, 7.2 to 9.2 Mc., with Mike, Headphones, and 4 foot Aerial Section	9 10 0
Beacon Receivers, 5 valve aircraft receivers, freq.: 195-420 Kc. .. each	5 17 6
Amplifiers, VHF, two stages, CV66 grounded grid, approx. 200 Mc. ...	1 19 6
5BP1 Cathode Ray Tubes, new, in cartons	1 7 6
511B Cathode Ray Tubes, new, each	3 10 0
3000 type Relays, brand new, 40,000 ohm	1 15 0
Vernier Dials, micro action, 6 inch diameter	1 9 6
Headphones, high impedance, 3,000 ohm	1 5 0
EF50 Valves, brand new	3 6
Sockets to suit (sold only with the valves)	3 6
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RECEIVER VHF TYPE IC/805B

This set comprises a very high frequency Radio Tele-
phone Receiver with a 240 volt AC Power Supply. It is
a superhet, contains 10 valves, and is crystal locked.
Operates at present between 35 and 45 Mc. In two
separate units: (1) Power Supply, (2) Receiver. Both
mounted together on a metal rack 20 x 39 inches.

PRICE: £30/0/0

The following matching equipment can also be supplied:

1. Transceiver Exciter Unit, 43.2 Mc. crystal controlled	£25 0 0
2. Three Channel Power Amplifier, 43.2 Mc.	5 0 0
3. 25 Watt Modulator Unit (P.A. only), in- cluding Plate Modulator Transformer P.P. 807 to 807	5 0 0

INDICATOR—TYPE 74

Type 74 Indicator Unit, modified to use as Oscilloscope.
3 inch tube. Complete with in-built Power Supply, 240
volt 50 cycles.

PRICE: £19/10/0

T.U. 10 TUNING UNITS

Contain the following equipment:

- 2 Vernier Dials.
- 2 Transmitting Type Condensers.
- Much other useful material including high
voltage mica condensers, radio frequency
chokes, etc.

Contained in a completely screened metal box. This unit
is an excellent buy for the Ham or Radio Experimenter
at the moderate—

PRICE of 50/-

FS6 TRANSCEIVER

These sets have given faultless and reliable service even
operating under the most adverse conditions.

Frequency 4.2 to 6.8 Mc.
6 volt operation.
807's on output.

Complete with Power Supply, Leads, Mike and Head-
phones. Limited number only available.

PRICE: £29/10/0

1196 TRANSCEIVER

A compact and reliable Transceiver designed to give
efficient service under the most rugged conditions. Com-
pletely self-contained and ready for immediate use.

12 or 24 volt in-built Power Supply.
4 fixed frequency channels (less crystals).
Frequency coverage: 4.3 to 6.7 Mc.
Nine Valves.

Brand new, complete with Headphones and Mike—

PRICE: £37/10/0

FIFTY-SIX MEGACYCLES AND ABOVE

NEW SOUTH WALES

On Sunday night, 6th May, immediately following the usual v.h.f. broadcast for VK2WI a 2 mx Scramble took place from 7.45 until 9 p.m. This resulted in 27 stations taking part and after reporting in, the operator, Perce 2APQ, announced the scores, the results being: 1st 2ANF, 22, followed by 2JX, 2ZCF, 2ZAV 19; 2APQ, 2AO, 17; 2ALJ, 2VL, 14; 2ABZ 13, 2AUA 11, 2ASA 10, 2ZC, 2ZBV, 8; 2ABE, 2YM, 7; 2ZAR, 6; 2ZCH, 2ZBB, 5; 2AFM, 3. Ted 2XX was heard frantically still trying to get a "contact" as late as 9.05 and it is believed that he was successful in working Peter 2JX.

Wednesday, May 9, at the home of 2APQ was the first meeting of the newly elected management committee where responsibilities were passed on members as follows: Chairman, Perce 2APQ; Sec. and Treas., Bob 2OA; Liaison Officer, John 2ZAV; Contest Managers and Field Day Organisers, John 2ATO and Horrie 2HL; Scribe for "A.R." Notes, Eric 2AFM. Plans have been laid down by this committee to ensure a good coverage of the various interests of 144 Mc. enthusiasts. Arrangements for a mid-winter contest are to be discussed at the committee's next meeting.

Future VK2WI v.h.f. broadcasts on 144 Mc. are alternating each Sunday night at 7.30 between stations 2ATO and 2ZAV and already these new WI operators have received very encouraging results. It is interesting that both 2OA and 2APQ have been heard commenting on the pleasure they now get from sitting back and listening to the broadcasts instead of transmitting them. John 2ATO has been keeping warm these cold nights by sitting alongside his power supply, but says he does not like the smell. Horrie 2HL had better contacts with the fish than 2 mx during his mobile holiday at Sussex Inlet. A new 2 mx DX station has been heard around Sydney, so keep an ear cocked for 2ZBK, of Blayney, on 144.69 Mc. who is keeping nightly skeds at 7 p.m. with John 2ANF.

The usual monthly meeting of the V.h.f. Group was held on Friday, 1st June, where, despite the cold weather and rain, a good attendance was made and our newly elected President, 2APQ, occupied the chair. We were honoured by a visit from Doug 2ADS representing the Hunter Branch, and Phil 2ER. Present also was 2ASA who is not now classed as a visitor. Further prospects for new 2 mx contacts in the Newcastle district are Bob 2KF, of Kurri, Harry 2YL of Cessnock. Also it is reported that 2GV at Barrington Tops will soon be looking for Sydney stations. We learn that Norm 2ALJ is on every Monday night looking North and ZL way, also 2ASA is operating each Wednesday and Sunday night. A trip to the Griffith Radio Club was described to members at the meeting by Adrian 2HE who gave a very interesting talk of the activities by that club and explained how very keen the boys are for 2 mx activity. Stewart 2PL has expressed his willingness to become liaison officer for that district along with Hugo 2WH of Forbes. From northward we have received similar information that Ken 2ANU will co-operate. Rumour has it that IASB, of Canberra, is anxious to form a v.h.f. group and would like to hear from others in the district.

"Switch to Safety" was the title of a lecture given at the meeting by Arthur Mead (2AJA) who told a lot of good advice to Amateurs concerning the handling of a.c. domestic power in the shack and gave examples of good and bad quality switches, power outlets, plugs, flex, etc. Plenty of questions were fired and Arthur was able to answer to each one's satisfaction. He was very suitably thanked for his lecture by 2ZAR which carried the support of all present.—2AFM.

VICTORIA

The final V.h.f. Field Day for this season was also the most successful for the season. There was plenty of activity on both the 1 and 2 mx bands with a record number of portable stations out on location. In fact all mountain tops had been booked out for weeks prior to the event. There appeared to be more portable stations operating on the band than there were home stations, which is a very gratifying state of affairs for a field day. Most had a very busy and successful day although there were a few minor casualties. There were nine stations operating with 1 mx gear. One contact was from 3ZAV and 3ZAT at Arthur's Seat to 3ALZ on Pretty Sally Hill, a distance of over 60 miles. 3ZCW, portable at St. Arnaud, called all day on 2 mx, but only made the one DX contact with 3YS, a home station. 3ZCG, portable at Harley Hill, near Wonthaggi, was heard calling 5BC, but it is understood he did not make a contact. Others heard out portable were 3VZ

at Kinglake, 3ZAD at Mt. Donna Buang, 3ADU at the Youyangs, 3IE at Ferny Creek, 3KD at Mt. Macedon, 3ZAV at Ceres Lookout, Geelong, 3ZBK at Mt. Bullengarook, 3GM at Mt. Buninyong, 3SE at Mt. Cole in the Ballarat area, 3AVZ at Reservoir, and Len 3LN (he forgot which mountain he was on!).

Results are as follows—On 144 Mc.: 1st was 3ZCG, 28 contacts for 2118 points; 2nd was 3ZAD, 34 contacts for 1899 points; and 3rd was 3IE, with 28 contacts for 951 points. There was only one log received for the 288 Mc. band, this was from 3ZAV with 2 contacts for 108 points.

2RS, of Albury, reports hearing 3BW on 2 mx on May 21 at strengths of 3 to 4. 2RS is still looking for Melbourne stations, his frequency is 144.14 Mc. and he transmits at 8 p.m. and listens at 5 past 8 most evenings. He is anxious to arrange skeds with someone on 2 mx and is particularly interested from the point of view of contacts on c.w. He suggests that perhaps anyone interested could drop him a line to arrange a sked. He operates on 3.7 Mc. for checking purposes. It is understood that he will be making a trip down this way about the middle of August and will be staying in Melbourne for a few days, so perhaps some of us may have the pleasure of meeting him in person.

There were 29 present at the last V.h.f. meeting to hear Mr. N. S. Feltcheer's lecture on beam aeriels. Mr. Feltcheer, who is Divisional Engineer in charge of the Radio Development Division of the P.M.G.'s Radio Research Laboratories, gave a general coverage on directional aeriels. It was a wonderfully interesting lecture, but I'm afraid we have to admit that more than half of the evening was taken up with the asking and answering of questions. The fellows really made the most of this wonderful opportunity of being able to ask somebody who knew all the answers and also were fortunate in having in Mr. Feltcheer, somebody who was particularly willing to help them with their problems. All who attended voted it a most interesting lecture and went away a lot wiser.

HAVE YOU RETURNED YOUR QUESTIONNAIRE YET?

How are you going with your 100 contacts on the v.h.f. bands? The fourth certificate award has now been applied for by David 3ZAV, who brought along his 100 confirmations to the meeting.

There has been some good 2 mx DX during the past month. On 5th May, 5BC came through with fair signals and was worked by 3PO in Ballarat and 3BQ on both phone and c.w. On 7th May, 5BC came through with signals so strong that anybody could have worked him, in fact it was hard to believe that it could be 5BC. Unfortunately, hardly any stations were listening on the band in Melbourne and only 3BQ and 3CP made contacts with him, on phone of course. These conditions lasted from a little before 8 o'clock till about 8.30 p.m. Before he made contact with him, 3BQ had been receiving very strong signals from 5BC while he was in contact with 3ZCW. 5BC is on the band every night at 8 o'clock looking for Melbourne contacts. His frequency is 144.13 Mc.

Charlie 3BH is back on the air again from his new QTH in Boronia. Also Alan 3AKZ is back on 2 mx after an absence of six years. He is running a mod. osc. with a third of a watt from dry batteries. His signal is particularly stable. Ray 3ATN has a new shack nearly completed with a modern console desk which is looking very nice indeed. An 80 foot steel tower is to be a later addition.

The last fox hunt held on 2 mx was a very successful night all round. The weather was fine and mild, a very good crowd turned up and all made several catches. The final location was at the home of Tom 3AOG and VI Sawers in Essendon where the gang had their usual post-mortem and supper together. The winner for the evening was Eric 3ADU. Thanks are offered to Tom and VI for opening their home to the gang.

WESTERN AUSTRALIA

A Field Day was held on Sunday, May 13, the first attempted by the V.h.f. Group. Stations were spread out through the south west as far as Albany. While the four hour show was only partly successful, a lot was learnt which can be put to good use later on. The path to 6BO at Bunbury was open all the time from Perth. Rolo worked 6ZAA/6BE and 6ZAV at Kalamunda and Perth and 6AW at Bridge-

town. 6HK was worked at Brookton by 6ZAA/6BE. 6ZAM and 6ZAF, after moving location three times, worked through to Perth from North Dandalup. Syd 6SJ lost his beam in a blow while in course of erection.

6ZAA/6BE went to 6EJ's location at Bencubbin during school holidays (Jack and Rob have shown interest in 2 mx) and worked back to Perth during the three-day checks with 6BO 6HK and 6ZAV. We may have a 144 Mc. station at Bencubbin in the near future. Transfers have taken Cec 6ZAZ and Ron 6FM to the country. Cecil to Wagin, and Ron to Meekatharra—country DX? Checks with Wally 6WG at Albany are still in progress by 6BO and 6ZAV with varying success.

Cheers, a new station appeared on 2 mx the other day. None other than Frank 6FW. Frank 6FB should be on the band soon.

Another Fox Hunt was held on Saturday night, 2nd June. Tx was hidden by 6TR/6HC—Don and Warren. 6HK/6WJ were the winners, time 45 minutes. Syd 6SJ and Alf 6EA came second. Congrats on the effort.

288 Mc. Activity has been low lately. 576 Mc.: Don 6ZAV has a pair of RL18s ready to get going when time permits.—6ZAV.

Low Drift Crystals

FOR

AMATEUR BANDS

ACCURACY 0.02% OF STATED FREQUENCY

3.5 Mc. and 7 Mc.

Unmounted £2 10 0

Mounted £3 0 0

12.5 and 14 Mc. Fundamental Crystals, "Low Drift," Mounted only, £5.

THESE PRICES DO NOT INCLUDE SALES TAX.

Spot Frequency Crystals Prices on Application.

Regrinds £1/10/0

MAXWELL HOWDEN

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CANTERBURY, E.7,
VICTORIA

DX ACTIVITY BY VK3AHH*

PROPAGATION REPORT

3.5 Mc.: Lack of reports does not allow a reliable analysis of present conditions on this band. However, occasional openings to North America have been observed at the usual times.

7 Mc.: Here the number of channels still free from commercial interference, and thus open to overseas communication, seems to decrease from month to month. Conditions to Europe (short path 2000-2200z), the American continents and the Far East (0600-1400z) have been reported.

14 Mc.: This band again displayed good general conditions. European contacts were possible on both routes, likewise North American contacts. Other continents were also well represented. Times of optimum conditions were: 0600-0900z and 2000-2300z for Europe, 0500-1400z for the American continents.

21 Mc.: All continents were represented on the band during the month, although conditions generally appeared to be somewhat erratic. European openings existed between 2100z and 2400z, and also around 0300-0500z. The American continents could be contacted around 2200-0500z. African break-throughs were reported around 0800-1000z.

27/28 Mc.: This band continues to show reasonable openings to the American continents (1030-0400z), Africa (around 0700z) and South East Asia (around 0630z).

NEWS AND NOTES

Newspapers report on the news after it happened. Books are written based on facts which happened well before the publication. Scientific papers are written after some new development or discovery has been completed. Well, we don't even have to go that far: look at the magazine you are just holding in your hands! The notes in the back report on events in the preceding month. Technical articles report devices constructed and tested (we hope) before the publication. OK then, why do you expect the most unfortunate scribes on this globe, the DX editors, to be fortune-tellers or journalistic prophets? I don't believe in astrology or other means of telling fortunes and consequently knew nothing about these items until John W6YY supplied the info. In the short space of time, the only possibility of publicising both items was the W.I.A. broadcast of VK3WI (1130 E.A.S.T., Sundays, 7146 Kc.):—

XE4A (W0AIW et al.) operated from Socorro Island early in June. Socorro Island is in the Revilla Gigeo Group, 500 miles off Mazatlan, Mexico (thanks W6YY for info).

YV0AA: This DXpedition to Bird Island was scheduled for June 17 to June 24.

Here is a drop of water into the sweet DX wine: both islands have not yet been declared separate countries.

AC3SQ is reported to be active (from 5BY, 5RK, W6YY).

Danny **VP2VB/P**, ex-**F08AN**, **VR1B**, expects to make **VK9TW** his next call sign when operating from Nauru (from 5WO).

CE0AD is on 14012 and 14040 Kc. at 0500z (from W6YY).

It looks as if commercial QRM seems to occupy more and more frequencies, even on 14 Mc. (thanks 5RK for report).

Pat **W2AIS/MM**, aboard S.S. "Pioneer Caul," will visit **VK2**, **VK3**, and **VK5** (from 2AMB).

VS9AN, Aden, is on 14041 Kc. around 1400-1500z (from W6YY).

Cross-band contacts 50/56 Mc. between **JA** and **VK** have been in the news

for sometime. Rumours are that **VK4LK** was the first **VK** to achieve a cross-band QSO (from 4SE).

ACTIVITIES

3.5 Mc.: Occasional W signals is the only DX heard at 3AHH.

7 Mc.: Laurie 2AMB worked **VE7AQ**, W (on phone) and heard **JATHL**. 2APL keyed with **KC8KU**. John **W1A-L3019** adds **SM5WS**, **YU2AC**, **YU1KD**, **DL6DT**, Eric **BERS193** heard **DUTSV**, **JASVM**, **JASAE**, **OH2YV**, **11MQ**, **SMS**, **ON**, **YU**. Dave Jenkin reports **JA20F**, **DUTSV**.

14 Mc.: C.w.: Frank 2QL: **EA9DF**, **CR10AA***, **VP2IL**, **KC4USV**, **E8AAM**, **OX3KW**, **CE0AC**, **3AEB**, **KL7AIZ***, **KL7II**, **KL7BQV***, **PJ2AJ***, **PYAAO**, **KG1BO***, **OE3VP***, **PA0HP***, **OH***, **OK**, **YO**, **YU**, **HB**, **CT***, **I***, **F***, **DL***, and **R15AW**, **VK1QA**, **CR10AA**, **VQ3GC**, **LZ**, **V36**, **GM**, **CF3CC**, **VE8CG**, **VR3B**, **VE1ST**, Jack 3JA: **SP**, **PYAAO***, **CR10AA***, **Syd**, **48E**: **GC4AA***, **JA***, **ON***, **F***, **VS***, **VE8NK***, **HLIAC***, **YS1O***, **CT***, **I***, **KP4CC***, **VR1B***, and **FA**, **HC1LE**, **HC1ES**, **PY2KY**, **FG7XB**, **P2IAL**, **XZ20M**, **ZS4JU**, **CR10AA**, **4X4GZ**, **YJ1AA**, **VQ3CB**, **KW6CA**, **LUIDBO**, **VY5AG**, **VPLJH**, **Doug** 5BY: **AC3SQ***, **Gordon** 5HM: **KV4BK***, **VR1B***, **Rob** 5RG: **VR1B***, **Ray** 5RK: **JA***, **VS***, **CT***, **George** 5RX: **KL7***, **VR1B***, **Austin** 5WO: **G***, **SM***, **Col** 7LZ: **CR10AA***, **KL7APY***, **KL7BND***, **W1A-L3019**: **VP8BR**, **HB**, **YO**, **VS1**, **457AM**, **VS2**, **KP4JE**, **DUSD0**, **DUMJO**, **JU**, **F88BL**, **BERS193**: **BVIUS**, **CT**, **DL**, **EI**, **F88BR**, **G**, **GM**, **GW**, **HB**, **I**, **JA**, **LZ**, **OH**, **ON**, **PA**, **SM**, **SP**, **4STEM**, **457WM**, **Dave** Jenkin: **XE1MB**, **CO2FC**, **SM**, **VE7AKI**, **YV3HI**, **JA**, **VR2**, **LUGHU**, **EA3GF**, **OH**, **YU**, **I**, **F**, **SP**, **457MR**, **YJ1AA**, **BVIUS**, **CO6BN**, **KJ6BN**, **CO2SW**, **CO7HS**, **XE2BM**.

14 Mc. A.M.: 2AMB: **PY4DK***, **CT2AG***, and **KM8AX**, **PA**, **DL**, **CT3AM**, **ON**, **FMTWQ**, **Neil** 3HG: **8S4BN***, **VR1B***, and **XE4A**. 5HM: **VS2***, **VE7JB***, **5WO**: **G***, **8S4AD***, **GW***, **PA***, **EA***, **CT***, **VE7JB***, **TG9AD***, **CT3AN***, **F7ER***, **BV1US***, **FMTWQ***, **VE8AIU***, **YV5AG***, **CO2VN***, **CO2YZ***, **MP4KAB***, **7LZ**: **4S7YL***, **VE3***, **VP5FH***, **VR1B***, **BERS193**: **G**, **Dave** Jenkin: **HP3FL**, **BVIUS**, **Rod de Balfour**: **XE1WK**, **CT2AG**, **CT**, **CT3AN**, **VR1B**, **FUSAC**, **ON**, **VE7**, **VE8**, **VE3**, **BVIUS**, **VY5BQ**, **DL**, **PA**, **KL7**, **DUBVL**, **VPIEK**, **ZK1BS**, **I**, **GM**, **G**, **HH3CL**.

14 Mc. S.S.B.: Jack 5WR reports contacts with **KC4USA***, **WG8HF***, **W1ME***, **VE2BQ***, **W4000***, **W8SMY***, **K2MQO***, **VE7EL***, **F9HF***, **G3MY***, **VE8FJ***, **W5DVI***, Jack also forwards this list from 4MW: **CN8GD***, **VE6FI***, **VE4NI***, **VE4QI***, **W8DLB***, **W2AFQ***, **W8DNY***, **W8FII***, **W2EWL***, **W5T2J***, **VK3** 5SK and 4MW are new additions to the list of active s.a.b. stations.

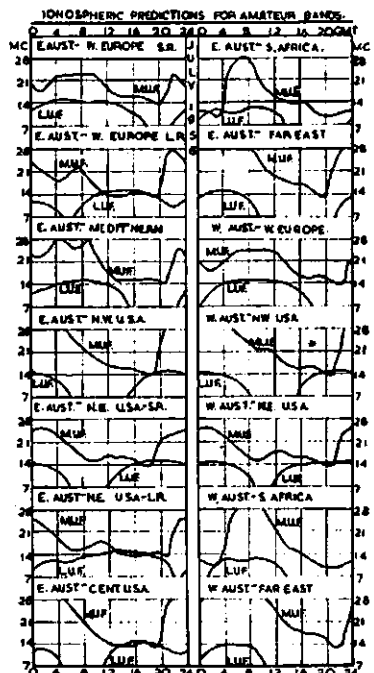
21 Mc.: 2QL: **8S4AX**, **Neville** 2APL: **JA**, **3HG**: **K2SFI/MM***, **VU2BK***, **G2CDD***, **VP6RV***, **OQ5BI***, **VP6FR***, **DL4ZV***, **BVIUS***, **3JA**: **5A-ITA***, **VQ4ERR***, **ZD4BZ***, **SV0WO***, **TG9AD***, **HP3FL***, **KL7***, **G***, **5RG**: **KH6***, **JA***, **4S7***, **5WO**: **TG9AD***, **HC1FS***, **SV0WO***, **PJ2AA***, **KP4ADX***, **CT1PK***, **Z5SPG***, **HB8PA***, **7LZ**: **KR9QV***, **DUGAW***, **VR2CS***, **Z55JM***, **Rod de Balfour**: **VS2EW**, **VS2DQ**, **VS2UW**, **JA**, **KW6CA**, **KX8ZB**, **FK8AC**, **4S7GE**, **F9XA**, **VE**, **VS6CW**, **KL7AZN**, **HC1FC**.

27/28 Mc.: 5WO worked **T12LA***, **W***, **ZE2JJ***, **ZS8ZK***, **Z86JB***, **ZS6KW***, **7LZ** spoke to **W***, **VQ2DT***, **Z55NZ***, **JAB8E***, **T12LA***, **YV1BE***, **And on c.w. Col** worked **W** and **CO2CT***, **Rod de Balfour**: **W**, **VE**, **KH6**, **VR3D**, **VK8DB**, **4S7YL**.

Rare QSLs were received by: **2DI**: **P21BS**, **ZC3ST**, **CR6AI**, **FQ8AY**, **Z8BJR**, **2QL**: **Y12AM**, **VO3X**, **CE4AD** (for 3.5 Mc.), **F8BDA** (7 Mc.), **Y1A1M**, **2ACX**: **Z84JK**, **VK12M**, **ST2DB**, **ZB-1CH**, **AC4RF**, **5AMB**: **ZE2JC**, **F8BDA** (7 Mc.), **PY2AHS**, **KP4ABD**, **CE3HL**, **CE3WQ**, **VP6PV**, **LU4HU** (7 Mc.), **OZ7SN**, **CE0AD**, **3JA**: **VP6BL**, **3TE**: **EA9BC**, **8XB**: **VO3X** (7 Mc.), **8ATN**: **ZD8AC**, **4SE**: **CE3DZ**, **CR6CV**, **CR6AI**, **F8B8R**, **O4AJ**, **5BY**: **ZDA**, **5RK**: **DUICV**, **SWI**: **VR1E**, **PY2CK**, **CE4AD**, **VP8AK**, **VQ2DT**, **VP2DA**, **7LZ**: **CX2AX**, **V12AM**, **KP4ABD**, **YNIHF**, **XE1FY**, **BERS193**: **AP2M**, **CR7LU**, **VP6BM**, **ZC4IP**, **Rod de Balfour**: **OH3OV**, **KX6ZB**, **O4AAQ**.

Thanks to **W6YY** and the Northern California DX Club, and **VK3** 2DI, 2QL (QSP reports 2DI, 2ACX), 2ACX, 2AMB, 2APL, 3HG, 3JA, 3TE, 3WR, 3XB, 3ATN, 4SE, 5BY, 5HM, 5RG, 5RK (QSP reports 5BY, 5HM, 5RG, 5RX), 5RX, 5WO, 7LZ, and s.w.l.: **W1A-L3019**, **BERS193**, **Dave Jenkin** (**VK3**), and **Rod de Balfour** (**VK7**) (QSP 7LZ).

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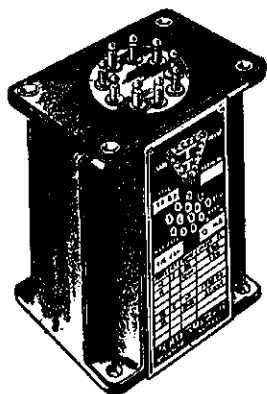
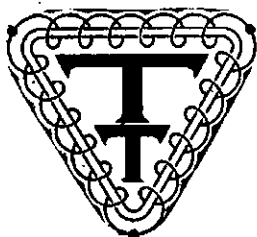
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SHORT WAVE LISTENERS' SECTION*

Attention VK6, 7 and 9! Do you have s.w.l.'s in your Division? If you do, why not let us know? Yes, this VK2 has come out into the open, and I now know that there are at least two s.w.l.'s there. Our score now is therefore VK2, VK3, VK4, and VK5, so spark up and let's make a one hundred per cent. effort. How about all those VK9 associates mentioned in the Divisional notes? I'm sure it would be especially interesting to hear from them. Now for all the news.

First of all the VK2 boys. Writing from Coolamon, N.S.W., Stan Abbey tells me that he has been an s.w.l. for about 3 years. He is using an MN26 Radio Compass rx with a band switched converter covering 80, 40, 20, 15 and 10 mx. Stan tells me that there is also another s.w.l. in the town and that every Tuesday evening they meet at 2AJO's QTH. Jim Edge (2AJO) then gives the boys lessons on Amateur Radio. Keep up the good work Jim, it's good to hear of someone helping s.w.l.'s. in such a way. We hope to receive some more information from you Stan, so as to keep VK2 on the map.

From Len Cragen in VK5 we learn that the results of their VK-ZL Contest are not yet available, but we hope to have the details by next month. Len also forwards the following description of the gear being used by Mac Hilliard. Mac is using an Eddystone S680, a ten tube rx for 56 Mc., a ten tube home-brew for 21 and 28 Mc., and also a KS9er (sig. booster) for use on 14 and 28 Mc. He was using a rx on 288 Mc. but it is out of action at the moment.

Unfortunately I have not received any news from VK4 this month so we still have only three States represented.

VICTORIAN GROUP MEETING

The May (29th) meeting of the VK3 Group was in the form of a free night. After the usual business was dispensed with, David Rankin (3ZAQ) spoke to the members on v.h.f. for s.w.l. His talk was very interesting and no doubt as a result there should be more s.w.l.'s. on v.h.f. very soon.

* Compiled by: Ian J. Hunt, WIA-L3007, 101 Robert Street, Northcote, Vic.

A talk was then given by Ian Hunt on s.w.l. reports. It is hoped that this will result in more useful reports being made by s.w.l.'s. in the Group. Ian also demonstrated his rx, an AMR300 and was deluged with questions as to what all the knobs and switches, etc., were for.

We were all pleased to see the smiling face of our Secretary, John Wilson, on the deck again. It is understood that he has had a broken toe. Did you drop a power tranny on it John? Michael Ide, WIA-L3015, has now shifted his QTH to Thornbury. He is now using a ground plane antenna instead of a 20 mx half wave. His rx's are an AR7 (modified), and an AR301 on 144 Mc. Bert Stebbing, WIA-L3036, has graduated to low power motor cars. The big bus is at present out of commission, but Bert says he'll get it going again or bust. We haven't seen him doing any portable or mobile s.w.l'ing yet. David 3ZAQ (WIA-L3003) is understood to be flat out studying for exams. Another person we haven't seen for some time is Arthur 3AHD, who is now the very proud owner of a vehicle, or is it a motor car Arthur? He says he will definitely be going mobile, so look out everyone.

Whilst I am mentioning mobile operation I will tell you of a sure-fire method of obtaining a QSL card. This method is as follows: You receive 3AHT, who is at present mobile in the Sydney area of N.S.W., send him a report, and he'll reply with a QSL. Bill would be very interested in your report. He is on the air most evenings from 5 p.m. till 6.30 p.m. week nights and any time at all during week-ends. The frequencies of operation are 7098 and 7106.7 Kc. The power used varies between 5 and 7 watts. So go to it and see if you can receive this station.

COMING EVENTS

At the July meeting of the VK3 Group, Geoff 3DF will talk to us about his recent overseas tour. This should be most interesting so do not forget to come along. The Group meets at the rooms, 191 Queen Street at 8 p.m. on the last Tuesday of each month. Further details of our future programme are given on page 17 of "A.R." for May, 1956.

A visit to the "Argus" newspaper office has been arranged. This visit will be held on Tuesday the 17th of July at 9 p.m. Members are requested to meet outside the "Argus" office on the corner of Elizabeth and Latrobe Streets, City, no later than 8.45 p.m. You are all welcome to attend, even any interested Amateur may come along.

A CQ TO ALL AMATEURS

If you could come along to one of our meetings and give a short talk on some aspect of Amateur Radio, or if a small group of s.w.l.'s. could visit your station, please let us know. Write to Ian Hunt or ring him at MY260 Ext. 526 during the day. If you are on 2 mx call 3ZAQ and talk to him about it. Also, if you think we could help you by monitoring a transmission, looking for your mobile signal or assisting in the erection of an antenna, or anything else you can think of, don't fail to let us know.

HEARD ON THE ETHER

Diligent listening has allowed s.w.l.'s. to log the following:—

3.5 Mc.: Geoff Morris, WIA-L3017—ZLs, Ws.
7 Mc.: WIA-L3017—Ws, KH6s, VR2, ZLs, ZM6, JA, Michael Ide, WIA-L3015—KL7, VK1JJ.

14 Mc.: WIA-L3017—W, ZL, XE2, HC2, G, DL4, ZM6, ZK1, VR1B, VE, F7-9, ON4, TG9, VR2, CT1, 2 and 3, EA3, OZ5, F08, F08, FK8, G13, HB9, GW3-4, CN8, 5A1, 3 and 4, 9S4, 11, HR3, KH6, KL7, KM6, KT1, KW6, KX6, VK1, VP1, YJ1, GM3, KA, KG6, KC6, YV5, CO3, KR6, YS1, T12, KC4USA, KC4USE (s.s.b.), WIA-L3015—BV1, CT1, 2 and 3, DL4, EA3, F8 and 9, F08, G2, 3, 6 and 8, GW3, HB9, HK1, JA/KA, KC4USA, KG6, KH6, KN6, KR6, KL7, KX6, OES, PA0, PV7, TG9, VK1JJ, VK9, VE2, 5, 7, VR2, VP2, 5, VS2, XE2, YV5, T12, ZK1, ZM6, W, Len Cragen, WIA-L5014—CN8, CT1 and 3, EA2, G, HCl, 11, KA, KC4USA, KG6, KH6, KT1, LU, OQ5, VE, VK1JJ, VK9, VR1 and 2, W, XE2, ZK1, ZL, A. Halliday WIA-L6007—CN8, EA7, FA3, KH6, VE, VK1JJ, VR1, YV2, W, Mac Hilliard, WIA-L5016—CT1, F3, G2, 11, PA0, D, Ferrett, WIA-L5017—CO3, CT3, GM3, HP3, 11, JA-KA, VK1JJ, ZS3, W, G. Herden, WIA-L5018—CN8, CT1, EA2, 11, T12, VE7, VS2.

Well you can see that the bands are quite active so see just what you can hear between now and next month. Keep those logs rolling in.



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AMENDED RESULTS

NATIONAL FIELD DAY

VK2ARZ, who was placed second in the c.w. section instead of third, pointed out the errors in the results published. The Federal Contest Committee herewith issue the necessary amendments. Apologies are offered to all concerned.

State Winners—C.W. Section

New South Wales: VK2WI (operators D. J. Pollard, VK2ASW; S. Bourke, VK2EL), score 46 points.

Open Section

No entries from VK4, 5, 6 or 9.

Logs Received—C.W. Section

VK7LJ 80 points, VK2WI 46, VK2ARZ 25, VK3ADW 25.

PARTICIPANTS' COMMENTS

The following letter was received by the Federal Contest Committee who suggest publication of same. If you have any ideas re this contest please let the Committee know.

We thoroughly enjoyed the National Field Day Contest although we did not have many contacts (being on c.w. only). We would like to make the following comments and suggestions for future contests:

(1) We think it should run 24 hours (6 p.m. Saturday to 6 p.m. Sunday) as one goes to a good deal of trouble for the contest and the times make it a bit of a rush. It would mean camping, but I think this would add to the fun. There would be greater opportunity for DX

contacts. Camping with radio can be a lot of fun!

(2) The scoring should permit working the same station on different Amateur bands (as in R.D. Contest).*

(3) The participation of overseas stations needs clarifying. Apparently they don't have to submit logs. Do they then have to exchange sequence numbers? We think that if the operations on the bands are monitored by officials in each State, nominated by the Contest Committee, to check and report irregular operation, the participants should be allowed to make overseas contacts without logs being forwarded and without the exchange of sequence numbers. In other words, the operator is put on his honour to include only bona fide contacts. This would render the overseas contact simpler and without the need for explanation of the contest requirements. If overseas stations are to exchange sequence numbers then much greater publicity is required. What a pity a world-wide Field Day Contest can't be arranged! We did not chase DX contacts (although we were often called by Ws) and those we did work we did not worry with sequence numbers.

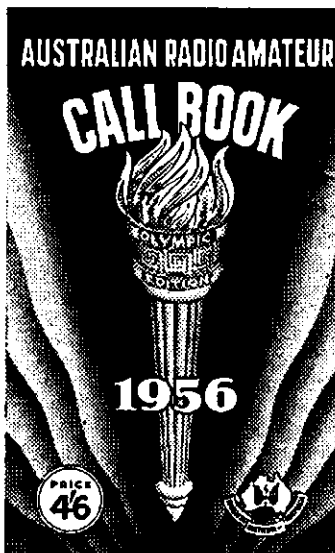
(4) We think the contest rules should indicate the correct procedure in regard to call signs. We used VK7LJ/7, but many used the /P to indicate portable operation. The correct procedure was given in the Federal Notes in "A.R." a couple of years ago and if I remember rightly, specifies the /7, etc. I have meant to check this but haven't had

* Rule 6 covers this.

time. As a matter of fact it was my suggestion originally to the Advisory Committee as the /7 type is commonly used in U.S.A. at least.

(5) The contest needs greater publicity. The value of such a contest in proving the efficiency of both operators and gear for emergency purposes needs stressing. With a couple of Amateurs working in shifts at cooking and radio there can be a great deal of enjoyment. It is a good try-out of the efficiency of both personnel and equipment, particularly so if run for 24 hours. The battery situation is more difficult but not insurmountable. Real skill in choosing the right band for the right time is needed. I very much like the multiple operators idea allowed in the contest. It then does not come too hard on any one individual.

—Lon R. Jensen, VK7LJ.



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FEDERAL, QSL, and DIVISIONAL NOTES



FEDERAL

VK1—AUSTRALIAN CAPITAL TERRITORY

An interesting change in the call letters for stations operating from the Australian Capital Territory has recently taken place.

These stations will now be prefixed by the numeral "1" following the international identification letters "VK," instead of the New South Wales numeral of "2".

For the time being, Amateur Stations operating from Antarctica will continue to use the prefix of "VK1," but a review of this will take place at a later date.

AMATEUR ADVISORY COMMITTEES, 1956

New South Wales
Messrs. G. T. Bruce (VK2GT), N. MacNaughton (VK2ZH), R. W. Patterson (VK2AJW), J. C. Pinnell (VK2ZR), W. H. Wilson (VK2VW).

Victoria
Messrs. R. A. C. Anderson (VK3WY), F. O'Dwyer (VK3OF), N. Storck (VK3ZO).

Queensland
Messrs. S. R. Baxter (VK4FJ), J. G. Files (VK4JF), A. Harris (VK4TN), H. T. Hewitt (VK4PD), J. T. Hope (VK4XL), L. E. H. Mallison.

South Australia
Messrs. B. W. Austin (VK5CA), G. M. Bowen (VK5XU), H. N. Bowman (VK5FM), H. E. E. Brock (VK5UZ), R. S. Gurr (VK5RG), W. W. Parsons (VK5PS).

Western Australia
Messrs. D. R. Cook (VK6AW), J. C. Hoar (VK6OR), W. J. Howse (VK6ZAA), H. T. Mulder (VK6MK), N. F. Odgers (VK6NF), J. E. Rumble (VK6RU).

Tasmania
Messrs. D. H. Fisher (VK7AB), A. Hubbard (VK7AX), M. H. Kurburgh (VK7MH), L. J. Jensen (VK7LI), K. A. Johnson (VK7RX), T. F. Moore (VK7FM).

LIST OF 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 10th April, 1956.

New South Wales
G. Harriman, Farm 1850, Lake Wyangan, via Griffith.

D. A. Robertson (Mrs.), 29 Carrington St., Deakin, A.C.T.

*J. E. Hughes, McKay St., Macksville.

D. A. Page, 65 Hassans Walls Rd., Lighgow.

W. S. Lane, 15 Hyman St., Tamworth.

*L. R. Biber, 1 Roslyn St., New Lambton.

*S. G. Lloyd, 106 Main Rd., Kahlbah, Newcastle.

L. E. Harris, 26 Park Ave., Wattara.

N. W. Kestel, Suite 306, T. & G. Bldg., Sydney.

D. G. Wheaton, 738 Anzac Fde., Kingsford.

*G. F. Barham, 10 Beaufort St., Northmead.

*R. M. Marsden, 127 Anzac Pde., Kensington.

*S. W. Steinwade, 665 Anzac Pde., Maroubra Junction.

*A. R. Hennessy, 23a Illawarra Rd., Bexley Nth.

*L. J. Carpenter, Blackbutt's Rd., French's Forest.

Victoria
G. C. Trull, Box 77, Sale.

*P. K. Bennie, 86 Stawell St., Sale.

*I. B. Fraser, 36 Webster St., Ballarat.

R. K. Burbridge, 9 Fuchsia St., Blackburn.

D. Calwell, 87 Panoramic Rd., Nth Balwyn.

*P. J. Foster, 137 Thames St., Box Hill.

*G. A. Hassell, 69 Hall St., Moonee Ponds.

*G. A. Bowers, 86 Collins St., Melbourne.

*A. J. McKean, 423 Buckley St., Essendon.

*D. H. Goldsworthy, 5 Princes St., St. Kilda, S.2.

Queensland
N. H. Lawton, 50 High St., North Mackay.

R. E. Lees, P.O. Box 18, Theodore.

*K. T. Robertson, 40 Price St., Belgian Gardens, Townsville.

South Australia
*D. Barter, Electronics Section, A.G.W.T.U., Woomera.

*D. A. Carthew, Penola.

I. B. Wall, 34 Church Ter., Walkerville.

*C. C. Poole, 38 Norma St., Torrensville.

*R. H. Palmer, 226 Chamberlain Ave., Clarence Gardens.

*R. J. Kreig, 81 Angle Vale Rd., Gawler Rail.

*J. G. Rodger, 38 Lynington St., Tusmore.

Western Australia

*L. E. Gooding, Darkan.

Tasmania
S. G. Moore, 8 Pearl St., Wivenhoe, Burnie.

*Qualified for Limited Certificate.

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.

FEDERAL QSL BUREAU

RAY JONES, VK3RJ, MANAGER

Information on the radio expedition to Birds Island by the Radio Club Venezolano during the period June 17 to 24 did not come to hand in time for inclusion in June "A.R." This island, which is a "new" country, is owned by Venezuela and is situated 380 miles from the mainland. Lat. is 15.42 North and Long. 63.38 West. Call sign of the station was YV0AA. QSLs should be sent to R.C.V., Box 2285, Caracas, Venezuela, and all contacts will be confirmed with a special QSL and banner.

A unique QSL sighted during May was that of JA1FO to VK4LK in confirmation of a 50 Mc. contact on May 6, 1956, at 1744 J.S.T. JA1FO used 10w. to 1625s, his modulator being 807s. Ant. was a 4 el. Yagi 22 ft. high, and rx r.f. i.f. converter ahead of a 9 tube super. JA1FO states there are 860 stations in JA with 6 meter rigs including 400 in JA1 and 150 in JA3.

The Radio Amateurs of Lebanon have formed a national society styled R.A.L. with address: Box 3245, Beirut, Lebanon. Foundation president is OD5AH and QSL Manager OD5BO with QSL Bureau address as above.

QSL Managers please note the change of address for the Swiss Bureau. New address is U.S.K.A., Knutwil, Switzerland.

BERS185, temporarily located in Brisbane, enjoying the warm weather but missing Aussie rules football and his beloved Collingwood, advises that AP2M, JA6HW and OHSTA are desperately in need of VK cards for their many contacts. Check your log chaps and make sure you have not failed them.

Apropos recent par in this column re Pat Luz (one of the two operators of CR10AA in Timor), information is now to hand that Pat is on the staff of D.C.A. at Darwin.

Cards through the Federal Bureau during May showed an increment of 250 per cent., reflecting the better conditions obtaining on the DX bands and the backwash from recent DX contests. The monthly total was the highest for five years.

Further to last month's reference to return of cards sent to 3W8AA in Hanoi, Austine VK3YL advises that her first card similarly addressed did not reach Phan, but that a second card addressed to Postbox 109B, Hanoi, Vietnam, via Route Hong Kong, Canton, reached him.

Ex-VK1RF is currently to be heard under the call sign YJ1RF.

Congratulations to Austine VK3YL on obtaining the first YL-WAC-VL ever issued. Although Austine's certificate is numbered 11, the previous 10 were issued to males who had made WAC-VL.

FED. CONTEST COMMITTEE

The checking of the VK/ZL Contest logs has been completed and the results will be ready for the next issue. Due to various hold-ups, the logs from some overseas contestants were late in arriving and checking could not start until May. Checking has so far revealed that there are many errors and the Committee de-

clared that all overseas logs would be checked against the VK-ZL logs. A large entry meant a longer time before the Committee could release the results.

Following complaints that Certificates were being damaged whilst in the post, the Committee has decided that in future all Certificates will be sent in mailing tubes and has accordingly ordered a large quantity. There will therefore be a delay in the posting of the Ross Hull and Field Day Certificates.

Jim VK5FO and Reg VK5RR have completed the Record Book of all the rules and results of contests run by the W.I.A. and the Committee will be setting out on their task of catching up with all the errors of omission and commission which seem to be inevitable, although unfortunate.

G. Bowen, VK5XU, Chairman.

NEW SOUTH WALES

Members of the New South Wales Division were particularly fortunate in their lecturer at the June meeting. Professor Yardley Beers, who is visiting Australia on a Fulbright scholarship with the C.S.I.R.O., would be better known to us as Yardley, WZAWH. As Yardley specialises in radio propagation and the strange things which we all know happen in the ionosphere (and the troposphere too) you will know just how much we all looked forward to his lecture. Professor Beers ("Call me Yardley") divided his time between three of the most interesting subjects that it would be possible to choose from an Amateur viewpoint. He discussed rx front-end design and paid particular attention to the problem of strong local competition (have you a kw. local in the next street?), an examination of the relative merits of a.m. and s.s.b. followed and Yardley suggested his "Ultimate Modulation." If you reckon that s.s.b. is complicated, how would you like to tackle a suppressed carrier plus four (yes four) sidebands? There are some rather staggering advantages, it seems; Yardley concluded with a discussion on an ideal antenna system that has set the boys really thinking.

As details of the business at the meeting will have reached N.S.W. members already via the Divisional Bulletin, I will not repeat it here.

The holiday week-end of June 2-4 saw quite a gathering of VK2s, at the Queensland Convention held at Bureleigh Heads, just north of the border. From Grafton 2JS, 2WQ and Snow McCauley attended for the full duration of the Convention. 2RK and 2ZY arrived on the Sunday, with 2VK from Tweed Heads. Divisional President (N.S.W.), who seems to be a part of Queensland activities these days, braved the perils of air travel to be present, and 2AWQ motored from Sydney. Though I would like to put you in the picture regarding Jim's opinion of the "Sunny Queensland" weather, I am afraid that the censor may have to "edit" these notes, if I do so. It appears that it was cold, especially on Sunday night. By all reports it was a really grand show, and Ramsay and company are looking for takers for the next one. How did you find the bottle of medicine, Ramsay?

My spy ring, which is still in its early stages, has gleaned a couple of items from the city blokes. Firstly, I am informed that the strange noises to be heard around 3700 Kc. some evenings, are not splatter, or even some curious radiation from behind the iron curtain. Don 2ASW, Federal Councillor for the Division, has at last found time to finish that s.s.b. rig. It has taken a long time, because his building programme has had to take a back seat, to allow for his Council activities over the last three years. Don would appreciate some contacts, and it is a good opportunity to see just how good that rx of yours is!

Two rather remarkable pieces of mobile operation on 7 Mc. were noted early last month. 2ATW/M and 3AHT/MVK2 both had good phone contacts with VK1J, Macquarie Island. As both mobiles were around the 5w. mark, I am sure you will agree that's a very good effort. Now, just a few words on the subject of these notes. Your scribe, 2EL, would appreciate news from any member. If you are in the country you may send it via your zone officer, who will be very pleased to hear from you. If you are not keen on writing of your activities, how about letting us all know about the doings of others in your town or area? This is the only real chance we have of keeping up with other country Amateurs' activities, unless we contact regularly. News from the city is of course also very welcome.—2EL.

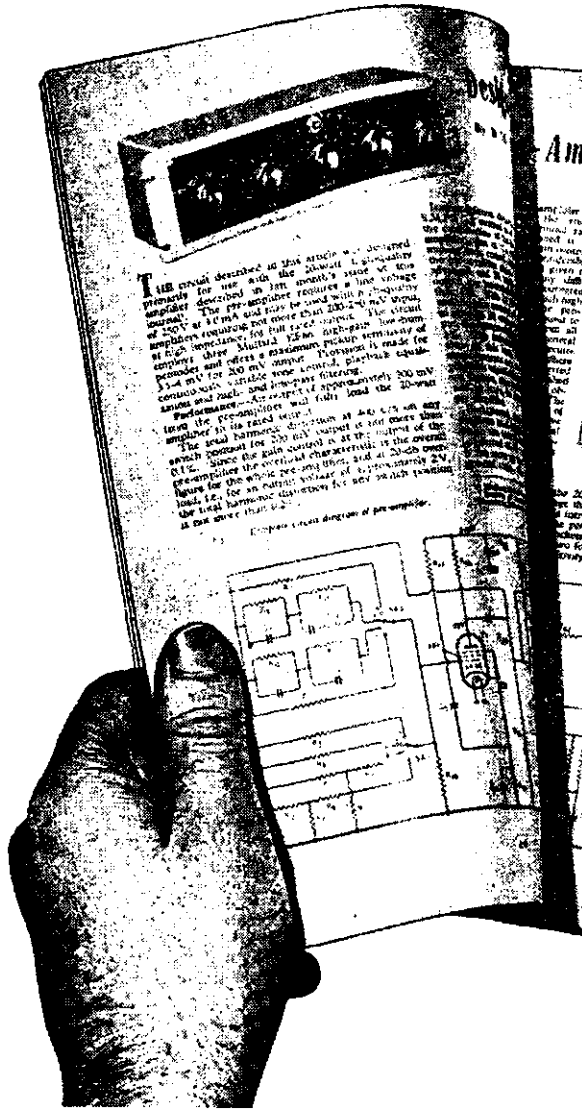
SILENT KEY

It is with deep regret that we record the passing of:—

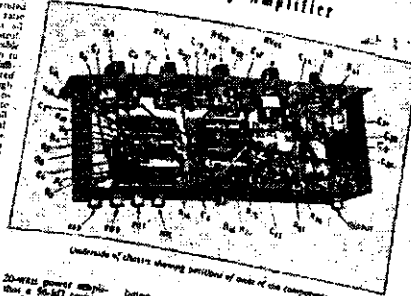
VK2II—Max J. Moore.

VK5QP—Ken M. Theel.

VK5WG—Wally N. Govan.



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M22A

HUNTER BRANCH

Harold 2AHA, one of the Vice-Presidents of the Branch, took charge of the May meeting, owing to the illness of President, Bill 2XT. Mr. Wal Spencer from the railways department gave a lecture entitled "Electronics in the Railway Service" and had equipment on show, which he used to demonstrate some sections of his lecture. Branch members present were Max 2OT, Ted 2ABW, Varley 2SF, Les 2AQR, Harry 2AFA, George 2AGD, Doug 2ADS, Charlie 2ARV, Lionel 2CS, Rodney 2ZBE and associates Bob Bailey, Stan Lloyd, Gordon Sutherland, Ray Jones, Bill Nichols, and from Sydney, Les Gilbertson.

With two limited licence holders already in the district, namely Rodney 2ZBE and Athol 2ZAE, and other associates studying hard, an increase of activity on 144 Mc. is anticipated. As a means of assisting the branch members holding "Z" licences, and also to interest other branch members in 144 Mc., Doug 2ADS has been appointed liaison officer between the Hunter Branch and the V.h.f. Group in Sydney. The scheme is to collect data and circuits on the latest v.h.f. tx's and rx's and supply this to interested members.

A familiar voice has been heard on the bands again using the call sign 3SD. This is none other than our old friend, Bob formerly 2AFS. Bob is using a dipole antenna, which is quite a change from the 70 ft. high vee beams he used in VK2. "Tarzee Bill" 2AEY should by now be operating mobile as he travels around the district. Max 2OT has removed the barbed wire from his fence—signals getting through now. Jack 2CX is heard quite often on 40 mc phone, also Geoff 2VU and Ken 2ANU. Bill 2AMM has left Stockton, "the home of DX," and is now residing at Maitland. A two-section 8JK antenna is occupying Jim 2AHT, while John 2XQ has been renamed "extra quiet." Ron 2ASJ is practicing to increase his speed with the foot operated c.w. Norm Stanley has passed his theory and regs. in his bid for a full "ticket" and Jack Hamilton is ready to try for the "limited" exam.

The official station of the Hunter Branch, 2AWX, can be heard every Monday night at 8 p.m. on 14.05 Mc. Listen to this station for the latest news in the Hunter Branch.

The next meeting of the Branch will be held on 13th July at 8 p.m. at the University of Technology, Tighes Hill. The lecturer will be announced over 2WI and 2AWX.—2AOR.

UPPER HUNTER AREA

The first news of importance is that Tas. 2GV has been operating from Ellerton with a No. 11 set, putting an f.b. signal in here; believe that you are interested in 144 Mc.! No word from Roy 2RC, must have started farming at Pikes Gap. No a.c. out that way Roy. Have not seen hide nor hair of Nev. 2OS, the icy blast of Barrington must be keeping you underground. I know that the boys would like to hear you on sometimes, perhaps you are constructing a t.v. rx? Who knows?

Geoff 2VU had a field day of his own altering gear and re-painting his rack whilst the XYL and Junior ops. were away for the school holidays. Geoff pity that 2E26 wouldn't perk. Your scribe 2ANU, besides slogging around in the mud and dodging showers, has been negotiating for a windmill tower; boy, are those things hard to come by? One of these days we may get up some decent beams.

SOUTH WESTERN ZONE

It must be the cold, damp weather we are having that is the reason for the chaps not being very active lately, the fire is the best place. The Griffith Radio Club has started a new class, 10 victims, I hear; good work chaps, hope you all get your tickets. Your scribe has the two Coolamon assoc. members, Stan Abbey and Jock Ashley, hard at work every Tuesday night and handing out lots of homework for the rest of the week. Maybe it's a bad thing for Jock and Stan to get their tickets, both are pretty close to 2AJO, whacko QRM!

Don 2RS, at Albury, building a new p.a., 6146s with pi coupler. Looks like a new p.a. tube for 144 Mc. Don. Arty 2BU has converted an AT3, seems to be working OK. Arty heard yourself and Herb 2QD expounding theories. Ross 2PN at Tumut has a new rig on 144 Mc., has been working 2WH I hear. Your scribe had a visit on 12th May from Jock 2ATW and Milly en route for Melbourne on holidays. Jock was operating mobile, and had a mobile-to-mobile with your scribe on the road between Coolamon and Wagga; raining cats and dogs at the time. Seems to be the usual thing down this way, the standing waves have developed "webbed feet."

Adrian 2HE, from Sydney, is making a flying visit to Griffith this week-end (28th May), to show the Griffith gang how 144 slgs are made.

He has skeds arranged at different points of the compass. Next month's notes should come from Griffith, I hope.—2AJO.

NORTH WESTERN ZONE

It is my sad duty to record the passing of Max 2II, of Dubbo. Max, together with his son Stephen (7), daughter Maxine (14) and Margaret Whitley (15) was involved in an accident on the Macquarie River, at Dubbo. The sole survivor of the tragedy was Maxine, who was assisted from the water by fishermen. During the years since the war, Max was active on every band from 80 to 6 mc and was well known by overseas Amateurs as well as those in his own country. It would be impossible to describe the upset in Dubbo, where Max was a highly respected citizen and businessman. Some idea of the loss felt by the community can be gained from the hundreds of people who had joined in the search which followed the tragedy. Local Amateurs, Bill 2ACT, Tom 2AMR, and Chris ex-2AJP, were associated in a river search, which covered 238 miles in two days. The communications being maintained in the 7 Mc. band. Amateurs all over the world will join with us in expressing heartfelt sympathy to Mrs. Moore and Maxine.

During the last few years many of the active operators in this zone have migrated to the city. 2AFX, 2AXS and 2VZ are among these, and Bob 2XP is now located at Dalton. Bob 2AXS now located at Cronulla, was in Dubbo about three months ago, to finalise removal of his gear to Sydney. Bob will be remembered for his marathon efforts during the 1955 floods, which earned him the personal thanks of the Governor-General.

Tom 2AMR, possibly the most active of the Dubbo gang, is to be heard on 40 mc with a very good signal. Noel 2APE is getting interested in mobile operation and hopes to become active again very soon. A very consistent signal is provided on 40 mc by Cec 2AKC, of Tomingley, and we hear that his 50w. is making a hole in the W log books. Don't forget to answer that phone, Cec! Bob 2AQD very busy these days. Struggling with some battery operated gear at present. No news from 2ARK, what's doing, Mac?—2AQD.

WESTERN ZONE

Hugo 2WH, at Forbes, is having a very tough time with all the rain, but is active on 6/5/2 mc, and puts out very good signals on 80 mc in between times. Rain also troubling Norm 2KX, who is wondering now about getting next year's crop in. We hope that John 2AMV is now recovering from his bout with "the wog" and hope for some more mobile activity from him.—2WH.

NTH. COAST & TABLELANDS—TAMWORTH

Steve 2ASS, the midnight station from Swan Hill, visited 2APP who took him down to Noel 2ASQ's shack, where he was entertained with the aid of Noel's hi-fi amplifier. Steve spent two days in Tamworth and may come back to stay. Congrats, to Sam 2ZBL who has now passed the Morse. It should not be long till we hear a new call on 80 and 40 mc. Merv. 2ATD is very busy at the new aerodrome at present, but he hopes to have something going soon. Another visitor at 2AFP was Jack 2ADT, who called with XYL and small son, on the way to Sydney. Nothing has been heard of Dick 2AZG. We hear rumours about that Boggabul mud. How about it, Dick?

2ASQ has plans for 6146s on 5 mc. Seems he got the v.h.f. bug from 2ARG/2WH last month. How about two, Noel? 2APP is building a 2 mc tx with 2E26s final. During QSO with Al KHABQ, Frank discovered that Al has big plans for a big 144 Mc. signal beamed on VK. Al reports that 1 mc t.v. signals have been received in Honolulu from West Coast U.S. stations, so he is thinking in terms of a kw., a parabolic antenna and a 2,000 ft. mountain. Who knows?—2APP.

COALFIELDS AND LAKES

Activity has not been great during the past month. Ern 2AEZ and Len 2AMU paid a visit to Newcastle boys, heard them from 2EZ on 2 mc talking back to Doug 2ASA, of Tuggerwong. Doug using 5 over 5 beam on 2 mc. Major 2RU active, 2 and 5 mc mainly, but not heard well here. Very little heard of 2VU and 2ANU, though they are going regularly on 144 Mc. Alex 2JZ chases DX on 144 Mc. Bob 2XP working on xtal locked rx for 144 Mc. Works most other bands, too. No activity from 2MC or 2PZ for the month, the latter hopes to have t.v. rx anytime, and is now considering a beam to put on top of his 70 ft. steel tower. 2YL at last quite active on 144 Mc., poor ant., as yet, but working into Newcastle OK, has new beam in mind. Getting nice DX on 15 mc, and had a visit from Jack 2ADT recently.—2YL.

VICTORIA

At the June general meeting Mr. Campbell, of Masse Batteries, gave a "General Lecture on Storage Batteries." It was a very interesting lecture and included a discussion on both lead acid and alkaline cells. He illustrated his lecture with numerous cut-away samples of all types of batteries as well as boards showing various parts. A nickel cadmium battery was of great interest, a bank of six cells being only 3½" long, 1¼" wide and 2½" high. Another interesting item was a searchlight which gave equivalent of two hours at 1500 watts from a small light unit smaller than a standard 8 volt car battery. Still another interesting feature was that car batteries are not designed for radio work and trickle charging, and special batteries are developed for radio type of operation. The radio battery plates being twice the thickness of the normal car battery. Needless to say, there was galaxy of questions fired at Mr. Campbell.

Following this a discussion took place on the questionnaire re 144 Mc. By the way, HAVE YOU ANSWERED YOUR QUESTIONNAIRE YET? It was announced that Council has accepted the invitation of the Eastern Zone to hold the next State Convention at Leongatha on the week-end of 3rd and 4th November, 1956. A very special plea was made to those Amateurs, who perhaps from lack of a little thought, have been causing severe interference to the slow Morse practice transmissions on Sunday evenings. A considerable amount of time and work is involved in the preparation of the script and also in the making of the broadcast for these transmissions and the disappointment to the operators is very great when they receive back such reports on the transmission as "Could hardly get a word of it tonight, the QRM was terrible." Also a little thought should be given to the younger ones who are endeavouring to learn the code, it's very disheartening when you are finding the code a little difficult to have to contend with severe interference as well. Co-operation from all is requested to keep the frequency 3550 Kc. clear between 8.30 and 9 p.m. on Sunday evenings.

The following were welcomed as new members to the Institute: Full Members—Messrs. N. Roberts (3NR), G. E. Budden (3ABN), A. Brown (3QW) and Associates—Messrs. F. J. Newdick and C. Brittlebank.

The lecturer for the next general meeting on 4th July will be Mr. Jack Vertigan (3WA) whose subject will be "Single Sideband Techniques." On August 1 the lecturer will be Mr. Hans J. Albracht (3AHH), who will give an illustrated lecture on "Radio Control of Research Missiles."

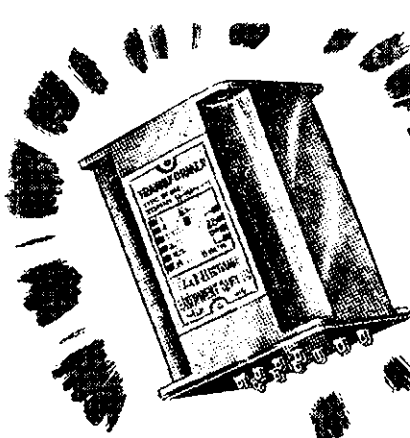
As Mr. Syd Clarke, our theory instructor for the A.O.C.P. Class, has resigned, the Victorian Division is seeking someone to replace him. Any Amateur who is prepared to undertake the theory instruction is requested to immediately make application to the Secretary W.I.A., 191 Queen Street.

The next All Band Bi-Monthly Scramble is scheduled for August 6. Log books are still available at the Institute rooms, price 4/6 plus postage for postage. Jack 3VZ has been spending his week-ends looking for a location for an antenna. He has finally found the ideal spot, in Balwyn, right on top of a hill, no doubt he'll build a home in some remote corner of the location too, but the prime factor in purchasing the block was its suitability for an antenna.

EASTERN ZONE CONVENTION

Well as a lot will know, we had a most successful Zone Convention at Morwell on the week-end of 2nd and 3rd June last where 47 in all sat down for dinner and some 12 or so extra visitors came up from Melbourne on the Sunday. Visitors to the dinner were State President 3TF and XYL, Don 3ALQ, Harry 3ZM, Kevin 3AAH, Keith 3HK and Cliff 3ATP. After the dinner the ladies went to the pictures while the men got down to the meeting. Bert 3BB, retiring President, submitted his report and Jack 3AJK was voted in as President for the coming year. Other office-bearers elected were Vice-President Ian 3AAV, Sec. and Treas. David 3DY, Official Zone Station is Ian 3AAV and his is also Zone Emergency Station in the 3501 net. Zone Organiser is Graham 3QZ. Station for the Tuesday night inter-zone hook-up is Jack 3AJK who is also notes correspondent. Committee to make arrangements for the State Convention to be held at Leongatha is Ron 3FR, Graham 3QZ, Jim 3DI, and David 3DY. The meeting broke up at 11 p.m. when supper was served and the final break-up was at 12 midnight.

Sunday started off with a tour of the S.E.C. at Yallourn at 10.30 which was enjoyed by all. In the afternoon we adjourned to the Maryvale Picnic Ground to start off the fox hunt. Len 3LN, and the city hounds Laurie 3ALY, Roy



A & R OUTPUT TRANSFORMERS

ULTRA LINEAR OUTPUT TYPES

★ TYPE 921 (921-8: 2 or 8 ohms; 921-15: 3.7 or 15 ohms):

For VALVES: 807, KT66s, etc.
 Suitable Conversion "WILLIAMSON" to U.L.
 See "Audio Engineering" of June, 1952.

20 WATTS: 30-80,000 c.p.s.
 Primary: 6,600 ohms.
 SCREEN TAPS: 19% of Plate Z.
 F.R.: Plus or minus 1 db 10-60,000 c.p.s.
 Leakage Inductance: 3/2P/3/2P: 15 mH. maximum.
 Prim/Sec: 20 mH. maximum.

★ TYPE 931 (931-8: 2 or 8 ohms; 931-15: 3.7 or 15 ohms):

For VALVES: 6L6, EL37, KT66, etc.
 See "Radio and Hobbies" of February, 1955, 17 watts U.L. Amplifier.

20 WATTS: 30-80,000 c.p.s.
 Primary: 4,500 ohms.
 SCREEN TAPS: 10% of Plate Z.
 F.R.: Plus or minus 1 db 10-60,000 c.p.s.
 Leakage Inductance: 3/2P/3/2P: 15 mH. Maximum.
 Prim/Sec: 15 mH. maximum.

★ Ultra Linear Output Type—

Type 916—12 watts.
 Prim.: 8,500 ohms p.p. (with screen taps).
 Sec.: 016-8: 2 or 8 ohms; 916-15: 3.7 or 15 ohms.
 Type 949—12 watts.
 Prim.: 8,000 ohms p.p.
 Sec.: 2, 8, 12.5 15 ohms.
 Response: 10-50,000 c.p.s.
 Valves: 6V6, 6BW6, KT61, EL84, etc.
 19% Screen Taps.

★ For Mullard "5-10" Amplifier

Type 2565—12 watts.
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HAVE YOU RETURNED YOUR QUESTIONNAIRE YET?

3ARY, Ray 3KD, Ray Price, Bob 3OJ and Herb 3JO journeyed up from Melbourne for this event; Len himself in his role of Brer Fox and how. This started at 3 p.m. The outright winners were Bob 3OJ and Herb 3JO, the Stevens brothers who are Sec. and President respectively of the V.h.f. Group. Congrats. boys, we benighted by the run and hope to have a go at you once again.

We would like to thank the Melbourne chaps who came up, also the organisers who were David 3DY, Bert 3BB, Ian 3AAV and Bernie O'Reilly. Thanks a lot chaps for a wonderful job. It was a most enjoyable week-end and we are looking forward to the State Convention when we hope to see you all again.—3AJK.

CENTRAL WESTERN ZONE

During the past few months some members of this zone have been actively engaged building new high power rigs. Merv. 3AFO now has a rack and panel job which covers the DX and the lower frequencies, running 100w. to a pair of 807s. He is using a Type S power supply recently obtained through disposals. Trev. 3ATR is now using a band-switched rig built into a cabinet and using an 813 in the final. Alan 3AJX has stuck to the popular 807 combination for his new station. Alan 3HL now has all his gear running off the a.c. generating plant which he has recently installed. Chas. 3IB is now working on c.w. with the pair of 6148s which he has put in place of the 813. He still has to build the modulator portion of the screen modulating system.

Keith 3AKP is still busy constructing and hopes to be on the air in the near future. Bill 3AKW is at present finding bits and pieces for a new mobile rig to operate on the 40 mc. band. Rig will consist of 12AB xtal osc., 6V6 final, another 12AB will be modulator. Power supply will consist of vibrator and 6X5 as rectifier. Congrats. go out from us all to Keith 3ATS and his XYL Olive on the arrival of their first harmonic. Perhaps the shack door will be closed against you for a while Keith, but hope it will not be for long.—3AKW.

SOUTH WESTERN ZONE

The zone is fairly active, particularly on 144 Mc. 3XI has his rig going very well now, he also has a cubicle quad mounted approx. 95 ft. from the ground and is working out quite well. Norm 3EG is getting steamed up to remote control his rig from the lounge room as it is too cold out in the shack. Nell 3HG, of Coleraine, is now on a.c. so will most likely be on the bands a lot more. John 3AGD is still getting all the gear set up in the new home. Geoff Clarke (3DF) has been at 3AGD's for a few week-ends, but seems to be hard to get to the mike, not shy I hope Geoff. S.w.I. Geoff Monday has been discharged from the National Service as the old health wasn't the best, however we wish you luck, Geoff. We hope to have a visit from one of our ex-zone members, Bert 7BI (ex-3BI, of Ballarat). Bill Wines and XYL have been on holidays in Geelong, Melbourne and Ballarat.

Ian 3BU has made a new rig which is putting a better signal out now. 3AGV, of Colac, has returned from Wangaratta; he visited Jack 3AKC, one of our old zone members. Gordon 3AGE has been on holidays in the Wimmera and was nearly caught in the floods, that's no good Gordon. Mart 3AKU is busy working on a compass rx as Qser. Chris 3AXU has installed a heater in the shack. Chris had a visit from Ken 7LX, who, using an 8w. mobile rig, worked 7GM from outside the front of 3AGV's QTH. Don 3PO, of Ballarat, seems to be the only one up there on the bands, particularly 2 mx. Well chaps I hope you all have your photos of the Convention held at Warrnambool, if not please drop me a few lines or contact Harry 3XI.—73 Bill Wines.

NORTH EASTERN ZONE

Frank 3ZU is now back after an interesting holiday in VK6. Kevin 3IR has left Yarra-wonga and is now in Mornington. Ron 3AQG is back on the air again after a power failure. Brian 3AMZ still tied up with his studies. Howard 3YV has his rig going nicely now, and Jim 3JK is doing well with that beam on 10, 13, and 20 mx. Jack 3ACK and Bill 3AWQ busy with work. Bruce 3QC is now back in the "fold" of radio. Bill 3IP, Keith 3DW and Ken 3KR were heard checking their rigs on 40 mx recently. It is thought that Hugh 3AHT is back from his holidays. Des 3CO is back from a trip to Goondiwindi. Syd 3CI recently got an interesting selection of colour photographs as a

QSL from a W4. Keith 3JC worked Doug 1IJ down on Macquarie Is. George 3GD is thought to be on to the DX. John 3ACK is moderately active, and Peter 3APF sticks mostly to the v.h.f. bands. Ray 3FI still building that new shack. Brian 3ASF and Bruce 3AGG are chasing 20 mc DX. Les 3ALE is active. Vern 3AXW has recently shifted his shack from the back verandah to the garage, but our former member Col 3WQ is still not in his own house. A visitor, Gordon 3AGV, had quite a bit of gear with him on his holiday in Wangaratta.

Of our Associates, Earle Scoones is back after the course mentioned last month; Jim Harrington has not been heard of lately, and Jack Dunne is experimenting with model aircraft. Allan Holmes is constructing one of those tri-beams, and our enthusiast friend John Brough-Smyth was at Murchison East early in May.

The North Eastern Zone Annual Convention will be held in the Anzac Rest Room in Station Street, Seymour, on Sunday, 8th July next. The catering is "bring your own tucker, tea, milk, and sugar; hot water will be provided."—3FD.

GEELONG AMATEUR RADIO CLUB

The v.h.f. field day held recently was of keen interest to 2 mx enthusiasts in this district. Many stations were worked by 3ZAV and 3AWZ. Peter 3ZAV was stationed on Ceres Lookout and logged about 15 stations. Some of the many stations heard at good strength were 3ZBJ, 3IE, 3ZAD and 3ADU. Bill 3AWZ visited Eric 3ADU who was portable on the You Yangs and saw some fine DX worked at this excellent location. A 1 mx contact between 3ADU and 3ZAV was the only signal heard here on this band.

Bill 3WT and Bill 3BU are not back on deck yet after illness. Our Secretary, Bob 3IC, has returned from a motor cycling holiday to Adelaide via Mildura. Bob was equipped with his portable gear and contacted and visited many old friends.

A recent disposals evening raised members from hibernation and a satisfactory time was spent by all. The club funds benefited considerably. It is hoped to have the features of the S.W. Zone Convention completed and posted to members soon. Don't forget chaps, club members here will be listening and transmitting on the hour on Sunday afternoons from 3 p.m. onwards and would be anxious to exchange news and views.—3AWZ.

QUEENSLAND

BRISBANE AND DISTRICT

The past month has seen quite a bit of activity in the Brisbane area. The Palm Beach Convention was a success and full details will be published, possibly in next month's "A.R." The official station, VK4WI, is now well settled in its new home at Wavell Heights and should be quite active by the time you read this. Bert 4AO has put a terrific amount of work into the GO9s and is on the last piece of work now. He has modified the tx's for "press-to-talk" and will be able to operate simultaneously on two bands. One suggestion by a country member was that the normal 20 mx and 40 mx broadcasts be made on Sunday mornings as

Wireless Institute of Australia

Victorian Division

A.O.C.P. CLASS

commences

THURSDAY, 26th JULY, '56

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.

C.W. BANDS: 3500-3550, 7000-7050, 14000-14100, 21000-21100, 28000-28100

usual with a repeat on 80 mx on Sunday evening. Bert said that he will try to do this and if nothing unexpected happens we know he will.

When he has completed modifications to the keying circuit he will possibly be conducting regular slow morse sessions for the help of the "Z" boys who want copy to get full tickets and for associates who need that morse. Bert has an excellent "fst," being the holder of a first class operator's ticket and really likes to pound away on the key. You must realise the position he is in, he's taking on this work while he is "snowed under" with work on the completion of his home. He is even using part of his lunch hour at work to do work on the GO9s. Can anyone beat that guy?

You have all received the Questionnaire in the June "A.R." and Council suggests that you fill it in and return it to the Box so that the forms can be sent to F.E. Unless F.E. knows your views on the proposed changes to the 2 mx band, their hands are tied. So let's have those filled-in Questionnaires.

As you have probably heard, the UA Hams are now permitted to work VKs again and Tibby 4HR had quite a good QSO with one of the Russians on 20 mx phone. Now possibly some of the boys will be able to get QSLs from Zones 16, 17, 18, and 19 for that "hard-to-get" W.A.Z. Certificate.

Recently a lady rang your Secretary at work and, thinking it was his XYL, he said, "My private secretary takes all my calls, you silly twisted girl." The lady spluttered and explained that she only wanted to know if the W.I.A. wanted the State Service Union Rooms to be booked regularly each month and that she wasn't "a silly twisted girl." A hurried apology and explanation appeared her and we are pleased to say that we still have the State Service Union Rooms for our general meetings. How red can a human face get?

Why is the top 50 Kc. of 20 mx so vacant? Everyone crowds into the low end of the band and neglects 14300 Kc. to 14350 Kc. What a wonderful case the commercial interests would have if they tried to get another 50 Kc. from us. "The Hams don't use that 50 Kc. of their band, give it to us" would go over in a big way at the next International Telecommunications Conference, which is coming up soon. So, if you don't want another 50 Kc. taken from us do something; use your bands or you know what will happen.

The DX on 6 mx. reported last month, has gone even further; the JA stations have broken the record of Okinawa to Chile with Japan to Chile and Argentina. Though a signal of a couple of hundred microvolts is necessary to really chop up t.v. pictures in the city area, in the "fringe area" those JA signals would have really caused havoc to viewers. Can't the authorities realise the mistake they are making in taking 6 mx from us or has the decision been made by non-technical persons? We don't want to be taken for agitators, but we all have a vote and have the right to approach our members of the House of Representatives. If a Ham in each Federal Electorate told his Member about this break through of DX stations on a band to be used for t.v. channel 1, things would happen and a lot of questions would be asked.

The personal pars are short this month and we have had to ramble on. Fortunately, both your serbes are active on the bands now so you will get a good swag of personal pars next month. 73, 42M and 4PR.

MARYBOROUGH

4AI been on holidays and too busy to finish half-completed projects such as v.t.o., band-switched exciter and 2 mx converter. 4CB still working to Brisbane on 2 mx, added another four elements to his beam, making it 16. Works better than 13 el. Yag. Archie is spending a lot of time at week-ends on his tower and much welding has been done. 4BG had his skull chipped when a multimeter fell off a shelf and unsympathetic friends (?) 2BG and 4AI agreed that the shelf should have been higher. In retaliation, a terse verse has been penned, so cop this—

A multimeter fell down hard
And hit Ron on the dome
But due to his resistance
He re-volted at staying ohm!

4BG called on 4BJ at Bundaberg and found Vic working much DX on 15 mx with a 40 mx dipole. Ron tried the same idea and is doing much better on 15 mx as a result. Is now trying an all-band final with a split-stator condenser, and getting results.—4BG.

SOUTH AUSTRALIA

The general meeting was held in the usual rooms in Waymouth Street on Tuesday, 8th, with the President, John 5KX, in the chair. After welcoming the visitors, Messrs. Beaglehole, Paul, Goodridge, Williams, Crawford, Masted and Woolnough (3BW), John introduced the first of the three lecturers for the evening. Ian 5ZAA, took over before a bumper crowd who had come expecting some good "gen" from the members of the T.v.i. Technical Committee.

Ian had chosen, to present to the chaps, the relationship of our Amateur bands to the allotted t.v. channels. With a carefully compiled list of data on adjacent channel interference and harmonic relationship, made up in the form of a graph which was projected on to a screen, Ian suitably prepared the ground for the two lecturers who followed him. As I hope to have this material for publication in "A.R." later, I won't dwell on it here—as one remarked afterwards, "Cripes, it gave me the holy horrors"—you can gather that this section was rather telling. Ian can speak with authority on these matters as he is right in the middle of t.v. rx design at our local industry.

Phil 5ZAB then took up the threads and in a lighter vein proceeded to outline some of the don'ts, such as using triodes, exposed wiring, high power multipliers, capacity inter-stage coupling, etc. These were punctuated with shots from "QST" with Jeeves in suitably compromising situations. Phil stressed particularly the use of tetrode and pentode type transmitting valves such as the 807, 802, 813, 803, 6146, 6Q806/40 and 82B2 with their low drive requirements, high transconductance, low plate-grid capacitance and low cathode lead inductance; the choice of a high starting frequency in the crystal oscillator or v.f.o. to reduce feed through at each multiplier stage (up to 12 Mc. with suitable oscillator circuits).

The Chairman of the Committee, Ray 5BT, then carried on with some practical ideas for modifying our present tx by using double tuned coupling between stages. These can be suitably overcoupled and fixed tuned, resulting in attenuation of unwanted frequencies by 45 db. approx. and having the advantage of plug in coils for band changing, with no tuning required for "peaking" the stage. Ray paid a tribute to Hans Ruckert (2AOU) for the very able and willing way that he had assisted the VK5 Committee in gathering data for their task.

As the three lecturers have given me a synopsis of their lectures, I won't go into the technicalities any further here. The President then called upon Les 5AX to propose a vote of thanks to the lecturers.

QSL cards were distributed by George 5RX and Joe 5JD, after which a "smoko" was allowed.

Memos were received from F.E. asking for the co-operation of all in returning the Questionnaire on 144 Mc. and on the change in the Regulations relating to portable operation. This latter is a distinct advance and we should see some improvement in field activities when the weather is somewhat better than it is today. ("Snow in them there hills, Bo!")

Classes are drawing to a close and already we have applications for another one to be formed. If you know anyone who is interested (the class will be on the same basis as for the 1955-56 one), please get them to apply as soon as possible so that Council can make an early decision. Bruce 5OR, who has been taking the Morse class this year, has offered to continue with an advanced tutorial if there are enough offering to make it worth while. Anyone interested to get in touch with Bruce. A very fine gesture, OM.

Geoff 5ZAY has been awarded a travelling scholarship and will be residing in the States for the next couple of years. Our best wishes for a profitable sojourn, Geoff.

I have to report the deaths of two old-timers, who although not current members of the Institute, still belong to the ranks. Ken 5QP died after quite a serious illness, and Wally 5WG died suddenly. The Institute extends sincere sympathy to their families.

NORTHERN AREA

Tom 5TL still battling along at Alice—plenty of excitement in the old place last month, too, which made life speed along. Still doing a sterling job on 80 mc (3515 Kc.) with the slow Morse session. Occasionally hear Don 2AMN at the Barrier who still has his heart in the happenings of the VK5 Division. Is always glad to have contacts with his old coppers. 5WC still active and preparing a screed and photo for "A.R."—will be nice to see what a fine bunch of good looking so and so's there are in the Club. Worked Ern 5EN, Bob 5RI, Compton 5EF, Les 5AX, Ron 5AP, Rex 5UF, Austin 5VO

last month. All had S9 signals and reported various activities from chasing DX to attending to beams.

EYRE'S PENINSULA

Wally 5DF still active on Sundays. Had a good line-up one week—5BF, 5DF and 5EF in the one net, only needed Scott at Strath with 5AF to make the quartet. Heard by grapevine that Pat 5LT has been ill—sorry to hear that and hope that when you are reading this you'll be well again. George 5EC still trying to get a holiday from B.C.A.S. job at Ceduna. Haven't heard a word from Whyalla for months but from checking logs, etc. gather that you are still active Mac and keeping 5CE on the air; at least on the DX bands. Always include Dave 5BF at Yankallilla in this section as Dave is a lone wolf down there by himself, mucking around with vee beams and 600 ohm transmission lines.

SOUTH EAST

Bram 5AB has been coerced onto 15 and 10 mx by Doc, and is having the usual flock of troubles feeding power to his vee beams. Since these types of antennae are not in common use in hamdom, very little data is available in handbooks. We could really do with a good practical article in the magazine—any takers? Try some stubbs, Bram and see what happens.

There has been very little activity at the Mt. Gambier area during the month on the bands as everyone seems to have some interest or other besides radio. Col 5CJ and Leo 5ZAG have building projects under way. Leo is planning to get his full licence as he is doing Morse practice. Stuart 5MS has had a few dints put in the new car—better go back to radio and leave the car in the garage, it may be safer! Stuart is looking for some new tubes to get his gear 100 per cent. before the R.D. Contest. John 5FD still showing no interest—only with the tuning of 125 c.c. motor cycles. Claude 5CH didn't get to the meeting as he was heading for Melbourne the next day. Erg 5KU hasn't put the rig on either, awaiting a new xtal insert. Should make a better showing in the R.D. Contest this year if the beam withstands the weather.

And now some famous last words. This is my finale with the notes. It has been a very pleasant experience and I sincerely thank those who have sent in notes and kind words of encouragement. However, Jack 5JD, who has done sterling work as your Federal Councillor has had to resign, with a good deal of regret, due to his present "bread-winning" on the seas and Council last night saw fit to appoint me to that office. It will be possible to combine the duties of this office with that of the Federal Contest work and hence I shall have to give up the notes. For anyone who can have fun with a pen in their hand I can thoroughly recommend the position of scribe. It's certainly wonderful what the imagination can do!

The new Grey-beard Certificates are in the hands of Hon. Sec. and ready to be forwarded to all claimants—there are 100 so don't rush those wheel-chairs along you old geyers with the glorious "vandykes." So long—I'm off to pick up me crutches from the Red Cross!

—73, Gordon 5XU.

TASMANIA

NORTHERN ZONE

These notes cover two months' activities as I have been holidaying in the Eastern States since early May, so if I am rather out of touch with members' doings, that is the reason. However, I hear that Col 7LZ has had some real fun on what was left of the old 6 mx band and 5 mx. and from all reports he was not alone. Congratulations to Peter 7PF and Max 7CA, who both are now proud fathers of bouncing infants and in Peter's case, I believe the new international alphabet fills the bill nicely, as he will now answer to the call VK7 Papa Fox-trot! It is quite possible that Amateur Radio activities from these sources will be strictly curtailed for some time.

During my trip through the three Eastern mainland States I operated mobile and had some really interesting contacts with all VK States except VK6. A nightly sited with 7PF was held without exception as far north as Tamworth on the journey northwards and from Grafton on the southward trek. I was fortunate enough to meet many fellow Amateurs, but time did not permit me to honour all invitations. 3MH please note! I couldn't find you in Melbourne—it's a big place! However, thanks to 3KR and 3DW in Benalla who so kindly provided me with a soldering iron, etc., to "operate" on the tx while in that town.

Most other members appear to have hibernated for the winter, but more news may be forthcoming next month when I will be back in harness again.—7LX.

CORRESPONDENCE

The opinions expressed in these letters are the individual opinions of the writer, and do not necessarily coincide with those of the publishers.

INTRUDERS

Editor "A.R." Dear Sir,

Egad, what have we bought into, we who like to light the pipe, reach for the switches and talk of friends? Are specific reports of QRM to determine the lawful daily use of frequencies? If so, what is the purpose of band allocations, and why should not Amateurs migrate to, say, 8 or 10 megacycles as they think fit?

Doubtless an important factor is power, expressed in other than electrical terms, but those who would add conditions to the "intruder" problem should be reminded that they demolish any civilised argument against such a move by Amateurs.

—"CAVEAT VENDOR."

FLYNN OF THE INLAND

Editor "A.R." Dear Sir,

Relative to your June issue, page 7, in respect to the article on Flynn of the Inland. When I was in Adelaide during the time that the Rev. Flynn was starting his movement, I received the very first message ever sent over their scheme. They were in a truck with portable radio equipment and were camped at Innaminka. I took their very first message and it was with the then S.A. Radio Inspector's permission, printed in the Adelaide "Advertiser." I do not have a copy so I cannot tell you the date. My name is in Flynn's story by address and there are also several names of enthusiastic Amateurs who, like Flynn, have now passed on. My call sign then was 5RM and 5BK. The Radio Inspector was a Mr. Harrington. I am pleased to know how the service has expanded. The time of which I write was long before any regular station was set up.

—R. BARKER, VK7RM.

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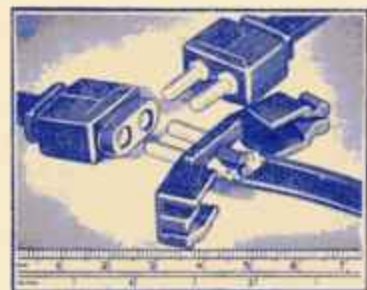
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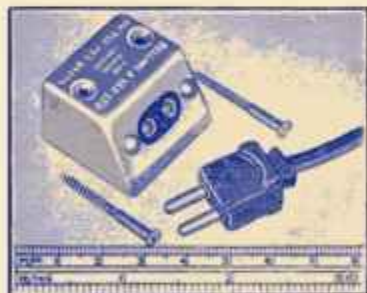


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Designed for use with 300 ohm unscreened twin ribbon feeder as used for short wave work and television. Conductors are pinched in the spalls on the solid pins and the "butterfly" type moulding folds over the feeder.

Special slots grip the cover over the cable conductors.

Interchangeable with L733/P and /S, and L733/J.



L735—Outlet socket box for 80 or 150 ohm feeder.
L791—For 300 ohm feeder.

A skirting board termination for unscreened balanced twin aerial feeder. L733/S forms the outlet socket which will take L733/P or L677/P.

Australian Factory Representatives:

Co-axial Outlet Sockets



L735—Outlet socket box.

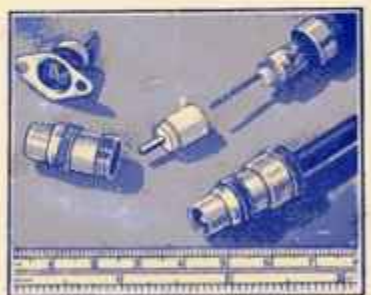
An improved surface skirting board of television installations. Will accommodate the appropriate range L7329, L734/P and L781.

This box is also suitable for certain laboratory and test bench installations.



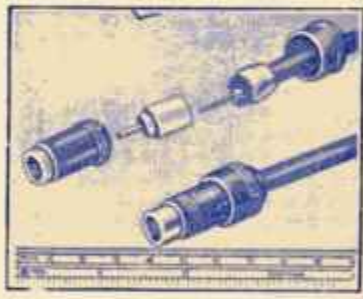
L736—Double outlet box.

This box has two standard outlet sockets and is complete with a "star" matching network which provides the coupling between the incoming cable and the outlets. When two receivers are connected, the input to each is 6 db. down on the input to the box. Designed for use in demonstration rooms, workshops and laboratories, etc., or where neighbours in semi-detached or terraced houses wish to share a television aerial installation. The appropriate range of plugs is listed under L7329, L734/P and L781.



L734/P and L7329—Standard free plugs.
L734/S—Fixed socket.

Co-axial Outlet Sockets



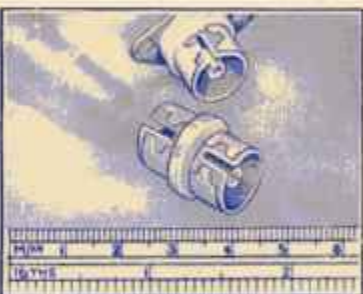
L781/P—Free plug, insulated.



L734/J/AL—Free socket.

Belling and Lee range of plugs L734/P, L781/P and L7329 conform to the draft R.E.C.M.F. Specification for television inlets. In addition to these requirements they are also designed to meet the various recommended methods of current loading. In L734/P and L781/P the pin is retained in the insulator. L7329 has a hinged moulding to enable the pin to be withdrawn for soldering and/or crimping.

Complementary sockets for above range of plugs are L734/S, L604/S (fixed) and L734/J (free).



L616—Adapter.
L604/S—Fixed socket.

A particularly useful application is for the aerial input circuit to car radio installations. The co-axial cable designed expressly for this purpose loads perfectly into this plug. The sockets are suitably designed to hold the plug against vibration and are cadmium plated.

The fixed socket L604/S is the complementary mating member to our co-axial plugs. A flush mounting type, L734/S, is also available.

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AUGUST
1956

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K. E. PINCOTT, VK3AFJ.

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J. C. DUNCAN, VK3VZ.

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EDITORIAL**THE RADIO AMATEUR**

When the art of Radio was in its infancy, most of the experimental work was carried out by those who were interested from the purely technical and scientific viewpoint without thought of pecuniary reward. In other words, they had the essential Amateur qualifications. As the art became developed for commercial use, regulations became necessary but, except in times of extreme national emergency, there was always a place for the Radio Amateur as we know him.

The Amateur station licences that we hold today have their justifications in our attempts to improve communication and in the facilities that they offer to us in the field of research. To regard an Amateur station as the equivalent of a telephone without wires would be to deny the Amateur Radio tradition and to remove the reasons for the existence of our sometimes hard-won facilities. It should be our constant endeavour to use our licences for the true purposes for which they are issued.

In the use of our Amateur stations for communication purposes, particularly in DX work, we have at hand facilities that are not always available to commercial research workers. Amateur Radio is an international movement in which we can find fellow-workers in many overseas countries and can conduct experiments in communication on a global scale. Bearing in mind also that Amateur Radio is a hobby, we are forced to consider seriously the cost of our equipment. The result of this is that we have to seek efficiency with economy and achieve our results from low-powered equipment of a type that lends itself readily to emergency use. The value of this form of research and training has been demonstrated clearly in our own country in recent years. The growing number of operators in our communication bands has also encouraged research into the more effective use of our Radio spectrum by such means as s.s.b. and highly selective receivers.

Although purely technical research is not confined to the v.h.f. bands, much of it takes place there. The impetus given to work in these bands by Radar and Television and the relative freedom from interference of various kinds provide conditions in which work of a standard approaching more nearly that of the laboratory may be carried out. The short wavelengths encourage antenna experiments that would be impracticable in the medium-frequency bands and enable the construction of working models for subsequent application to lower frequencies. The granting of the Limited Licence by the Authorities is evidence of official recognition of the possibilities of the v.h.f. bands as a research medium.

Communication in the v.h.f. bands, apart from pure research, presents many problems and opportunities. The equipment used may be built in such compact form that it is particularly adaptable to portable and mobile operation. Encouragement for this type of operation is apparent in the activities of the various groups of enthusiasts within the ranks of the Institute. The recent approval for the issue of Television permits will also enable research in Television by propagation instead of by the closed circuit methods previously required.

It is hardly to be expected that every Radio Amateur would engage in all of the activities we have mentioned. A more reasonable expectation is that we, as Radio Amateurs, should be conscious of our tradition and should strive to expand our knowledge. By our deeds and by our words, we must show that we are engaged in a scientific recreation that has a bearing on the welfare of the community. In communication, particularly, we have to remember that we can be heard by listeners on the bands—official or otherwise. Amateur Radio is in our hands and it is up to us to see that it holds its rightful place.

FEDERAL EXECUTIVE.

A Rotary Beam for 20-15-10-5-2 Metres

BY D. C. HABERECHE,* VK2RS

THERE is no doubt that many of us have from time to time surveyed those multi-band rotary beams one sees from place to place, wondering just what could be done in our own particular conditional circumstances, without perhaps digging too deeply into the family budget. Here is a suggestion which you may find well worthy of consideration.

The writer has for some time been faced with the problem of constructing a rotary system for these bands, namely 20, 15, 10, 5 and 2 metres. Having a 35 foot oregon tower graced only with a 16 element 2 metre beam, it was decided during the lull in v.h.f. over the winter months to see what could be done. It was considered that separate beams for each band would be somewhat formidable particularly as a 24 element 2 metre beam was considered a near minimum requirement in our particular QTH, to erect this above an already top heavy construction was considered suicide.

Bearing these in mind, it was decided that a rotary single section W3JK type beam was about the best suggestion, however its performance on 15 metres was somewhat in doubt. According to available information its performance on 20 and 10 metres was quite good, being the near equivalent of a good 2 element on 20 and better than a 3 element on 10 metres (since on this band, it becomes virtually a 4 element job).

The question now arose, how would it perform on 15 metres? A chance QSO with a well known VK9 Amateur gave us all the incentive necessary, a short burst from the pages of his log were more than enough to prove in the very least that it possessed both gain and directivity on this band.

And as a well known comedian would say, "Let's give it a go." The results were far greater than our expectations on the three bands. European stations have been worked on all three bands over the past month on phone with reports of S9 and over on 15 metres. However, on 10 metres the reports have not been as good to Europe although we have had many QSOs at R5. No doubt the rather patchy conditions have had quite a lot to do with this, and in view of the repeated comments that "you are the first VK station we have worked since 1947 OM" has given us a great deal of faith in its performance on this band. Many QSOs have been made with Ws with some really excellent reports on all three bands.

CONSTRUCTION REQUIREMENTS

Boom: Kiln dried oregon, 14 feet long, either 4" by 2" or 4" by 4", depending on whether the 2 metre section is required or not.

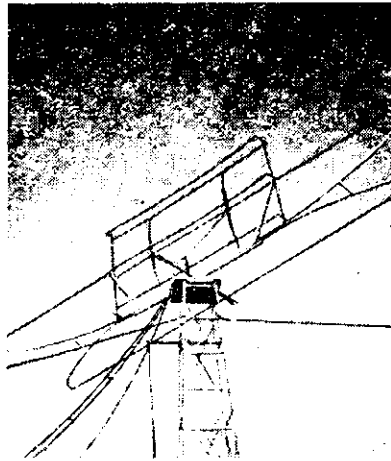
Bamboo Supports: Four lengths of selected bamboo rod, obtainable from most sports stores. These are approximately 15 feet in length. Clamp these to the ends of the boom (see diagram).

Vertical Brace: Two lengths of 2" x 1" oregon 9 feet long, if the two metre

section required, and 4 feet approximately otherwise. Screw these to either ends of the boom in the vertical plane and brace to the boom toward the centre with 2" x 1/2" timbers; two pieces required for each vertical brace, as per diagram.

Centre Cross-Piece: To the centre of the boom screw two pieces of 2" x 1" timbers 8 feet 10 inches long; space these approximately 1 foot apart, half way along each side, and at each end fit 10" pieces of the same timber to form a ladder construction. This cross-piece apart from supporting the elements, forms the boom of the 5 metre beam.

Spreaders for Bamboo Supports: Construct from 2" x 1" timber two 2 feet 6 inch lengths, from the ends cut a



wedge shape piece to enable a tight fit between the bamboo supports with the wire elements of the beam attached. Before binding these in position, form the beam by attaching the four elements each 16 feet 6 inches long and bend the bamboo until the required spacing of 8 feet 8 inches between elements is reached. You will probably find that there will be an excess length of bamboo. After making sure that the spacing between elements is correct with the spreaders moved firmly in place, remove the excess lengths of bamboo.

Wire Supports: From the ends of the elements to the vertical brace, approximately 3 feet 6 inches up from the boom, attach wire supports just sufficiently tight enough to prevent any sag in the bamboo supports when lifted from the ground. These could be broken with insulators if required.

Cross-Over Section: These are made up of the same materials as the elements and are made each 9 feet long crossing over at the centre of the boom. The feedline is attached approximately 1 inch from the centre. It is best to use an open wire line attached to a parallel tuned aerial coupler if the length of feedline does not exceed 60 feet, however for ease for rotation tuned 300 ohm ribbon can be successfully used

if the length of feed is not too long, however here the velocity factor of ribbon must be considered—approximately 45 feet of ribbon is the equivalent of a 66 foot length of open wire feed and providing the overall length does not exceed the 45 feet mark, the losses encountered will not be serious.

It is essential to use a coupler if multi-band operation is required, a single parallel tuned circuit will suffice, approximately 5 turns of heavy gauge wire 2" in diameter, tuned by a 100 pF. double-spaced condenser.

A word of warning! Use good quality wire throughout, most particularly in the feedline. Single strand plastic insulated wire is not satisfactory, the currents in this type of antennae are very high and unless good materials are used losses due to heating will occur.

An interesting comparison between the two types of feed lines, i.e. open wire and 300 ohm ribbon, was made. It was found that on "receive" the width of the beam appeared to be about 40 degrees before a noticeable drop in signal strength occurred. This, according to available information, was near correct. However, when the ribbon feed was attached, on "receive" the beam appeared to be quite noticeably sharper, approximately 30 degrees wide, with a drop of from 5 to 7 S points on the ends. A much better drop than with the open wire line. This is probably due to the lower signal pick-up in the lower impedance line, however there appeared to be no noticeable difference between the two types when transmitting.

24 ELEMENT 2 METRE BEAM

This consists of 12 driven elements backed by 12 reflectors, arranged as two separate 12 element beams mounted side by side and fed in phase. This type of beam is known as a phased or co-linear type. The elements themselves are made from expanded copper wire, having at least three strands of 22 gauge wire.

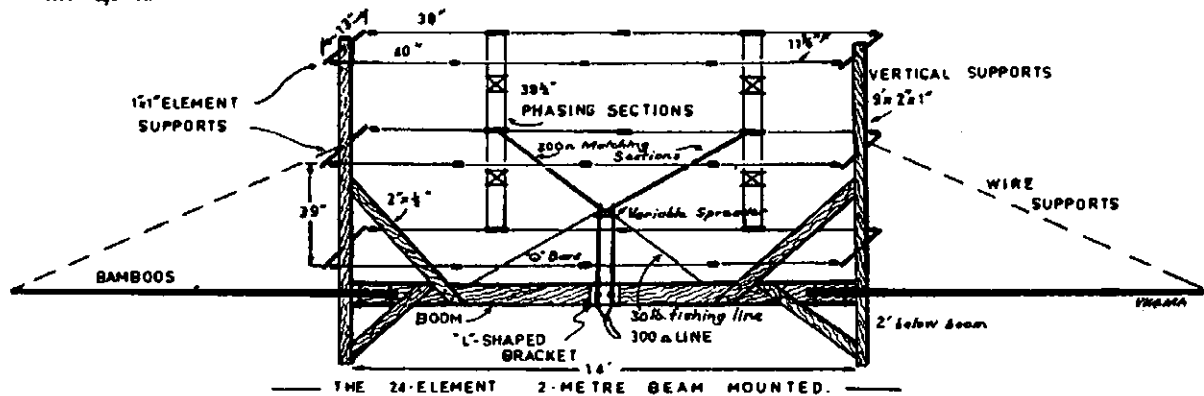
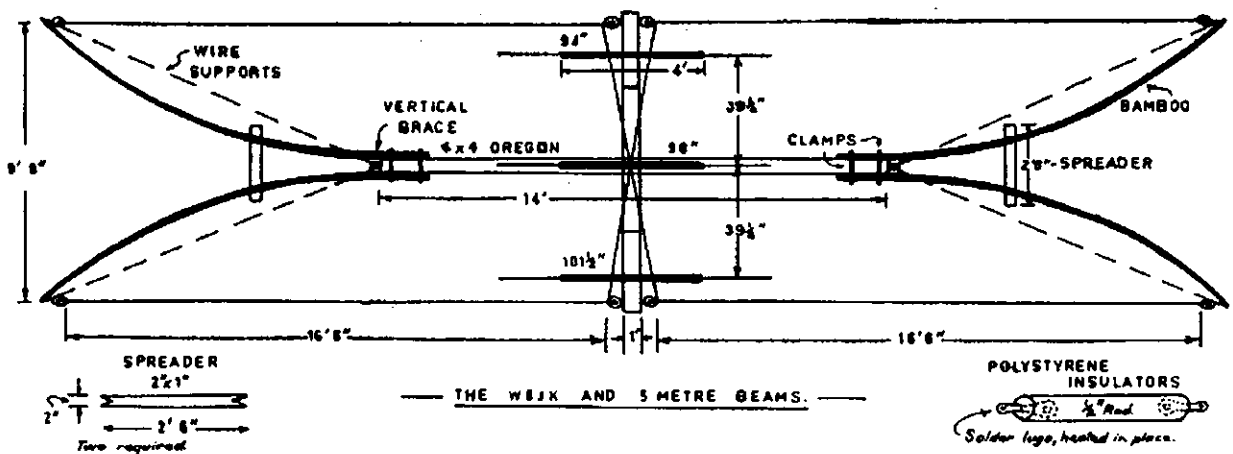
CONSTRUCTION

Element Supports: These are made from 1" x 1" timber 13" long, six being required, at a distance of 5 1/2" from the centre and at ends of the supports drill a hole. Screw these supports to the vertical braces, three to each brace at a distance of 39" apart, commencing from the top of the brace. This will now complete the framework on which the beam is mounted.

Insulators: Between each element and at the ends are attached small insulators made from polystyrene rod of approximately 1/4" diameter. There are 15 lengths 1" long and a similar number 2" long required. At each end, with the aid of the soldering iron, heat into the rod a good quality solder lug so that approximately 1/4" protrudes. After the 30th insulator you will have become quite professional!

Elements: Cut 12 lengths 38" long for the radiators and attach these to the 2"

* 605 Abercorn Street, South Albury, N.S.W.



polystyrene insulators, trimming the length so that over-all, solder lug included, you have 38". Do likewise for the reflectors, however these are made 40" long and attached to the smaller insulators.

Mounting the Elements: Commence from the top of the vertical brace, attach the first four reflectors, drawing the wire reasonably tight, then attach the first four radiators. Move to the centre bay and repeat. However, do not attach this permanently as when the last bay is fitted in place, there may be some tightening necessary in the centre section.

Care must be taken to see that the radiators are as near symmetrically behind the reflectors as is possible. Some trimming of the reflector elements may be necessary to ensure this.

Phasing Sections: These are made from the same material as the elements and are each 39 1/2" long, crossing over between the lower and centre, and centre and upper bays, inserted at each cross-over is a four terminal polystyrene block.

Matching Sections: Cut two lengths of 300 ohm ribbon 51" long, which is an electrical wavelength (wavelength times velocity factor, i.e. $76 \times 0.67 = 51$ "). Attach these to the centre bay of each phasing section, leaving the other ends unattended for the present. Incidentally, open wire line of 300 ohms impedance could be used here, however there would be a considerable length of wire left floating when attached to the "Q" bar.

"Q" Bars: Obtain two lengths of 1/2" outside diameter copper tubing, cut to 20". Make up an "L" shaped metal

bracket from a piece of flat metal measuring 2" x 4", drill two holes for mounting to boom and two other holes spaced 1 1/2" apart on the opposite side to the mounting holes; bend the bracket. Through the two holes opposite the mounting holes, attach two stand-off insulators and mount your "Q" bars, preferably with bolts, flatten the ends of the rods and drill suitable holes. Mount the "Q" bars to the boom so that they stand up on top of the boom in the near vertical plane, just sufficiently angled so that they will not foul the elements of the beam.

A few inches from the top of the bars attach a suitable variable spreader. This can be made from two pieces of bakelite or fibre approximately 4" long and 1" wide. Drill holes near each end and one in the centre and mount (see diagram). Use lengths of 30 lb. nylon fishing line to assist in holding the bars firm.

Connect the floating ends of the matching sections to the top of your "Q" bars, making sure that there are no twists in the ribbon. The left hand side of one 12 element beam and the left hand side of the other are joined together and attached to one side of the "Q" bars, and the right hand side of each beam is connected to the other "Q" bar. This ensures correct phasing. Connect your feedline, 300 ohm ribbon, to the base of the "Q" bars.

Matching: This can be done by means of a "Twin Lamp Standing Wave Indicator." Although this is not the only method by any means, it is, however, one of the simplest. With the beam raised a few feet from the ground and, of course, with your transmitter switch-

ed on, adjust the spacing between the "Q" bars so that the lamp nearest the antenna will not light or light perhaps very weakly compared with the lamp nearest the p.a. When this has been done securely tighten the variable spreaders. This now completes the 2 metre beam.

3 ELEMENT 5 METRE BEAM

This consists of a radiator 98" long, a reflector 101 1/2", and a director 94". The elements are spaced 0.2 of a wavelength apart or 39 1/2".

All elements in use here were cut from conduit and mounted to the cross-piece by means of individual element supports made from 1 1/2" square timbers, 4 feet long. The elements themselves are attached to the supports by means of stand-off insulators. The method of feed employed is a Delta Match with 50 ohm ribbon, fanned out either side of the centre of the driven element.

SUMMARY

There is little else to say with possibly one very important consideration previously overlooked. Before mounting the beams, give all woodwork a very generous application of paint; once up on the tower or pole, it's there to stay, storms permitting.

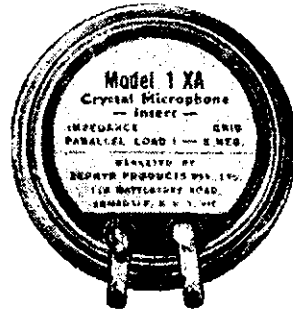
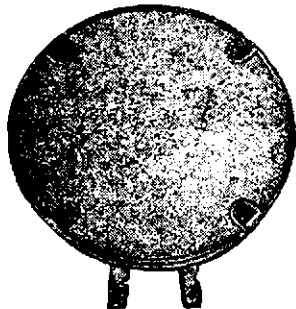
The cost of the complete set-up in the writer's case, including the oregon lattice type tower did not exceed £25, a comparatively cheap all-band beam set-up.

The writer would be very pleased to hear from anyone who may decide to undertake this venture either in part or in the full.

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 "Zephyrfill" 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 "Zephyrfill" 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

Australia and the International Geophysical Year*

By PROFESSOR H. C. WEBSTER, Convener, Australian National Committee for the I.G.Y.

THE period, July 1957 to December 1958, will have a special significance for physicists, for during this period a concerted effort, spread over a large proportion of the earth, is to be made to understand the various physical phenomena which occur naturally in and on the earth. Among the phenomena, the following have been singled out for special study:

1. The movements of air and water in the atmosphere, especially in the stratosphere and above (say, 30,000 ft. upwards), their part in the general circulation, and broadly the study of what we may call the overall weather. A weather phenomenon of special interest is the thunderstorm, for it has an indirect bearing on other geophysical phenomena; another is the "jet stream" of such importance in high level aviation; a third is the "ozone" layer at about 80,000 ft.

2. The changes in the earth's magnetism which occur, some regularly, some in magnetic storms. Of special importance are the changes near the equator (magnetic) and the regions where aurora are frequently seen overhead (the auroral zones). Here "electrojets" (intense currents) occur in the higher parts of the atmosphere.

3. The brilliant optical phenomena, seen especially in the Arctic and Antarctic, known as "aurora polaris." Apart from observations by eye and by photography, these aurora can be observed by radio; we shall return to this aspect later.

4. The various changes which occur in the ionosphere, the strongly-conducting layer extending from about 200,000 ft. upwards. Members of the W.I.A. are familiar with its vital influence on radio communication (except at u.h.f.). The connection between ionospheric changes, magnetic changes, aurora, and phenomena on the sun is perhaps not so well known.

5. The changes in the activity of the sun, solar flares and ejections, sunspots, etc., any, in fact, which influence geophysical phenomena. During the period 1st July, 1957, to 31st December, 1958, the number of sunspots is expected to be very high; the peak of the sunspot cycle is predicted to occur during that period.

6. Cosmic rays: These rays, of so far undetermined origin, enter the earth's atmosphere from outside and produce various secondary phenomena, which extend to sea level and below. They have different properties at different latitudes and show small variations which may throw light on their origin.

7. The behaviour of glaciers, especially those in inaccessible regions such as Antarctica.

8. Ocean currents, ocean wave systems, changes in salinity, etc.

9. Earthquake and the transmission through the earth of earthquake shocks. This throws light on the constitution of the interior of the earth; whether it is solid or liquid, hot or cold.

10. The precise shape of the earth; accurate surveying and accurate gravity measurements. These things do not change (at least not at a measurable rate), but the International Geophysical Year provides a good opportunity for improving our knowledge of them.

Although the promoters of the International Geophysical Year would naturally have wished these phenomena investigated intensively for the whole period and at points closely distributed over the whole earth, it was fully realised that this would be impossible of achievement. A less ambitious programme calling for a limited deployment of stations was therefore formulated and this programme has been accepted by the forty nations which are participating in the International Geophysical Year programme. Although the areas set down for special study vary with the phenomenon to be studied, it is broadly true that special interest attaches to the polar regions, and to strips of the earth's surface 20° wide in longitude straddling certain selected meridians, including 0°, 140°E, 75°W. For meteorological purposes other strips, including 105°E, are included.

Again, although a limited programme of observations should be carried out every day, there are certain selected days, and certain selected periods, when more frequent observations should be made; moreover, there are certain experiments which will be carried out only on these selected days. These days have been termed World-Days. Some have already been selected (Regular World-Days). The rest will be selected only a few hours in advance (Special World Intervals). Such alerts will be given when interesting disturbances appear on the sun.

While most of the observations for the International Geophysical Year will be made on the ground, the programme includes a number of measurements which will require balloons carrying instruments to be sent up to over 30,000 ft. Moreover, it is proposed to send instruments up in rockets to even greater altitudes (perhaps 600,000 ft.). It will probably not be possible to send up many rockets, as they are exceedingly costly; they may be sent up only on "World Days".

Of especial interest is the plan to launch "space satellites" which will orbit round the earth some 300 miles up and will carry instruments to permit their being followed (by radio) and send down measurements. The satellite programme is the exclusive prerogative of the United States and is expected to cost \$12,000,000. Indeed the United States programme for the International Geophysical Year is the most ambitious of all and may cost altogether \$28,000,000.

Although it is only major powers like the United States and the U.S.S.R. which can mount programmes of this order of magnitude, nearly forty other nations are taking part in the effort, to the extent permitted by their scientific and financial potential.

Australia is in a position to play a vital role in the International Geophysical Year, for its territories stretch from the Equator to the South Pole and include the 140°E. zone which is singled out for special study, as well as the Antarctic zone which is of special interest in all fields of study and the equatorial zone which is of special interest in Ionospheric and Geomagnetic recordings. Fortunately, its existing observations will enable it to carry out a fairly extensive programme of observations in the fields of Meteorology, Geomagnetism, Aurora (at Macquarie Island and Mawson), Ionosphere, Cosmic rays (Hobart and Macquarie Island) and Seismology, but an earnest effort is being made to install additional observatories in all these fields and to increase the frequency of observations. We also hoped to carry out Glaciological, Oceanographical and other observations not previously attempted. It is now certain that some of the new activities planned will be effected but others still remain doubtful. Of particular interest are the extensions in the polar stations of Macquarie Island, Mawson and Vestfold Hills (the latter two on the Antarctic continent).

Members of the Wireless Institute of Australia will no doubt be especially interested in the work on the Ionosphere. The existing ionospheric observatories (Townsville, Brisbane, Watheroo, Canberra, Hobart, Macquarie Island and Mawson) will be maintained and a new observatory will, it is hoped, be opened at Moresby. In addition, it is hoped to install a number of observing points for special ionospheric phenomena, such as winds and drifts, absorption and the propagation of whistling atmospherics. The Special World Days referred to earlier will be days on which ionospheric disturbances are expected and more frequent ionospheric observations will therefore be made.

The aspect of the programme upon which the National Committee will seek the co-operation of Wireless Institute members is in connection with the aurora. It has been found in North America that during auroral displays, long distance communication is frequently established at unexpectedly high frequencies—especially in the 50-60 Mc. band. It has been found that in these cases the path between the stations usually passes through or near a region where the aurorae reach the zenith and they are therefore ascribed to reflection from the auroral streams. It is anticipated that during 1957-8 the auroral displays will be particularly good and may reach to comparatively low latitudes. It will therefore be of great interest to the Committee to know of any long distance radio contact in the 50-70 Mc. band, especially if the path passed south of 60° latitude. Such contacts are perhaps more likely to occur for stations located in the southern States, but any report would be of interest. Nor is the interest confined to

(Continued on Page 6)

* Substance of talk delivered to the Wireless Institute of Australia, Queensland Division.

PHONE AND C.W. MONITOR

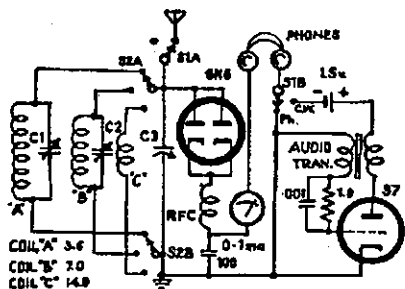
BY C. W. MANN,* VK5DF

WITH the request for articles for our magazine, I will endeavour to illustrate my useful transmitter monitoring instrument. I call it a wave meter, cum phone-cw. monitor, cum overmodulation indication. The bits and pieces are fitted in a box 6" wide by 12" high, by 4½" deep, but with a little more care, guess that a much smaller box would do.

There are two compartments in the box, one holds the tuned circuits, and the other the valves, audio transformer, etc. Power for the valve heaters is obtained from the frequency meter power supply.

Coil "A" is about 45 turns close-wound on a one inch former, and it has a 3-30 pF. trimmer across it.

Coil "B" has 14 turns double-spaced wound on a ¾" former, also a small trimmer across it. These trimmers enable the operator to get full band-spread on the tuning condenser.



Coil "C" has also 14 turns double-spaced and wound on a ¾" former, but there is no trimmer needed.

All the winding wire is about 22 s.w.g. The aerial is a piece of wire about 3 ft. long, the end of it going to within about 12 inches of the transmitter aerial tuning system.

The phones are high impedance, the audio transformer is of the once used type in "ancient" broadcast receivers and is 4-1 ratio. The 1.5v. dry cell is a miniature torch battery and has already lasted five years. The dry cell is fitted there for what I believe is "contact potential"; briefly it is to neutralise the small voltage generated from cathode to plate of the triode valve when the cathode is hot.

The valves used are shown on the drawing, but I suggest that any valves may be used so long as they are connected as such—the first as a diode and the second as a triode. The switches are a selector for the appropriate coil, and a two-way one to change from phone to c.w. monitoring.

In operating the monitor on phone the meter should read about three-quarters (or a little more) of a milli-amp., and for c.w. monitoring the meter only just shows a reading and that's all.

As can be seen from the drawing, the aerial is switched off for c.w.† as otherwise there is too much power for the audio oscillator; and it will pick up enough signal from the transmitter oscillator on the key-up position to operate the monitor.

The grid leak and condenser of the triode valve may be altered in value to suit the particular tone required.

Briefly, when monitoring c.w. the diode valve rectifies enough r.f. to provide high tension current to drive the audio oscillator and give a very nice tone in the phones on the key-down position. A little "juggling" of the circuit may be necessary to have a sharp make and break of the monitor tone for transmitter key-down and up position. I have found the c.w. monitor a great help in c.w. operating, it helps a lot to keep spacing correct and a steady "hand."

On phone monitoring, overmodulation is indicated by a fluctuation of the milliamp. meter, or putting it another way, the meter shows carrier break by swinging a few degrees on modulation; the amount of movement allowable is soon determined by a little experiment.

I trust that the above will be of sufficient information for someone to find the time to build and I am sure when that is done they, like me, will find it ever so useful.

AUSTRALIA AND THE INTERNATIONAL GEOPHYSICAL YEAR

(Continued from Page 5)

the period after July 1957. More details about this plan for radio-location of aurorae will be published later.

Another part of the International Geophysical Year plans which still has to be worked out is the distribution of Alerts, announcing the approach of a Special World Interval. The initial decision will be taken by the United States National Bureau of Standards; the decision will be broadcast by radio; it will then be the responsibility of the National organisation to see that all observers are immediately informed.

The International Geophysical Year provides a great opportunity for Australia to establish its position in the scientific world. Above all, it provides all countries with an opportunity for breaking-down of barriers of jealousy and suspicion and for showing that there is, after all, just one world.

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."

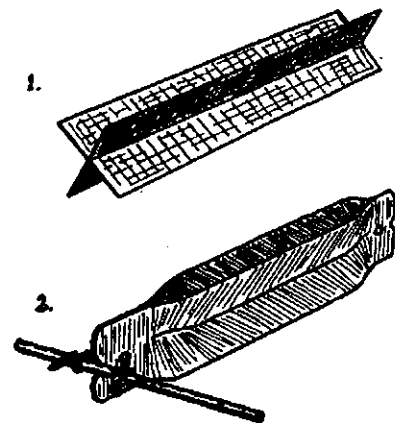
HINTS AND KINKS

LIGHT WEIGHT FEEDER SPREADERS

Spreaders for open-wire transmission lines should be as light as possible, but sufficiently rigid and with good electrical qualities. Commercially made spreaders of Polystyrene can be bought, but are expensive. A simple and satisfactory substitute can be obtained, however, at no cost at all, from many hospital casualty and orthopaedic departments.

Plaster of Paris bandages of a certain proprietary make are supplied rolled on lengths of X-section plastic extrusion; these are discarded when the bandages are used, and arrangements can usually be made for them to be saved and put aside.

The material is a thermo-plastic and is slightly flexible, but sufficiently rigid for use as spreaders. It appears to have good electrical characteristics. The standard lengths, according to the width of the bandages, are 3, 4, 6 and 8 inches; the 4 and 6 inch lengths are most readily available (Fig. 1).



When collected, the sections are usually covered with a film of dried plaster, but this can be broken away without difficulty owing to the flexibility of the material. If any plaster remains, it can be removed by soaking in water and scrubbing with a stiff brush. If a non-standard length is required, it can be cut with metal shears or stout scissors.

To form the ends, dip the distal half-inch in very hot water to soften the plastic, then squeeze it in a cold pair of pliers or a vice for a few minutes to flatten the end. When the material cools it will retain the shape given it while hot.

To fix the spreader between the conductors of the line, a small hole is drilled within a quarter of an inch of the end, using a hot needle or fine twist-drill; a short length of copper wire is then passed through the hole and twisted round the conductor on either side (Fig. 2).

—S. J. Lloyd, VK3AST.

* Wavell Street, Port Lincoln, S.A.

† Optional—depending on position of instrument and extent of shielding of transmitter.

WHAT ABOUT AN INDEX?

BY J. G. OLIVER,* VK7JO

It would be quite safe to say that practically every Amateur station has an index system of some kind or other, the most elaborate being in the form of a card system in which every station worked has a separate card on which is recorded particulars of each QSO. These cards are kept in boxes in sections, each section representing a country.

While this system is ideal for the ardent DXer, a less elaborate system will fill the bill for the average Amateur, the main consideration being a quick method of telling whether a station calling has been worked before, and if so a record of the name of the operator and possibly the power and any particular tests made.

The newcomer to the ranks of Amateur Radio is faced with the problem of deciding what system he will adopt; the method described here has been in use for a number of years and meets the main requirements of convenience and quick reference.

The only item of expense is a loose-leaf book with pages about 8½" x 5½" and an alphabetical index. Under each letter of the alphabet are three pages, which are ruled as shown in the diagram, the first page headed VK—TWO LETTERS, the second VK—THREE LETTERS, and the third ZL and DX.

These headings are self-explanatory, the dividing of the VK calls into two groups gives more space for what will be the greatest number of stations worked.

An important point to watch is the choice of an indicating letter for each call sign, the use of the first letter is not suitable as the majority of calls start with "A", particularly in the three letter group, but by using the last letter, quite an even spreading through the whole of the alphabet will be obtained, and if on each page the VK7s, VK3s, are grouped, any station can be found very quickly.

Of course the column at the right is most important. When a QSL card is sent, an "S" is put in and then an "R" when a card is received. An indication can also be made as to whether the card was posted direct, or via the bureaux,

* Latrobe, Tasmania.

R.D. CONTEST

Readers are reminded that the Remembrance Day Contest commences at 1800 hours E.A.S.T. on 11th August. On pages 10 and 11 of this issue will be found a list of the Canberra (VK1) stations, who are to be regarded as operating in VK2 call area for this Contest. Rules appeared on page 5 of the July 1956 issue.

AWARD FOR TECHNICAL ARTICLES

The Publications Committee of the Victorian Division of the W.I.A. announce that the annual award has been granted to H. F. Ruckert (VK2AOU), 25 Berrille Road, Beverly Hills, N.S.W., for his series of articles dealing with t.v.i.

if these two methods are used, and you will have a quick reply to the question, "Did you receive my card old man?"

VK—TWO LETTERS			QSL	
Call			S	R
5JO	Joe		S	R
5XO	Alex		S	R
5DO	Rex		S	R
7JO	Jim 70w. 21 Mc.			R
6MO	Allan		S	
6BO	Rolo 21 Mc.		S	R

Example of first page indexed under letter "O"

HINTS AND KINKS

CABLE SOCKETS

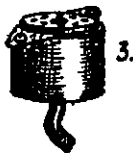
When connections are made to an item of radio equipment by flexible cable, it is sometimes convenient to mount the plug on the chassis and the socket on the end of the cable. Octal bases removed from defective valves can be used as multi-way plugs for this purpose, but the corresponding valve sockets require a protective casing or shroud to make them suitable for mounting on the cable. The aluminium cans in which 35 mm. film cassettes are supplied are the right size and suitable material.



1.



2.



3.

A line is drawn round the can about three-quarters of an inch from the bottom, and two fixing lugs are marked out on opposite sides (Fig. 1). The screw thread is cut away from the mouth of the can, and cuts are made down both sides of each lug. The lugs are then bent outwards at a right angle,

and the remainder of the can cut down to the marked line (Fig. 2). A stout pair of scissors can be used if no metal shears are available.

The fixing lugs are drilled and bolted to the fixing holes in the valve-holder, then trimmed to shape. A suitable sized hole is drilled in the bottom, or side, of the can for the cable entry, according to the type required; the hole should be lined with a rubber grommet. A lining of thick paper or thin cardboard is placed round the inside of the can to guard against accidental short circuit to the metal (Fig. 3).

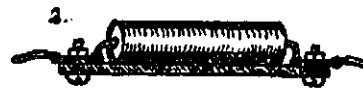
—S. J. Lloyd, VK3AST.

SIMPLE GROUP BOARDS

Small components, such as resistors and condensers, are best mounted on group-boards, if the circuit and layout will allow, and construction is simplified if each board can be made to measure. Cardboard impregnated with shellac is a satisfactory substitute for the laminated phenolic compounds generally used, and is very cheap and easy to work. The sheets of thick cardboard used for packing X-ray films are particularly suitable, and when treated with shellac yield a product similar to Paxolin.



1.



2.



3.

The boards are cut to size and shape before impregnating, soaked in a thin solution of shellac in methylated spirit, and dried thoroughly. Commercial shellac varnish can also be used, after thinning with spirit. The easiest way to mount small components on the board is to push the wire ends through holes in the board, cut off short, and bend over to anchor. Interconnecting leads are then soldered directly to the wire ends on the underside of the board (Fig. 1).

To provide scope for later changes, however, it is better to fix soldering tags to the board with small rivets or screws and nuts (Fig. 2).

A cheaper way is to use brass paper-fasteners as anchoring points. They are pushed through holes in the board, the ends cut short, and opened out; the component is then soldered to one arm of the fastener and the connecting leads to the other (Fig. 3).

If the group-board is to be mounted in contact with a metal chassis, a sheet of thinner cardboard may be similarly treated with shellac and mounted underneath, to insulate the connections from the chassis.

—S. J. Lloyd, VK3AST.

1955 VK-ZL DX CONTEST RESULTS

AUSTRALIA

C.W.—	Call	Total	40	20	15	10
VK2GW	3326	773	1745	808	—	—
VK2AHH	1800	156	1269	375	—	—
VK2QL*	1338	352	730	241	—	—
VK2XZ	993	993	—	—	—	—
VK2PX	713	—	713	—	—	—
VK2HZ	677	647	30	—	—	—
VK2JY	585	—	498	87	—	—
VK3PG	2696	30	1767	783	116	—
VK3IW	1335	73	1172	90	—	—
VK3XB	1073	743	330	—	—	—
VK3CX	1072	—	1072	—	—	—
VK3HL	1005	—	1005	—	—	—
VK3JA	958	—	727	231	—	—
VK3VF	951	—	951	—	—	—
VK3AHM	648	—	648	—	—	—
VK3ZA	572	572	—	—	—	—
VK3PL	504	—	504	—	—	—
VK3AHH†	117	—	—	—	—	—
VK4SE	1100	—	723	377	—	—
VK5RX	1198	—	1198	—	—	—
VK5WO	677	—	633	44	—	—
VK5JT	500	—	500	—	—	—
VK6RU	2457	416	1242	784	15	—
VK7UW	1450	333	1117	—	—	—
VK7KM	413	413	—	—	—	—
VK9DB	1769	114	488	1167	—	—

* Includes 80 mx score.
† 80 mx only.

PHONE—

Call	Total	40	20	15	10
VK2AHH	886	45	709	132	—
VK2GW	479	15	375	89	—
VK2AKV	444	—	349	80	15
VK4SF	1923	60	1215	618	30
VK5MS	1489	—	1489	—	—
VK5WO	314	—	314	—	—
VK6RU	583	—	305	278	—
VK9DB	1398	—	461	922	15

LISTENERS—

VK2—N. L. Dash	1142
VK3—G. R. Morris, W1A-L3017	750
VK2—W. Davey	588
VK3—M. Ide, W1A-L3015	551
VK7—R. de Balfour	158
VK6—F. H. Price, W1A-L4222	110

NEW ZEALAND

C.W.—	Call	Total	40	20	15	10
ZL1AH	4285	537	2298	1206	244	—
ZL1MQ	2583	260	1668	404	251	—
ZL1GX	725	—	621	89	15	—
ZL1PN	713	713	—	—	—	—
ZL1MT	423	—	378	30	—	—
ZL2GS	2635	—	1928	707	—	—
ZL2AFZ	1890	—	1890	—	—	—
ZL2ARL	1053	59	633	361	—	—
ZL3JA	2392	514	1878	—	—	—
ZL3LL	1167	1167	—	—	—	—
ZL4CK	1823	299	1509	15	—	—
ZL4GA	1024	—	1024	—	—	—

PHONE—

Call	Total	40	20	15	10
ZL1MQ	1084	75	698	169	142
ZL1PA	503	—	503	—	—
ZL2AJB	239	—	—	—	239

LISTENERS—

ZL1—C. N. Arvidson, ZL111	559
ZL2—R. E. Lepper	524

OVERSEAS

C.W.—	Pts.	C.W.—	Pts.
CX2AM	48	PA0ZL	84
DL3DD	198	PA0OI	4
DM2ABK	135	PA0RJC	1
DL7EN	91	PJ2AN	72
DL1QT	63	PY1ADA	570
DL1EJ	9	PY2AFS	270
DL1YA	1	PY1ANR	126
EA3GF	28	PY3QX	28
EI2T	9	PY2BNX	12
F9RM	60	SM5LL	400
F3AT	35	SM7AVA	319
F9YZ	30	SM3AKM	280
F9MS	28	SM5CO	231
F3JA	1	SM5DW	200
FK8AC	120	SM6VY	25
FK8AO	98	SM5BTX	1
G6XL	198	VE7ZK	704
G2HPF	40	W1MX†	261
G3GSZ	18	W1RWP	128
G3GXO	12	W1UGH	45
G14RY	28	W1NLM	15
HB9DB	4	W1HV§	12
I1OJ	32	W1MAN§	6
JA3BB	693	K2EDL	940
JA1CR	627	W2WZ	680
JA1SR	390	W2EQS	102
JA1ACA	160	W2FBS	66
JA2BL	98	W2CC	15
JA7AD	98	W3VKD	657
JA1NI	6	W3EPR	40
JA8AA	1	W4KVX	558
KG1KK	9	W5VHR	968
KG6AGC	360	W5CAY	138
KJ6FAB	28	W5DXW	108
LAIAD	1	W5OLG	105
LU7JO	30	W6BYB	1221
OD5LX	28	W6LDD	1067
OE1ER	168	K6DDO	78
OH1PW	176	W7SFA	1331
OH6OB	152	W7PQE	935
OH1TI	112	W8JIN	680
OH6QZ	112	W8UVZ	96
OH2NQ	35	W9ABA	378
OH2VZ	25	W9FKC	72
OH2XX	24	W0BMM	35
OH3SR	24	XE1XB	224
OH2VN	16	YU3BC	462
OK1KTI	84	YU2HO	147
ON4FU	77	9S4AX	104
OZ3FL	105		

† Multiple operator.
§ Check logs.

PHONE—

C.W.—	Pts.	C.W.—	Pts.
CE2DD	198	OH2OV	112
CX2CO	550	OH5QN	4
DL1UX	280	OH3SR	1
DL1DX	60	ON4LJ	4
DL6WM	28	OZ7OP	1
EA2CK	9	PA0NU	340
F9RM	28	PI1J	260
G3FPQ	91	PA0JA	70
G6XL	16	PY2AHS	517
HC1ES	168	PY1NC	117
HK3PC	460	PY4ZS	112
HK4DP	180	PY1ANR	1
I1TDJ	70	SM5DW	4
JA3BB	620	SM3BIZ§	4
KA2AK	510	SM5CO	1
JA2BL	78	TG9AD	864
JA6MG	50	W3VKD	2
JA1CO	30	W5DJH	264
JA8AA	1	W6BYB	160
LU7AAT	340	W7SFA	333
LU4DMG	220	W8JIN	208
		W0BBS	6

§ Check log.

Other Check Logs—

C.w.: HB9GY; Phone: KH6BES and ON4ZC.

LISTENERS—

Switzerland—E. Heritier	30
Japan—Mitsuru Sano	341
Bulgaria—Mladen Georgiev	175
England—J. L. Hall, BRS19107	390
R. W. Thomas, BRS15822	310
Finland—Kal. Lindfors, OH2-413	30
Norway—F. S. Aabech, LA-M-3053	162
A. L. Sangwill, LA-M-3057	—
Netherlands—H. Frieke, NL864	4
U.S.A.—Ben Adams, Jr., W2-SWL	60

Low Drift Crystals

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Mounted £3 0 0

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THESE PRICES DO NOT INCLUDE SALES TAX.

Spot-Frequency Crystals Prices on Application.

Regrinds £1/10/0

MAXWELL HOWDEN

15 CLAREMONT CRES.,
CANTERBURY, E.7,
VICTORIA

QQE03/12—DOUBLE TETRODE

The QQE03/12 is an indirectly heated miniature r.f. double tetrode intended primarily for use as a driver, output amplifier or frequency multiplier at frequencies up to 200 Mc. It can also be used as a Class B audio frequency power amplifier and modulator.

The tube is rated to dissipate 5 watts at each anode in continuous service. It is internally neutralized. The heater is designed to withstand the battery voltage fluctuations encountered in mobile service.

GENERAL DATA

Cathode: Indirectly heated, oxide coated.

Heater sections in Parallel Series

Heater voltage^{1, 2} 6.3 12.6 V.
Heater current 0.82 0.41 A.

¹—Occasional operation at 5.3 or 7.8 volts with parallel connected heaters (10.6 or 15.6 volts with series connection) is permissible.

²—The tube may be used with only half the heater energized during the stand-by period of a transmitter in order to reduce heater current consumption during this time.

Direct Interelectrode Capacitances:

	Each unit	Both units in p.p.
Output capacitance	2.6	1.4 pF.
Input capacitance	6.2	5.1 pF.
Anode to grid No. 1 (internally neutralized)	0.1 max.	pF.

Amplification Factor (each unit):

Grid No. 2 to grid No. 1, 7.5.

Mutual Conductance (each unit):

At anode current of 30 Ma., 3.3 Ma./V.

Mounting Position: Any. If the tube is mounted in a horizontal position it is essential that pins 2 and 7 are placed in a vertical line.

Cooling: Radiation and convection. The use of a closed screening can is not permissible.

Size:

Overall length 78 mm. max.
Seated length 72 mm. max.
Diameter 22 mm. max.

Base: Noval.

Socket: 5908/36.

Pin 1—control grid g_1 of unit No. 1.
Pin 2—cathode k and beam plates s.
Pin 3—control grid g_1' of unit No. 2.
Pin 4—heater f.
Pin 5—heater f.
Pin 6—anode a of unit No. 1.
Pin 7—screen grid g_{s1} (both units).
Pin 8—anode a' of unit No. 2.
Pin 9—heater mid-tap f_1 .

H.F. CLASS C TELEGRAPHY

(up to 200 Mc.)

Operating Conditions (2 units in p.p.)

	—I.C.A.S.—		
	200	200	200 Mc.
Frequency	200	200	200 Mc.
Anode voltage (= supply voltage)	300	250	200 V.
Screen grid voltage	200		V.
Control grid bias	-45		V.
Screen grid dropping resistor	27	8.2 k.	
Common control grid resistor	18	15 k.	
Peak grid-to-grid driving voltage	130	120	130 V.
Anode current	50*	40*	42*Ma.
Screen grid current	3	2.4	3.1 Ma.

Control grid current	1.5*	2.5	3 Ma.
Driving power	0.1*	0.15	0.18 W.
Anode input power	15*	10*	8.4*W.
Anode dissipation	5.8*	3.5*	3.4*W.
Screen grid dissipation	0.6	0.45	0.55 W.
Output power	18.5	13	10 W.
Efficiency	62	65	60 %
Useful output power in load	16	11.2	9 W.

* Per Section.

H.F. CLASS C ANODE AND SCREEN GRID MODULATION

(up to 200 Mc.)

Operating Conditions (two units in p.p.)

	I.C.A.S.
Frequency	200 Mc.
Anode voltage (= supply voltage)	200 V.
Screen grid voltage	173 V.
Common control grid bias resistor	15 k.
Peak grid-to-grid driving voltage	130 V.
Anode current	2 × 43 Ma.
Screen grid current	3.1 Ma.
Control grid current	3.3 Ma.
Driving power	0.2 W.
Anode input power	2 × 8.6 W.
Anode dissipation	2 × 3.7 W.
Screen grid dissipation	0.54 W.
Output power	9.8 W.
Efficiency	57 %
Useful output power in load	8.8 W.

A.F. CLASS AB AMPLIFIER OR MODULATOR

Operating Conditions—Class AB1

Anode voltage	300	250	200 V.
Screen grid volt.	200	200	200 V.
Cont. grid volt.	-21.5	-21.5	-21.5 V.
Load resistance between anodes	10	8	6.5 K.
Driving voltage peak to peak	43.5	44.5	43.5 V.
Anode current	36*	34.5*	33*Ma.
Screen grid current	6.3*	6.2*	7*Ma.
Anode input pow.	10.8*	8.65*	6.6*W.
Anode dissipation	4.8*	4*	3.1*W.
Screen dissipation	1.3*	1.3*	1.4*W.
Output power	12	9.3	7 W.
Total distortion	2.5	2.7	3.2 %
Efficiency	56	54	53 %

* Per Section.

Operating Conditions—Class AB2

Anode voltage	300	250	200 V.
Screen grid volt.	200	200	200 V.
Cont. grid volt.	-21.5	-21.5	-21.5 V.
Load resistance between anodes	6.5	5	5 K.
Driving voltage peak to peak	64	67	54 V.
Anode current	50*	50*	41.1*Ma.
Screen grid current	5.7*	6.5*	9.5*Ma.
Control grid current	0.56*	0.62*	0.22*Ma.
Driving power	0.02*	0.02*	0.01*W.
Anode input pow.	15*	12.5*	8.22*W.
Anode dissipation	6.25*	5.5*	3.87*W.
Screen dissipation	1.2*	1.3*	1.9*W.
Output power	17.5	14	8.7 W.
Total distortion	5	5.5	6 %
Efficiency	58	56	53 %

QE04/10—POWER TETRODE

For use as h.f. amplifier, oscillator and frequency multiplier. The QE04/10 is an indirectly heated beam tetrode with aligned grid construction to minimize screen grid current. It is rated to dissipate a maximum of 7.5 watts in the anode, and is particularly suitable for use at frequencies up to 150 Mc. as high frequency amplifier or frequency multiplier.

GENERAL DATA

Filament: Indirectly heated, oxide coated. 6.3v. (d.c. or a.c.) at 0.6 amp.

Capacitances:

C_{g1} = 0.1 pF.
 C_{g1k} = 8.0 pF.
 C_{ak} = 5.4 pF.

Amplification Factor:

Grid No. 1 to grid No. 2, 5.6.

Mutual Conductance:

At anode current of 25 Ma., 1.9 Ma./V.

Mounting Position:

Cooling: Natural.

Size:

Overall length 3-1/16 inches max.
Base diameter 1 1/2 inches max.
Envelope diameter 1 1/2 inches max.

Socket: 40212.

CLASS C TELEGRAPHY

Operating Conditions

Frequency	3	3	20	20 Mc.
Anode voltage	300	300	300	300 V.
Screen voltage	150	250	150	250 V.
Cont. grid bias	-35	-50	-30	-60 V.
Anode current	40	43	43.5	43.7 Ma.
Screen current	7.2	6.6	4.7	5.9 Ma.
Cont. grid cur.	2.8	0.4	1.8	0.4 Ma.

Peak driving

voltage	58	60	40	67 V.
Driving power	0.16	0.025	0.09	0.03 W.
Anode input	12	12.9	13.1	13.1 W.
Anode dissipation	4.9	4.8	5.8	5.2 W.
Output power	7.1	8.1	7.3	7.9 W.
Efficiency	59	62	56	60 %

Frequency	60	60	150	150 Mc.
Anode voltage	300	300	300	300 V.
Screen voltage	150	250	150	250 V.
Cont. grid bias	-30	-60	-30	-50 V.
Anode current	44	43	44	46 Ma.
Screen current	6.7	6.7	4.5	4 Ma.
Cont. grid cur.	1.9	0.5	1.5	0.4 Ma.
Peak driving voltage	48	68	52	57 V.
Driving power	0.09	0.04	0.08	0.03 W.
Anode input	13.2	12.9	13.2	13.8 W.
Anode dissipation	6.2	5.1	6.9	7.5 W.
Output power	7.0	7.8	6.3	6.3 W.
Efficiency	53	60	47	45 %

CLASS C FREQUENCY MULTIPLIER

Operating Conditions

	10/	25/	50/	75/
Frequency	10/	25/	50/	75/
Anode voltage	20	75	100	150 Mc.
Screen voltage	300	300	300	250 V.
Cont. grid bias	-80	-120	-120	-120 V.
Anode current	41.2	43.3	38.4	36.8 Ma.
Screen current	8	5.5	2.6	2.1 Ma.
Cont. grid cur.	0.8	1.2	1.5	1.1 Ma.
Peak driving voltage	81	124	120	144 V.
Driving pow.	0.065	0.15	0.2	0.16 W.
Anode input	12.4	13	11.5	9.2 W.
Anode dissipation	6.8	7.4	7.1	6.9 W.
Output power	5.6	5.6	4.4	2.3 W.
Efficiency	45	44	38	25 %

AMATEUR CALL SIGNS

FOR MONTH OF APRIL, 1956
(Continued from last issue)

CHANGES OF ADDRESS

- New South Wales**
 VK—K. A. Kimberley, 3 Don St., Enmore.
 2SA—W. E. Salmon, 77 Flora St., Kirrawee.
 2WA—F. Potter, 2 Patricia Ave., Charles-town.
 2XN—W. E. Gibbings, 31 Tupper St., Marrickville.
 2ZN—J. Brand, 428 Burwood Rd., Belmore.
 2ABT—B. Ash, Station; Dalgarno St., Coona-barabran; Postal: P.O. Box 91, Coona-barabran.
 2ABU—A. M. Dan (Dr.), 10 Kulgoa Rd., Belle-ve Hill.
 2ACO—C. H. Orr, 24 Noble St., Hurstville.
 2AFP—R. L. C. Cream, Keats St., Byron Bay.
 2AKU—J. Georgeson, 28 Weedon Rd., Artarmon.
 2ALT—W. C. Asplet, 23 Abercorn St., Bexley.
 2ANR—N. F. Ritchie, 3 Bent St., Turner, Can-berria, A.C.T.
 2AQR—R. W. Rose, 17 Brook St., Walsend.
 2ASO—A. R. Simpson, Station; 79a Carter St., Cammeray; Postal: P.O. Box 6, Cre-morne.
 2ATH—T. L. Hooper, "Loango," Arterial Rd., St. Ives.
 2AVT—V. E. Tierney, 6 Beach Rd., Edgecliffe.
 2ZAD—B. Holland, Station; Church Cottage, Cr. Bridge and Ebsworth Sts., West Tam-worth; Postal: P.O. Box 5, West Tam-worth.

Victoria

- 3DW—K. R. Cakebread, 45 Carrier St., Benalla.
 3EW—E. C. Wheeler, 31 Coughlan St., Kellor East.
 3NI—N. R. Boase, 1884 Malvern Rd., Darling.
 3TY—W. H. Murden, Station; C/o. 35H, Lake Boga Road, Swan Hill; Postal: 208 Campbell St., Swan Hill.
 3VM—E. H. Marks (Dr.), Heatherset Rd., Sassa-fras.
 3XU—A. G. Weynton, 5 York Street, Bonbeach.
 3ZR—G. C. Moody, 7 Mary St., Spotswood, W.14.
 3ABM—J. B. Watson, S.S. "Afafura," C/o. Mac-donald Hamilton & Co., G.P.O. Box 386D, Melbourne.
 3AJI—D. J. Ireland, 6 Rollings Rd., Upper Ferntree Gully.
 3AML—R. E. A. Grigson, "Avarest," Hughes St., Upwey.
 3AMS—A. M. R. Smallwood, Foster, South Gippsland.
 3AUC—A. D. Cook, 244 Dandenong Rd., East St. Kilda.
 3AUD—A. V. Dwan, Portable, Blackwood P.O., via Trentham.
 3AZR—P. C. Ryan, 72 O'Heas St., Coburg, N.13.
 3ZBJ—G. S. Jennings, 665 South Rd., Moorab-bin, S.29.
 3ZBZ—A. W. M. Buesst, 5 Torresdale Rd., Too-rak, S.E.2.
 3ZCR—R. C. Owen, 5b Fitzroy St., Sale.

Queensland

- 4PR—W. J. Rafter, 25 Willandra St., Alderley.
 4SH—S. J. Henkel, 113 Preston Rd., Wynnum West.
 4ZAG—J. C. E. D'Alton, M.S. 1652, Redcliffe.
 4ZAR—N. A. Roberts, 21 Wilkinson St., Rock-hampton.

South Australia

- 5DT—B. Hannaford, Station 5AU, Anstey St., Port Augusta.
 5EW—E. W. Evans, C/o. U.S.A.F. Team 421, Alice Springs, N.T.
 5FF—R. F. Farmer, Portable, C/o. Mr. C. W. Farmer, 7 Kirkcaldy Rd., Grange.
 5GW—N. G. Wallace, 23 Lauder Ave., Sefton Park.
 5LH—R. J. Strachan, 31 Spencer Ter., Port Augusta.
 5SL—N. L. Sjöberg, 16 Rodney St., Woodville.
 5UX—L. W. Wallbridge, Saddleworth.
 5VC—J. G. Mason, 15 Helen St., Pennington.
 5WP—A. H. Watts, 35 College Rd., Somerton.
 5YL—L. Lindley, 72 Harvey Rd., Elizabeth Bay.

Western Australia

- 6AT—A. T. G. Hanson, 28 Northampton St., East Victoria Park.
 6BE—J. R. Elms, 29 Central Rd., Kalamunda.
 6BY—B. R. Aubrey, C/o. Weather Office Aero-drome, Forrest.
 6EL—E. Langenschied, 225 Evans St., Geraldton.
 6HC—C. Hitchins, 50 Sorrento St., Nth. Beach.
 6IG—I. H. Gimby, 81 Moreing Rd., Attadale.
 6JN—J. W. G. Nind, Lot 1175, Wellington Rd., Morley Park.
 6JY—B. Bellringer, 97 Grosvenor Rd., Mt. Law-ley, Perth.
 6LM—L. Morrison, 35 Hudson St., Bayswater.
 6MS—J. H. Sander, 1339 Albany Highway, Can-nington.

- 6MZ—F. T. Mazure, Jindong, via Busselton.
 6OY—T. H. Mitchell, C/o. Radio Station 6NA, Narragin.
 6SK—A. A. Skinner, 106 Prinsep St., Norseman.

Tasmania

- 7KB—I. R. Pearson (Dr.), 17 Linton St., Upper Burnie.
 7PM—P. D. Mulligan, C/o. 7NT Private Bag, Kelso.

Territories

- 9WK—W. K. Webster, D.C.A., Port Moresby, Papua.
 9ZAL—R. F. Lloyd, Dpt. of Works Flats, Badhill, Port Moresby.

CANCELLED CALL SIGNS

- New South Wales**
 2AG—A. G. Bradley.
 2BJ—W. A. Easterling, Now VK2ABL.
 2DE—D. E. Laing.
 2I—M. J. Moore.
 2JM—G. E. Meaton.
 2LY—S. L. Skinner, Now VK3AFL.
 2MX—M. R. Cran.
 2OU—M. N. Russell-Clarke, Now VK3AGA.
 2SU—C. B. Jones.
 2AAE—N. K. J. Felstead, Now VK3AAI.
 2ADY—Gladesville District Experimental Radio Club.
 2ALW—E. E. Matheson.
 2AQQ—R. E. Gunnourie.
 2ATV—K. L. Green, Now VK3KG.
 2AUD—K. E. McDonald.
 2ZBY—J. T. Jarrott, Now VK3ZBC.
 2ZCL—L. T. McLoughlin, Now VK2GV.
 2ZCT—K. A. Thompson, Now VK3ZBT.

Victoria

- 3DF—G. P. D. Clarke, Now VK5GP.
 3IJ—D. R. Twigg, Now VK1IJ.
 3QY—C. W. Richardson, Now VK4QZ.
 3TL—R. E. Trebilcock.
 3VC—R. K. Wicks.
 3AIR—M. Ireson.
 3AJD—A. J. Egan.
 3ANY—J. N. Blake.
 3AOF—F. P. O'Dwyer.
 3AFL—J. W. London.
 3AQR—J. M. Ray.
 3ARH—R. A. Hallamore, Now VK6RH.
 3ATG—E. Marks (Dr.).
 3ZAP—K. J. Love, Now VK3AWU.

- Queensland**
 4DB—D. S. Brown, Now VK5SB.
 4EN—E. D. Neale.

South Australia

- 5AH—F. L. Williamson.
 5AO—A. J. Gooley.
 5DV—D. B. Vaughton.
 5GY—C. W. Noble.
 5E—M. G. White.
 5PC—H. F. Cooper.
 5TF—H. P. Fuller.

Western Australia

- 6ZAH—T. H. Talbot, Now VK6TH.
Tasmania
 7IJ—D. R. Twigg, Transferred to VK3IJ, then to VK1IJ.
 7VS—I. L. Griffin (Rev.), Now VK3VS.

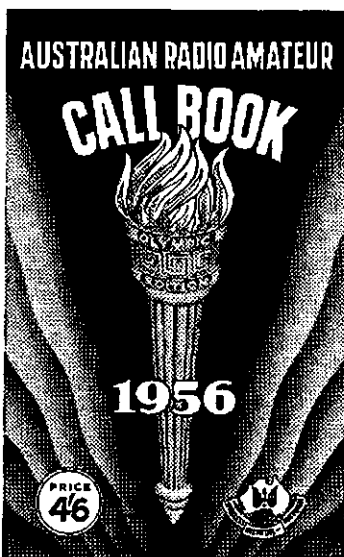
Territories

- IRA—R. W. Allison (Dr.), Now VK2AEA.

FOR MONTH OF MAY, 1956

NEW CALL SIGNS

- Australian Capital Territory**
 1ET—E. A. Torney, 10 Stephen St., Ainslie.
 1EY—J. P. Meehan, C/o. Sgt's Mess, R.A.A.F. Station, Canberra.
 1GU—E. H. Cox, 8 Wickham Crescent, Red Hill.
 1HV—H. V. J. Hutton, Royal Military College, Duntroon.
 1JG—N. S. Hill, 9 Arunta Street, Narrabundah.
 1PI—W. L. Pitts, 31 Hackett Gardens, Turner.
 1PM—R. E. W. May, 30 Meehan Gardens, Narra-bundah.
 1RM—Royal Military College Radio Club, Dun-troon.
 1TV—R. F. J. Lenon, 13 Hackett Gardens, Turner.
Queensland
 1UH—N. G. Hansen, 5 Towns Cres., Turner.
 1UZ—B. B. Browne, 71 Edden St., Ainslie.
Canberra Radio Club, Station: Hut No. 3, Riverside, Barton; Postal: P.O. Box 59, Kingston.
 1ACG—A. Morris-Rees, Kingston Guest House, Kingston.
 1ADG—F. Avent, 12 Campbell St., Ainslie.
 1AIL—K. L. Finney, 11 Westgarth St., O'Connor.
Canberra, Officers' Mess, R.A.A.F. Station, Canberra.
 1ANR—N. F. Ritchie, 8 Bent St., Turner.
 1AOP—E. Pearce, 19 Meehan Gardens, Narra-bundah.



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THIS 1956 EDITION CONTAINS—

- An up-to-the-minute listing of Station Call Signs and Addresses of Licen-ces of Transmitting Stations located in the Commonwealth of Australia and its Mandated Territories including VK1 Australian Capital Territory and Z Call Signs.
- Wireless Institute of Australia Listeners' Numbers.
- One thousand additions, alterations and deletions since last edition, making over two thousand amendments since the 1954 edition.
- Up-to-date list of Australian Broadcasting Stations, F.M. Stations, and Television Services.
- DX Countries, Prefixes and their Zones.
- World-wide Awards available to Amateurs and Short Wave Listeners.

TELEVISION RECEIVERS

Intermediate Frequency Recommendations by the Australian Broadcasting Control Board

Of interest to all Amateurs is the present recommended set-up of Intermediate Frequencies for Television Receivers.

As far back as 1951, the Australian Broadcasting Control Board "reached the conclusion that the most suitable choice would locate the picture and sound carriers in the band 30-40 Mc."

In regard to the 20-30 Mc. band, the Board stated: "There are, however, a number of high-powered stations operating in this band in Australia, not far from capital cities. It is desirable also to avoid the 28-29.7 Mc. amateur band, because there are many amateur transmitters of moderate power in capital cities, and they are potential sources of interference. The use of intermediate frequencies in the 20-30 Mc. band would also involve intermediate frequency harmonic interference with the second channel, and image interference between the 62.5-70 Mc. channel and the channels in the 90-108 Mc. band. The use of intermediate frequencies in the 40-50 Mc. band (as is now being adopted in the United States of America) is impracticable if a channel as low as 44 Mc. is employed. The remaining choice is in the 30-40 Mc. band, and intermediate frequencies can be chosen there, to avoid image interference and the majority of the spurious responses and intermediate frequency harmonics which are likely to be serious. At the same time oscillator interference occurs in bands likely to cause little interference to other services. Where oscillator interference from receivers tuned to one channel falls in other television channels, it is considered possible to avoid interference by allocating such channels to stations in different districts.

"These considerations of intermediate frequency selection are based on the assumption that a conventional receiver design is employed. The Board, however, is not unmindful of the probability that a large percentage of receivers designed will be of the inter-carrier type which presents substantial advantages to the receiver designer. The problem, however, is not materially affected by this factor as the intermediate frequencies chosen will be suitable for use with such receivers. The chief difference lies in the fact, that for the higher channels, oscillator frequencies can be below the channel frequencies, so that in these cases the oscillator can be in a different place in the frequency spectrum.

"For the reasons mentioned above and a number of other more detailed considerations, the Board is of the opinion that intermediate frequencies in the 30-40 Mc. band are most suitable for recommendation to the industry . . ."

Reaching more specific detail at a later date (1955), "In previous reports, the Board drew attention to the need for

determining a standard intermediate frequency for television receivers and stated its intention of conferring with manufacturers on this important matter. It is essential that standard intermediate frequencies for vision and sound should be employed for all receivers used in the Commonwealth, in order that the Board may be able to make frequency allocations for television stations in specific locations in such a manner as to avoid mutual interference between television and other services arising from image responses, intermediate frequency difference responses and beat oscillator radiation. If a multiplicity of intermediate frequencies were to be used in receivers, it would be impracticable to ensure maximum protection from interference, and receivers using non-standard intermediate frequencies could not be used on certain television channels without retuning of the intermediate frequency sections.

"During the year, the Board had several discussions with representatives of the receiver manufacturing industry arranged through the Associated Chambers of Manufactures of Australia, as a result of which the Board decided to recommend to manufacturers that the following intermediate frequencies should be employed in all television receivers used in Australia:—

- Sound carrier 30.5 Mc.
- Vision carrier 36 Mc.

It was agreed that these frequencies should be adhered to within ± 0.25 Mc. and that the oscillator frequency should be above the channel frequency. Although representative manufacturers expressed the view that higher values of intermediate frequencies would, for a number of reasons, be preferable, it was agreed that the above standard frequencies should be used because of the difficulties of protecting higher frequencies from interference from industrial, scientific and medical equipment in the internationally assigned band of 40.68 Mc. The Postmaster-General's Department has agreed to arrange frequency assignments in the band encompassing the above intermediate frequencies as far as practicable to ensure protection of television services from interference by other services."

AUSTRALIAN V.H.F. RECORDS

Band Mc.	Stations	Date	Miles	World Rec'd
50	VK5KL-W7ACS/KH6	28/8/47	5355	10500
	VK6FK-VR2CG	3/1/55	3928	
	VK6WG-VR2CG	3/1/55	3816	
	VK6DB-ZL3GS	26/12/53	2804	
	VK3IM-VR2CB	30/12/53	2405	
	VK7BQ-VK9DB	—	2211	
	VK7LZ-VK9DB	—	2211	
	VK6GL-VK6BO	31/12/51	1328	1400
	VK5QR-VK6BO	8/2/52	1328	
	VK3GM/3-VK7LZ/FF	9/3/53	317	
288	VK5MT/5-VK5RO/5	13/4/52	106	
	VK3AF/3-VK3AA/3	21/3/54	63.8	
576	VK6BO-VK6DW/6	1949	25	
	VK3ANW-VK3AKE	11/12/49	81.6	
2300	VK3ANW-VK3XA	18/2/50	9.1	150

The above contacts are best known to date, but what of VKs 2, 4, and 7 contacts? Please send FULL details of your best contacts through your Division to F.E., giving particulars of both stations' locations at the time of contact so that your record may be listed above.

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VC12-86

YL CORNER

Calling all YLs and XYLs. This is your column and here in it we would like to have your news. Very few of the Amateur fraternity realise that there are twelve licensed YL operators in VK land, some of whom have been licensed for over twenty-five years. Through this column we hope to introduce them to you along with a description of their rigs, their activities in Amateur Radio, their interests other than Amateur Radio and their domestic commitments. In fact all about what goes to make one of the female sex become what is known as a "YL".

We also have room here, too, for contributions from XYLs for some of those funny little stories such as "I married a radio crank", or "There's a queer sort of wireless man lives at our place" or "Life with the OM", and how Amateur Radio does or does not fit in with the rest of family life. What about writing us an amusing article along these lines? What about your harmonics, do they put a spoke in Dad's works? Let's hear about some of the funny things they do.

★

HAMS—AS SEEN BY AN XYL

During the earlier part of my life, I was unaware of the existence of "hams" apart from the variety which provides a tasty dish. (No doubt some radio hams could do that, too), but to get back to the point, I was quite unaware there existed a band of radio fiends so named. Then along came my husband, and proved to be one of these things in disguise, as I found out merely by trying vainly to decipher an extraordinary muddle of wriggly lines interposed between peculiar oblongish circles situated here and there. These, I was informed, represent valves. Thus enlightened, I promptly forgot the incident. But the crafty devil had just started his onslaught.

Gradually, I became aware his interest was not always with me. This became evident by the unintelligible answers to some of my conversation. He preferred to read a thing called "Amateur Radio," which seemed to provide no end of interest for him.

One night, in the throes of a romantic novel, I was distracted by such words as "fidelity," "osculation," and someone called "Millie Amp"—whoever she was—emitting from the lips of my husband.

I decided to look into this book of his, but found my suspicions unfounded. In fact, I found the darn thing unreadable. It was then patiently explained that oscillation was the correct word, and that Millie Amp was no femme fatale, but precisely what it said—a very small portion of an Amp.

Next move was the arrival of some junk—the "Hams" call it gear—but to me it's still junk. This consisted of a conglomeration of odds and ends, containing, so I was told, among other things, wires and bottles. The only bottles I've seen are the beer bottles he uses to fortify himself while listening

to a character called Jim give out each Sunday morning on a contraption referred to as a frequency. The said Jim seems of the opinion that something called a VK something-or-other tries incessantly to push him off a band of some description into oblivion each time he attempts to broadcast to his addicts.

This, I agree, is very inconsiderate and I would push them right back. Unfortunately, my husband does not seem to think this would solve the problem.

Sitting in pride of place in our sitting room is a horrible shabby box-affair—a moth-eaten piece of cloth protruding out the front. This, dear reader, is a speaker cabinet, and "Hams" seem unanimous in their approval of these in preference to a more up-to-date version. I don't myself, but then that is of no consequence.

Recently I caught this "Ham" of mine sneaking a form away in order to gain a ticket, which he informs me will allow him to carry out some experiments. He needn't add anything to that—and oh, heaven help me if he gets the darn thing.

—“SQUAWKER.”

P.S.—I've just heard something about woofers, squawkers, and tweeters. Wouldn't it?

★

I remember hearing of one young harmonic who took some of Dad's resistors and condensers to school and swapped them to some of the older boys for cigarette cards. He was so popular with the older boys and he himself felt he had made such a good bargain as there were plenty more "densers" and "sisters" at home in Dad's box.

One small item of news I heard recently is that there are two OMs thumbing a lift into the W.I.A. meetings since their respective XYLs, Mrs. J Zansibar-Sugar (Gwenda Hull) and Mrs. J Tare-Fox (Nina Dennis), have got their driving licences. Their poor OMs are having considerable difficulty in getting even a little loan of the keys of the car these days. You know, their husbands should really be very pleased, after all that makes two more potential chauffeurs for the fox hunts and 80 mx tx hunts.

Well now, what about it? We'll hope to have those contributions rolling in very soon. Contributions should be addressed to the Sub-Editor for VK3, Mrs. Phyl Moncur, 235 Union Road, Ascot Vale, Vic.

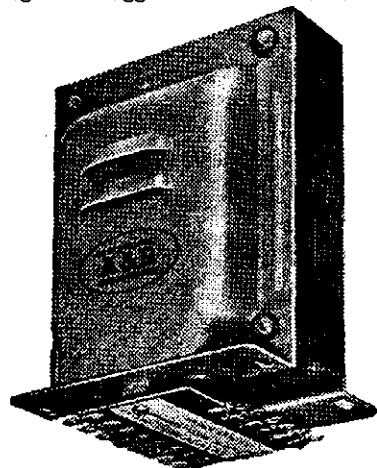
In next month's YL Corner we will introduce you to VK3YL, Austine Henry, the first in the world to win the YL-WAC-YL.

TRADE REVIEW

Power Transformers by A & R

A. & R. Electronic Equipment Co. Pty. Ltd. have just released a new range of power transformers covering all standard voltages, with current ratings from 100 to 200 Ma., and designed for a maximum temperature rise of 50° centigrade.

As illustrated, these vertically-mounted transformers are fitted with ventilated pressed steel covers, finished in A. & R's standard silver-grey hammetone, with black cores. All types have a neatly-designed and clearly-designated lugged terminal board.



Other additions to the range include step-down transformers of semi-portable and fixed installation types, and also available is a kit comprising a power transformer, power choke and frame output transformer for the Philips' television receiver circuit.

Accent is again on quality, and A. & R. have retained throughout the same high standard of performance and finish that characterises this Company's popular range of audio transformers.

These excellent transformers are now available in all States, and A. & R's distributors listed in the advertisement in this issue will be pleased to supply full details.

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DX ACTIVITY BY VK3AHH†

PROPAGATION REPORT

3.5 Mc.: North-American conditions were the only ones observed during the month.

7 Mc.: Poor conditions to North-America and the Far East, and erratic break-throughs from Europe were predominant.

14 Mc.: Here conditions during the month were fair to good, although somewhat less consistent than in May. All continents were represented but times of break-throughs were not conclusive.

21 Mc.: In general, comments on this band's propagation follow the 14 Mc. report; less consistent conditions to all continents.

27/28 Mc.: This band also showed a deterioration of general conditions. The North-American continent was represented around 0100z, and African contacts could be made around 0630z.

NEWS AND NOTES

The winter period is the best time to work DX on 80 mx, from the local point of view. Of course, this is due to the seasonal change in the noise pattern. So why not try your luck on the gentlemen's DX band?!! Here is some DX-80 news: BV1US, Formosa, can operate on the band, and an FUS has recently been active on phone (from W6YY, ZL4IE).

Attention all DX phone operators, please: What's wrong with 14,300 to 14,350; 21,350 to 21,450; and 29,000 to 30,000 Kc.? Are these valuable band portions to be given away, or why do you keep so consistently off these frequencies? Should we make them c.w. bands? If you do not intend to sell, trade, or exchange them, please occupy the spectra concerned, for the sake of Amateur Radio!!

FS7RT and PJ2MC represented St. Martens Island. QSLs go via W6ITH. (from 2QL, 5WO).

Pat W2AIS/MM is in Australian waters on "Pioneer Cove" (from 2AMB).

MP4QAL was scheduled to conclude his operations from Qatar and to return to Dublin. He expects to be active from AP at a later date (from NCDXC).

LA8YB may be active from Spitzbergen in a few months' time (from NCDXC).

QTHs OF INTEREST

(from 2QL, 4SE, 5AB, 5WO, 7LZ, Rod de Balfour, W6YY, and NCDXC)

YA1AM—Via A.R.R.L.

FB8BX—Box 587, Tanarive, Madagascar.

H18FR—Estacion de Radio Aficionados de la Paria, de la Paz, Trujillo, Dominican Republic.

YS1VJ—Gorge, 29 C.O. Villa Sonia, San Salvador, El Salvador.

XE4A—Via W0A1W.

MP4BBW—Via R.S.G.B.

ZD8AE—Via S.A.R.L.

JZ0PS—Via W7PHO.

VPSAK—Ivan Hendricks, 46 Port Royal St., Kingston, Jamaica.

CR8CV—Box 3078, Loanda, Angola.

CR8AH—C/o Radio Vila Verde, Macau.

OX3KW—Julianhaab, Greenland.

VR3D—C/o. South Pacific Airlines, Honolulu, Hawaii.

YV0AA—Via R.C.V.

M1B—Mario Graziani, Palazzo Dello Stradone, Republic of San Marino (via Italy).

All KC4 (Antarctica)—Via Staff Comm. Officer, Task Force 43, Room 831, Old P.O. Bldg., 12th and Penna. Ave., N.W., Washington, D.C.

ZB2R—Via ZB2I.

ACTIVITIES

3.5 Mc.: We were heard by 8AHH.

7 Mc.: Frank 2QL worked KC8KU. Laurie 2AMB reports ZK1AC, VETABQ, and VETSR. Neville 2APL heard JA on phone. Rod de Balfour reports Ws on phone. W1A-L3019 heard YUIKD, DL4ET, G1ZAPP on c.w.

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

* Call signs and prefixes worked.

z—zero time—G.M.T.

14 Mc. c.w.: 2QL: EA8BC, SV0WT, XZ-20M, CR8AH, UA3DN, UA3DA, CR10AA, YV0AA, ZP9RY, FS7RT, KG1AG, 2AMB: SM, OE, UA6UI, F, DL, and KL7BF, HRIAT, PJ2AV, BV1US, YV0AA, KM6AA, PJ2AJ, CE-1CQ, 2APL: VP6CJ, Ken SKR: ZB3R, KL7, E1SS, OH, DL, UA3BN, VU2HF, Ray 5BK: JA, KA, George 5RX: F8HIE, Austin 5WO: UA6UI, JA, YV0AA, VP6CB, UA3BN, OH, DM, F, EA, Col 7LZ: KL7BY, KL7AEB, JA, XE4A/MM, EA, and YV0AA, KGI, Dave Jenkin: COSYP, John W1A-L3019: OZ, ONA, FA5VN, PA0BNI, KV4BB, IS1FC, UA0KJA, UB5WF, UA3KAH.

14 Mc. phone—ac.: Doug 11J (Macquerie Is.): BV1US, KC4USA, 2AMB: CN8MM, YV5AB, and DL, P, T12HP, VR1B, YV0AA, HP1EH, YS1MS, T12SE, ZK1BL, 3KR: G, DL, CN8JO, Bram 5AB (using vee beams, 700 ft. long!): TA0UN, FUSAC, HK5ER, SP, HB, HPS1, OE, B1IJ, V52, OZ, ON, PA0, OAAW, VP2DA, E1A, SM, LA, LU, YV5BS, YV5AG, VR1B, CT2AG, COSRC, VR1UH, CT, G, F, JA, KA, DL, EA, CN81S, EA8BC, EA8BJ, YK1AC, OH, SW4CC, (1) UC2CB, FB8BC, ZS, YV0AA, CQ1AF, VQ2DT, DU, YV2AM, GC, XE, 4S7SW, OK, BV1US, CQ2VN, UR2CS, ZB2JK, VR2, VP6CL, GM, CT1AN, KZ, 5IF, XE4A, ZK1BL, CT2AC, KC4USA, Rob BRG: G, I, 5WO: G, F, EA, PA0, CT, FMTWT, YV5AB, 7LZ: PA0, EA, Rod de Balfour: LU, CX3AX, KL7BY, KL7C, K6KNW/KW6, KR6, JA, VR1B, VR3, VR3C, VR3D, V56, H83DL, BV1US, OZ, DL, G, YJ, 1RF, PA0, ZS, FA3GZ, KA, Dave Jenkin: DL, YV5AB, KE1RE, EA, W1A-L3019: CN8JV, CN-8JH, HZ1TA, OZ, H82Y, 4S7SW, 8A3TI, G.

14 Mc. phone—s.s.b.: No reports have come to hand.

21 Mc.: 2QL: XE2FL, CN8DJ, SP8CK, UB5WF, 3W8AA, VP2AD, 2APL: KP4AZ, 5AB: ZEKPK, CN8JO, CR1CO, FQ8AK, ZS, JA, SV0WO, MP4KAC, 5WO: ZS, V52, ZSJKG, VP6GT, FS7RT, 7LZ: ZS, KL-7AZN, and VQ4ERR, FS7RT, Rod de Balfour: O68AV, 4X4DK, HC1FS, V52, BV1US, JA, 4S7YL, CT, CX6ZB, 8AHH: F8HIE.

27/28 Mc.: Les 4XJ: reports W, VP1AB, VR3D, HC1KV, ZS5NZ, VQ4GF, T12HP, 5AB spoke to KZ5KY, W, 5WO worked ZE-2J, ZS5LX, W, 7LZ: contacted W, Rod de Balfour heard W, KE1PY, YN1HF.

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. ries	Call	Cer. Cnt. No. ries
VK4FJ	21 158	VK3JD	1 155
VK6RU	2 178	VK4KS	9 152
VK3JTN	26 177	VK6KW	4 150
VK3BZ	3 176	VK3LN	11 141
VK4HR	12 175	VK4RW	23 141
VK3EE	10 103	VK3AWW	14 140

New Members
VK4NC 35 105

C.W.

Call	Cer. Cnt. No. ries	Call	Cer. Cnt. No. ries
VK3BZ	6 222	VK3CX	26 192
VK4FJ	29 218	VK2EO	2 183
VK3FH	15 215	VK6BY	45 181
VK4HR	8 206	VK4EL	9 175
VK3XU	48 201	VK5RX	23 169
VK3KB	10 200	VK3YL	39 168

Amendments
VK6RU 18 105

New Members

VK3AHH	51 104	VK3AHH	50 100
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OPEN

Call	Cer. Cnt. No. ries	Call	Cer. Cnt. No. ries
VK3BZ	4 231	VK3JE	12 194
VK2ACX	8 225	VK2NS	16 193
VK4FJ	32 224	VK3HG	3 190
VK4HR	7 221	VK4EL	10 175
VK6RU	8 211	VK6KW	13 171
VK3XU	61 209	VK3DI	2 170

New Members
VK3AHH 64 107

Rare QSLs were received by—2QL: MD5UK, PJ2AV, 2ACK: ZK1BL, CR7IZ, ZB1CA, Y12AM, ZS5HX, 2AMB: ON4AU (7 Mc.), Y12AM, KG-1BO, HRIJZ, VPTNS, KC6ZB (7 Mc.), HP3EJ, CR7IZ, ZK1BL, PJ2CJ, G18TK (7 Mc.), 8KB: CE0AD, Y12AM, VK1AWI, ZB2R, 5RK: SM-3BPV, 7LZ: ZD6RD, ZS3G, CR10AA, KP4ABD, ODSAB, ZK1BL, WRRS196: EA4URE, FB2ZZ, VK1RA, MD5UK, VU2JG, VU2MA, XE3LA, XZ2OM, HK3FV, JZ0KF, Rod de Balfour: GD2FRV, HB1OP/HE.

Thanks to W6YY, ZL4IE, and the Northern California DX Club, and VKs 11J, 2QL (QSP report, 2ACK), 2ACK, 2AMB, 2APL, 3KR, 4XJ, 5AB, 5RG, 5RK (QSP reports 5RG, 5RX), 5RX, 5WO, 7LZ, BERS195, W1A-L3019, Rod de Balfour and Dave Jenkin.

BOOK REVIEW

"GERMANIUM DIODES"

A new publication we have received from Philips Electrical Industries is a very interesting book on "Germanium Diodes."

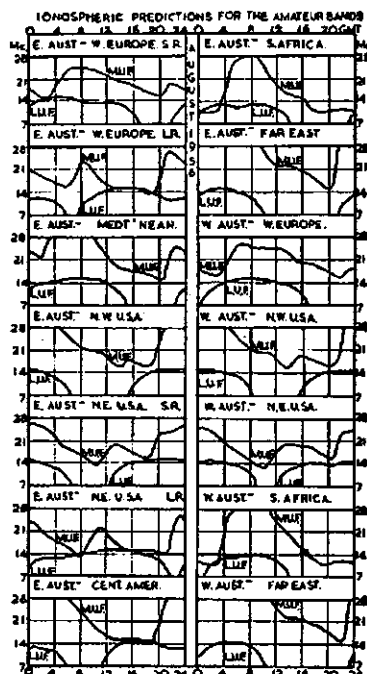
With the spotlight on the transistor we are apt to forget that the germanium diode is still a very important part of electronics and this book gives complete data on their history, characteristics, and applications.

Particular attention is paid to their use in television circuits, which is likely to be of interest with the issue of television licences.

Most Amateurs use germanium diodes in various parts of their equipment and a small handbook which deals so completely with the subject would be very handy in the reference library.

This book is being distributed in Australia by Philips Electrical Industries Pty. Ltd., 69-73 Clarence Street, Sydney, to whom enquiries should be directed. The price is 13/-. Address all correspondence for attention Mr. Tremlett.

PREDICTION CHART, AUGUST, 1956



SHORT WAVE LISTENERS' SECTION*

Some chaps think a lot about the elusive DX, but me, no! I'm spending a lot of time thinking about elusive correspondents for this page. Why? Worked All States isn't in it with this. So come on VK6, 7 and 9. We'd very much like to hear from you. Now for all the news from VK2, 3, 4 and 5.

NEW SOUTH WALES

Stan Abbey writes again this month and encloses a list of stations he has heard. He'd very much like to know how we down here manage to hear all the DX listed in our reports. Well, judging by his own list, he's not doing too badly himself. The weather at Coolamon hasn't been very pleasant and band conditions also have not been the best, writes Stan. Jack Ashby, the other s.w.l. in Coolamon, is understood to have been working hard lately and has not had much time for s.w.ling. Greetings to you Jack. Jack's gear consists of an Eddystone "640" with a preslector using an EF50 ahead of it, together with a five-tube home-brew for 20 mx, built into a rack and panel. The antenna is a centre fed 40 mx dipole. Jack 2AJO is still giving these two boys lessons in Amateur Radio, but evidently still finds time to get on the air. Sigs 5 x 9 on 80 mx down here Jim. For the information of other s.w.l.'s, Jim does QSL.

Any other VK2 listeners can write to Stan Abbey at Mimosa Street, Coolamon, 6S, and give him any information for this page to pass on to me.

VICTORIA

A very interesting letter was received from Henry Zaal, at Traralgon. Henry comes from Holland and has been in VK land about 2½ years. Henry is using an AR7 rx, but does not particularly like the separate coil boxes associated with that make of rx. He has built a test oscillator, signal tracer and multimeter. An intercom. system he built was subject to squealing and hum, so he has dropped that project for the moment. Henry is studying

hard and soon hopes to sit for his ticket. One or two of you Traralgon boys may be able to get to know Henry and give him some assistance as he seems to be having a little trouble in his activities at the moment.

Jane Meeting.—At the meeting of the VK3 Group, Fred 3YS gave us a talk on Construction and Operation of V.h.f. Gear. Fred discussed the building of simple converters for two metres and also stressed the usefulness of a grid dip oscillator in finding the band. Fred had brought some mobile gear along with which to demonstrate and at the conclusion of the meeting contacted Jim 3ABA on 2 mx. Thanks very much for this very interesting evening, Fred.

Coming Events.—As a result of a slight misunderstanding it was published that Geoff 3DF would be giving a talk at the July meeting of the Group. However, Geoff has moved to VK5 and therefore will not be available. Still come along to the meeting chaps. Remember, the Group meets at the rooms, 191 Queen Street, Melbourne, at 8 p.m. on the last Tuesday of each month. All who can attend are invited to join our Group in a visit to be made to "The Argus" newspaper office on Tuesday evening, 17th July. This visit is timed to begin at 9 p.m. and you are requested to be outside "The Argus," Cr. Elizabeth and Latrobe Sts., no later than 8.45 p.m.

QUEENSLAND

Don Bryant keeps the VK4 boys on the map this month. Evidently they are hoping to increase the number of s.w.l.'s up there as they are going to send notices to schools and clubs advertising their meetings and activities. Don tells me he is in the Army sigs. Quite a number of Amateurs have first been bitten by the bug whilst in that outfit. He is putting up three new antennae. A ground plane, end fed dipole and a folded dipole. Boy, what an antenna farm he must have. He has about three skywires up already, I believe. Don says that he has plenty of room in the back yard and can also use the yard next door if he wishes. How wonderful! Personally I haven't time to swing a cat or a dud tube for that matter.

SOUTH AUSTRALIA

We have now lost one VK5 correspondent and gained another. The annual meeting of the VK5 Group was held in June and the re-election of office-bearers resulted as follows: President, Jim Paris; Secretary, Len Cragen; Treasurer, Arch Halliday; and Correspondent, Mac Hilliard. I must offer my thanks to Len Cragen who has in the past done a very good job as correspondent, and welcome Mac Hilliard to the job. He won't last long in the job though I can tell you, you see he will soon be coming over to the premier State to reinforce the VK3 Group. We'll be glad to see you again Mac.

Prior to the annual re-election in the VK5 Group, the presentation of a Silver Cup was made to John Campbell, WIA-L5011, who won the recent VK-ZL S.w.l. Contest. Congrats to you John. Runner-up in the contest was Len Cragen, to whom we also pass on our congratulations.

The July meeting of the VK5 Group will consist of a visit to broadcast station 5KA. Members of the VK5 Group are looking forward to the R.D. Contest to be held in August. QSL's received recently by some of the boys include G3HOL to John Campbell and CR7CQ and ZS1KK to Mac Hilliard.

PERSONAL PARS

Following the example of 2EL, I, too, am taking steps to form a spy ring. However, they have not given me much dope as yet. Bert Stebbing has that big bus going again, but has not yet appeared with mobile s.w.l. gear. Michael Ide is settling into his new QTH, but was recently struck by the virus. Congrats on winning the listeners' section of the Fourth Vic. Scramble, Michael. Arthur 3AHD is understood to be busily painting his latest acquisition. Yours truly has many plans in the melting pot at the moment, including a new 50 ft. mast, new antenna, converters for 144 and 28 Mc., QSL cards and ways and means of getting chaps in VK6, 7 and 9 to write. David 3ZAQ (WIA-L3003) seen in circulation again together with David 3ZAT (WIA-L3027) who appears to be getting some new gear together. His car looks like a travelling radio warehouse at the moment. Something big is in the offing apparently.

* Compiled by: Ian J. Hunt, WIA-L3007, 101 Robert Street, Northcote, Vic.

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.
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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



FIFTY-SIX MEGACYCLES AND ABOVE

NEW SOUTH WALES

Although several stations took part in the recently conducted 2 mx home station fox hunt only a few logs were returned to the contest manager, Horrie, 2HL. Results: Win for Bob 2OA with 38 points, followed by 2APQ 14, 2AFM 10, and 2ZCF 6 points. John 2ATO was the mobile fox and made broadcasts from five different locations. Anyone desirous of knowing the exact locations of the fox should get in touch with Horrie 2HL.

Many new country stations are being heard and worked in and around Sydney; these include 2ZBK of Blayney, 2NS of Bathurst, 2ZAN Bathurst, 2ALU Cowra, and several other 2 mx DX Amateurs are about. Sid 2AVK, of Kat-oomba, is putting out good signals also. It appears that more and more Sydney 2 mx Amateurs are going mobile. Dick 2ZCF, Bob 2OA and 2AWZ have been heard recently. Almost any night and every week-end there is plenty of activity on the band. Have heard old-timer Don 2NO putting out a very good sig. Coastal stations should look out for ZLIAR, who is running 100w. on 2 mx s.s. Another new station to listen for is 2TC of Bundanoon.

After the usual Sunday night broadcast on 2 mx on 24th June a surprise scramble was well attended and resulted in the following scores: 2ANF 19, 2HE 16, 2OA and 2ZCF 15, 2HO and 2HL 14, 2AZN, 2ZEB, 2APQ, 2ZAV, 13; 2ACJ 11, 2AUA 9, 2ZAL 8, 2ZCH and 2AFM 6, 2JX 4. It is noteworthy that 2JX made his four contacts in the last five minutes of play.

News from the Northern Group v.h.f. is as follows: The only doings in the 56 Mc. spectrum is that Jack 2ADT has re-constructed his beam for 5 mx and has managed to get it atop his 50 ft. bush pole which is about 3 in. diam. at the top, and his tx has been altered. The 2 mx band is becoming most encouraging. A new addition to the fraternity in this area is 2ZAD who has taken up residence at Tamworth. Frank 2AIF will have to look to his laurels as he is building a rig for the band, but is continually being side-tracked, hi! It is believed that Ben 2AST of Coonabaraban, is a likely starter and that the northern group will not let up on him now. Geoff 2VU has been altering his tx and when last heard had lost the band and was having grid drive troubles; do a good job Geoff and get that QV08/40 going. 2ANU listens each night from 8.30 to 9.00 p.m. and his only contacts have been 2VU. Ken has heard 2BZ's carrier occasionally, and has run test transmissions for Tas 2GV, who is using a super-regen. at Elliston, but results negative so far. When Tas builds that 3 over 3 beam it is hoped that contact will be made. Further north to Inverell it is reported that Jack 2ADT and Ted 2ZX have gear ready to go.

The greater part of the Sydney V.h.f. Group meeting held on Friday, 8th July, was taken up by a most interesting lecture delivered by Mr. Harrant, of the P.M.G. Department's maintenance engineering section. He very ably explained 168 Mc. mobile telephone transmission techniques as well as micro-wave transmissions and pulse on 2000 Mc. and 4000 Mc.

We are all now eagerly looking forward to the mid-winter contest.—2AFM.

VICTORIA

Roger Choate, VK6RK, was a very welcome visitor at the last fox hunt. Roger went along with the fox car crew in a hunt that traversed South Yarra, St. Kilda, Albert Park and then over to Camberwell. At one stage in the hunt the fox was delayed with the red traffic lights and the fox car crew had a few very tense moments of excitement when four hound cars, 3ALY, 3ADU, 3ZAT and 3AOG came along the cross road and bent on getting through the lights while they were still green, sailed right past in front of the fox car. The next moment the fox noticed 3VZ on the opposite side of the road, also waiting for the traffic lights to change. He felt he just couldn't get out of this one, however, 3VZ was apparently so intent on listening to the signal that he forgot to look for the fox, and 3LN, the fox, was able to make a right hand turn immediately behind 3VZ's car and sneak away undetected. He then went and hid in a parking area amongst a lot of cars. He was soon ferrited out here by 3AOG and 3ADU. This was really a relief to the fox as he was beginning to worry in case a parking attendant came along and demanded a parking fee.

The final location was at the home of associate member, George Robertson, in Camberwell, where 26 of the gang, which included seven XYLS, had supper together and entered into an S9 QSO on the evening's chase. The winners were the two Rays, 3KD and Ray Price, second place went to the two Davids,

3ZAT and 3ZAQ, and third place to 3AOG. Thanks are extended to George and Joan Robertson for opening their home to the Group.

At the last V.h.f. meeting the Group was entertained with a very absorbing lecture on "Pulse time modulated u.h.f. radio telephone systems in Australia," given by Mr. Alan Hart, who is Divisional Engineer of the radio telephone section of the P.M.G.'s Department. This lecture was a follow-on to the lecture Mr. Hart gave us last year and he prefaced his lecture by a short run through the slides he had shown us last year so as to enable those who had not attended the previous lecture to be up to date with the rest of the members. From this point he then carried on with greater detail and took us further afield with his work in the radio telephone system. The whole lecture was again illustrated with slides, and perhaps because of Mr. Hart's particularly friendly personality, question time started in earnest right from the beginning of the lecture. Mr. Hart has the science of his work right at his finger-tips and appeared to enjoy the opportunity of answering questions.

During the general business of the meeting, David 3ZAQ was presented with his certificate award gained for contacting 100 stations on v.h.f. bands. This is the fourth certificate awarded and David is the first "Z" call to qualify for the award.

Are you ready for 58 Mc.? It has been reported that ZL Amateurs were changed to the 58-60 Mc. band as from 1st June. There is generally a minor Interstate opening on these frequencies round about August, although the main DX season usually occurs during the summer months.

Keep a listen for Don 2RS, of Albury, who calls on sked, with the beam on Melbourne, at 7.30 p.m. each evening, calling for five minutes then listening for five minutes. His frequency is 144.14 Mc. He has been worked by 3BQ lately, several times by 3RK and been heard by a number of Melbourne stations.

Max 3ZCW worked 5MT on 19/6/56 at 9.30 p.m. 5MT was portable on Mt. Lofty outside Adelaide and was running 10 watts to a 822 and a 2 tube converter fed into his car radio, using a 3 element beam. Reports were 5 and 5 both ways. Max has purchased a QQE06/40 and is hoping for big things in the very near future. —Phyl Moncur.

WESTERN AUSTRALIA

The monthly meeting of the V.h.f. Group was held on 6th June at 8ZAD's residence with the usual attendance and enthusiasm, which is characteristic of the Group as a whole. After the business had been disposed of attention of the meeting was held by a lecture on Wave Propagation—the lecturer's knowledge of the subject was soon apparent and at a late hour was given a hearty vote of thanks by all present.

6CC appeared with a signal on 2 mx the other day; nice work Frank, that 815 was doing a good job, even though suffering from lack of volts.

DX on 144 Mc.! We were pleased to work VK2ARG on 2 mx while on a business visit to VK6. Hope you enjoyed your stay Bob, it was rather a bad start, but a good finish. Stations worked included 6HK, 6ZAD, 6ZAV, 6ZAK, 6ZAT, 6BO, 6AW and 6ZAA. We also worked Bob from the kite on the way back East.

Cold weather lately has kept activity to a minimum.—6ZAV.

SPECIAL VKIACA QSL CARD

13th to 16th August, 1956

From 13th to 16th August, the Annual Hobbies Exhibition will be held at the Albert Hall, Canberra, Australian Capital Territory, for charitable purposes. As in past years, the Canberra Radio Club will participate by operating an Amateur Radio Station from the Exhibition Hall under the Club's call sign VKIACA.

To mark both the Exhibition and the allocation of the VK1 call sign to Amateur Radio licensees in the Australian Capital Territory as from 1st June, 1956, a Special QSL Card will be issued for contacts with VKIACA during the Hobbies Exhibition.

So keep your ears open for VKIACA on the Amateur bands between 13th and 16th August inclusive.

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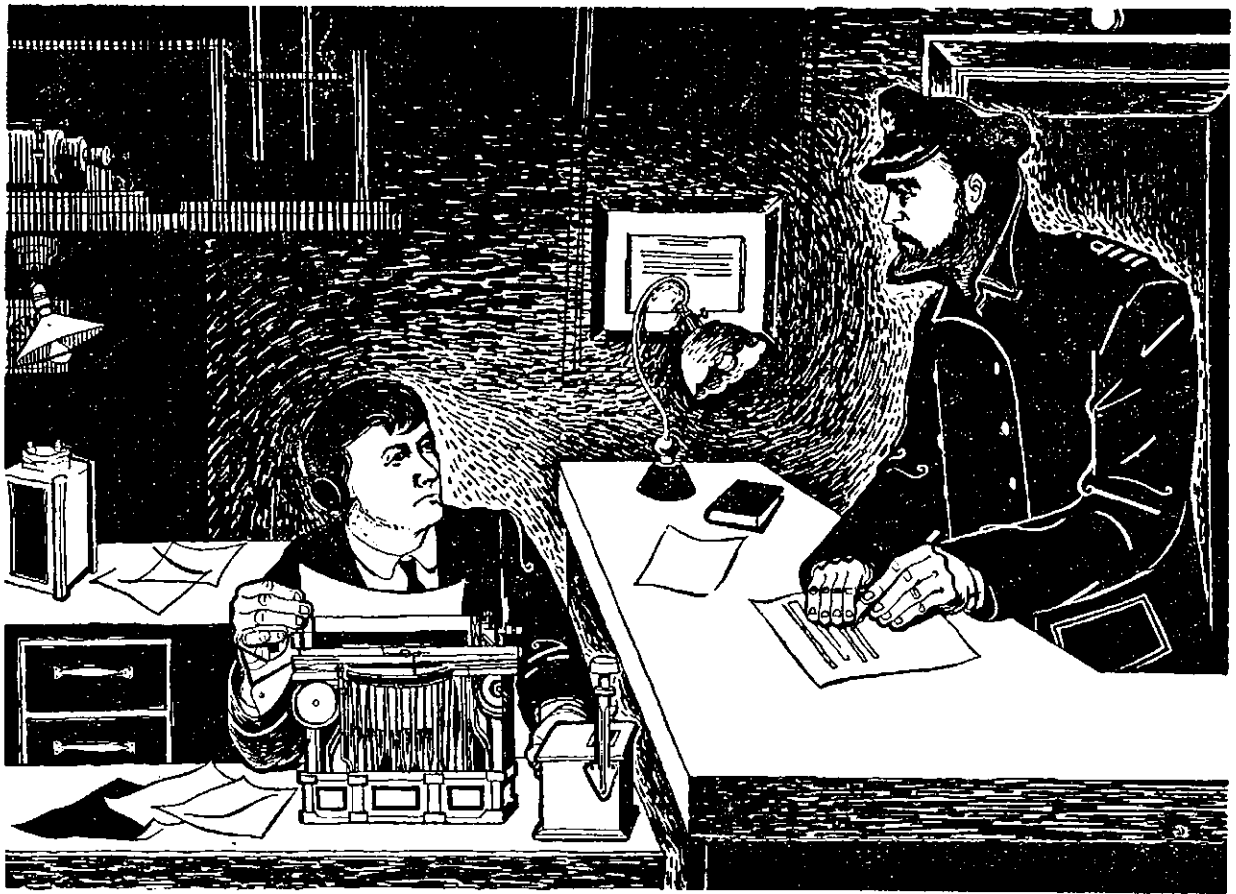
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The suggestion was made in the wireless room of a ship everyone believed was unsinkable.

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The time was 12.45 a.m., the date, April 15, 1912, and the sinking “Titanic” sent out the first SOS in history.

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FEDERAL PRESIDENT'S REPORT 1955-56

It is my privilege to present the annual report of Federal Executive covering the period March 1955 to April 1956. Although members have been dogged with sickness and personal business affairs, I feel there has been steady progress in our year's programme of work. It would be remiss of me if I did not mention that there yet remains a lot of unfinished business on our agenda, but this will be gradually finalised now that a lot of minor matters have reached satisfactory conclusions. Turning now to the details of our operations for the period under review:

REGULATIONS

Our dealings with the Administration have been maintained on a healthy personal basis with several special meetings to discuss additional operational privileges for the Australian Amateur, the two most important being the release of Amateur Television facilities and mobile-portable operation for 24 hours without a permit, on which all will have received official notification. The former, although not perhaps affecting a large number at present, nevertheless has realised the culmination of many years of endeavour and representations to the Department which at long last bore fruit. I am sure the latter privilege will appeal to most Amateurs and is indeed a welcome relaxation of the former restrictions on this aspect of the Regulations.

POLICY MATTERS

As promised at the commencement of the year, a completely revised issue of the Federal Policy Book has been issued to all Federal Councillors. This will be kept current from now on by the issuance of amendments as they arise. A matter of some concern was the dropping of the Federal Convention at Easter. It is now three years since a Convention was held, and I am certain that there are matters of import within each Division which can be aired and discussed around the conference table to the benefit of all. I sincerely trust that the next Convention will be held not later than Easter 1957.

MEMBERSHIP MATTERS

This year has also seen the advent of a new Division—the Papua and New Guinea Division—which is another historic milestone in the growth of the Institute. I was privileged to deliver a welcome to the new Division via tape recorder and wish them well. Their station, VK9WI, is already operating and maintaining a close bond between outlying members. The membership within Divisions continues to increase and this has been stimulated to some extent by our limited licensees and the recently instituted Short Wave Groups in Divisions. It should be the aim of all Divisions to secure membership of ALL full transmitting members so that our Institute encompasses as many as possible of those engaged in Amateur Radio as a hobby.

NEWSLETTER

During the period our Newsletter was inaugurated and I hope it has filled the gap between official letters and personal correspondence to Divisions as well as providing some matter for Divisional broadcasts of interest to members.

OVERSEAS SOCIETIES

Our friendly relations with the I.A.R.U., A.R.R.L., R.S.G.B., and the N.Z.A.R.T. have all been continued during the period and I look forward to even greater liaison with these Societies on matters of mutual interest in the future.

VK3WIA

Members of Federal Executive were approached to place the Federal Station, VK3WIA, into operation at the Pan-Pacific Jamboree over the Christmas-New Year holidays. The success of this venture was evidenced by the interest displayed by all who saw the station in operation, and by those overseas stations who created "dog-piles" in an endeavour to make contact. In all some 600 contacts were made in 36 different countries during the ten days of almost continuous operation. I wish to record my thanks to all those who assisted with the installation and operation of the station as well as the Services who most generously supplied the bulk of the equipment. It is our present intention to institute a regular news service for disseminating information to all members for which purpose a new transmitter has been put into service. You will hear more of this in the coming year.

AUSTRALIAN CALL BOOK

The continued success of this publication speaks well for its future and is a tribute to the untiring efforts of the Publications Committee of the Victorian Division, who publish it on behalf of the Federal Council. I think you will agree that our aim to progressively improve the book has been carried out faithfully and I am sure the Olympic Year Edition will prove worthy of its present distinction.

FEDERAL FINANCES

I am somewhat disturbed by the present state of Federal finances. As can be seen from the Federal Treasurer's Balance Sheet shown here, the balance is very low for an organisation of our size. In addition, Account No. 2, which was set aside as a Convention Fund, is almost negligible. Divisions should make an effort to reserve some finance for this account against future Conventions. The last minute inroads into Divisional funds will be obviated if monies are put aside now. A revision of our present financial restrictions is also due, as the costs of operating has progressively increased over the last three years since a Convention.

CONTEST AND CERTIFICATE MATTERS

The presentation of the W.A.V.K.C.A. award for overseas Amateurs has evinced great interest and is now established as one of the most sought-after DX awards, resulting in very favourable publicity for VK Amateurs. Some work has also been commenced on the Worked All States award for VK Amateurs. Further Membership Certificates have been printed and are now available for issue. The Federal Contest Committee are now operating on a sound footing with properly constituted Rules and Duties. They have instituted an up-to-date Register of all results of all Contests and Certificates issued since 1945, so that no omissions or mistakes should be made in future. Finality has not yet been reached on the Remembrance Day scoring which is very difficult to actually predict, but every endeavour will be made to complete this as soon as possible. The Ross Hull Contest

was extended to include all v.h.f. bands, per Convention directive, thus enabling L.A.O.C.F. operators to participate. The Rules of the VK/ZL DX Contest, in conjunction with the N.Z. A.R.T., have now been stabilised as well as awards, and this contest promises greater popularity in the future. A willing band of helpers from the VK5 Division have assisted in the checking of the R.D. Contest which continued to attract entrants. A revision of VK9 scoring points have been deferred until after the 1956 Contest. Although the Field Day Contest attracted more entrants this year, log submissions were few, making the Committee's job of checking very difficult. Surely it should not require very much effort to send a log in for checking, even if the chance of winning a certificate is remote. The Federal Contest Committee have had a profitable 12 months of activity under the able guidance of Jim Vivian. The Federal Awards Manager, Gordon Weynton, has handled 49 applications for the DX C.C. award, 32 for the new W.A.V.K.C.A. award, 4 for W.A.C., 1 for W.B.E., 4 for D.U.F. and 1 for the W.A.S. 60 award; in all, 93 applications, which represent a lot of work.

The Federal QSL Manager, Ray Jones, and Traffic Manager, Doug Payne, in their respective spheres have unobtrusively carried on their tasks with great efficiency, thus making the tasks of Federal Executive a mite easier. To them and all other co-opted officers, not mentioned by name, I extend my sincere thanks for the sterling job they have carried out during the past twelve months. All have given a great deal of time to an honorary office, each being equally important to the smooth functioning and well governing of the Institute. I trust they will all continue in their offices and carry on their essential tasks in the future.

Last, but not least, I wish to thank all members of Federal Council and particularly Federal Executive, for the loyal support they have given me during my period of office. I make exception to mention especially, the Federal Secretary without whom the Federal Executive would not function. The personal letters and contacts he has made with members from all States

WIRELESS INSTITUTE OF AUSTRALIA—FEDERAL EXECUTIVE BALANCE SHEET AS AT 29th FEBRUARY, 1956

Current Liabilities, Creditors	£75 19 2
Accumulated Funds—	
Balance, 1/3/55	£542 9 1
Less Deficiency for the year ended 29/2/56	68 4 10
	474 4 3
	£550 3 5

Current Assets—	
Commonwealth Trading	
Bank No. 1 A/c	£70 8 10
No. 2 A/c	1 11 3
Cash Imprests	8 0 0
Debtors	240 9 4
Stock on hand	94 0 0
	£414 9 8
Fixed Assets (at cost less depreciation)—	
Eddystone Model "640"	
Receiver	£18 0 0
Trophy, R.D.	10 10 0
Trophy, Ross Hull	
Memorial	35 4 0
Filing Cabinet	21 0 0
Typewriter	51 0 0
	135 14 0
	£550 3 5

I have examined the books and vouchers of the Wireless Institute of Australia (Federal Executive). In my opinion, the above 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 29th February, 1956, and that the attached Income and Expenditure Account is properly drawn up to exhibit a true and correct view of the results for the year ended 29th February, 1956, according to the best of my knowledge and the explanations given to me, and as shown by the books. Stock on hand at 29th February, has been accepted on the certificate of the Secretary.

1st June, 1956.

REG W. ELLIS, Dip.Com., Chartered Accountant (Aust.)

INCOME AND EXPENDITURE ACCOUNT FOR YEAR ENDED 29th FEBRUARY, 1956

EXPENDITURE	
Badges	£7 0 0
Trophy Expenses	7 14 1
Printing and Stationery	52 8 11
Certificates	25 15 2
Depreciation	20 13 0
Audit and Accounting	8 8 0
Postage	14 10 8
Telephone	6 8 6
Bank Charges	2 8 3
Scout Jamboree	40 18 9
Typing and Duplicating	4 16 0
Log Sheets	7 0 0
Repairs Typewriter	7 0 0
Entertaining	22 11 0
Sundries	20 14 7
	£248 4 11

INCOME	
Per Capita Payments	£172 11 0
Sale of Badges and Log Sheets	7 9 1
Loss transferred to Accumulated Funds	68 4 10
	£248 4 11

have cemented and bonded Federal Executive to all Divisions and made my own task easy and smooth. I thank all others and hope they will continue to serve the Institute in the future as unselfishly as they have in the past, and assure you of my own unsparring efforts towards the progress and prosperity of the Institute.

W. T. S. Mitchell, Federal President.

FEDERAL QSL BUREAU

KAY JONES, VKSRJ, MANAGER

Divisional Managers please note the change of address of the W3 QSL Bureau to Box 400, Bala-Cynwyd, Pa., U.S.A. W3KT continues as QSL Manager.

A. E. Wesley Street, VEIEK, of 12 Crescent Ave., Armadale, Halifax, Canada, writes, "Have QSOed a number of VKs who have not QSLed. Mine has been forwarded, twice in some instances. Would appreciate your assistance in obtaining these confirmations for me. 1946: VK5UR; 1947: VKs 2ALK, 3MR, 5RV; 1948: VKs 2YL, 2VJ, 3EG, 3VJ, 3AWN, 3UG, 4AP, 4FX, 4PK, 4SF; 1949: VK5JW; 1951: VK5JJ; 1953: VKs 2FU, 2QL. What about it chaps?"

The Asocacion Radio Ecuatoriana (A.R.E.) (Quito Amateur Radio Club HClARE) celebrated its 25th anniversary on 18th July. As part of the anniversary celebrations the club sent an expedition on 14th July to the exact geographical position of the Equator line. Several rigs were set up for transmissions on the following bands: 8, 10, 15, 20, 40 and 80 mx. Operating commenced at 1700 GMT on 14th July and continued until 2300 GMT on 15th July. Special QSL cards with interesting information about the expedition and the location will be sent to all Amateurs who contacted the expedition.

Amateurs in Sydney, Melbourne and Adelaide were pleased to meet Yardley Beers, W2AHW, of Bronx, New York. Yardley, who is a professor of Physics, is touring on a Fulbright scholarship specialises in microwave research. He is returning to the U.S.A. after visiting Europe.

I have just seen the eighth wonder of the world! It is a letter from Pat VK4YP, which he naively admits is the first he has written me in the 28 years of our acquaintance. With this historic document came three cards from OY7ML which Patto kindly forwarded. They came to him via G6YQ who has arranged to act as private QSL Manager (VK and ZL only) for OY7ML whom he skeds frequently. OY7ML is on daily from 0700-0800z looking for VK/ZL on either 14005 or 14050 Kc. c.w. He requests replies 2 Kc. lower. Martin claims that Patto made the first OY/VK contact on 13th April, 1956, followed by VKs 4FJ, 3BZ, 3XU and 3QK. (What, no 3FH, 3CX or 3KB?) The syndicate's organisation has broken down some place! Stations working OY7ML are to send their cards direct to G6YQ, who guarantees a return card on the card-for-card basis.

A large number of cards have been sighted in the past three months, bearing incomplete particulars of QSO, date, and times having been omitted. These, of course, are useless to the recipients for the purpose of claiming awards.

Odd cards from Danny Well, of Yasmie fame, from various places, are commencing to arrive from Dick Spencely, KV4AA, who is handling the QSL side of the operations. Danny expects to be active from Nauru under the call sign VK9TW about mid July, but period of stay at this location is not known at time of writing.

Lt. Col. Lloyd D. Colvin, DL4ZC, of the U.S. Army Signals, writing from Heidelberg, Germany, under date of 18th May, states he is returning stateside before the end of 1956 and will be closing down DL4ZC shortly. Lloyd is probably one of the most travelled of Amateurs having held a total of 19 call signs in five different countries—W, FA, KL7, JA and DL.

As of 18th May, the new address for the A.R.R.L. W5/K5 QSL Bureau is Box 261, Grapevine, Texas. District QSL Manager is R. J. Stark, W5OLG/W5FPN.

Dr. Fred Westerveldt, W5MY (ex-KA9AA, KR8AA) states that he is glad to be back home again. Any VK missing any of his QSLs can obtain same by writing to him at Army and Navy Hospital, Hot Springs, Ark., U.S.A. He is commanding officer of the hospital.

FEDERAL AWARDS

W.A.V.K.C.A. CERTIFICATE

Further certificates have been issued to ZL1AJU, W6GBG, W6DLY and G5FBX since the last report. Total certificates issued to date—35.

—Gordon Weynton, VK5XU, Manager.

NEW SOUTH WALES

There was a fair attendance at the June meeting of the New South Wales Division to hear a lecture by Mr. George Gold of the Civil Defence Organisation. Mr. Gold, who deputised for Major General Dougherty, delivered a most interesting lecture on the subject of the effects of a nuclear explosion and the measures we can all adopt for our own protection and self-preservation. All present had some food for deep thought in the very realistic picture which our lecturer painted of just what would happen to Sydney if an atomic device were to be used against our city. Mr. Gold's lecture was much appreciated and members will be pleased to hear that he has promised another, complete with films of some of the results of the tests at the Nevada proving grounds.

City, suburban and near country Amateurs are reminded that the monthly meeting of the Division is held at Science House, Gloucester Street, Sydney, on the FOURTH Friday of each month, the next being on 24th August. Attendances at recent meetings have been very disappointing, especially when we remember that we have five hundred members around the city. Why not try to be at the next one?

HUNTER BRANCH

The June meeting of the Hunter Branch was held at the University of Technology, Newcastle, on Friday, 8th June. The President, Bill Hall, 2XT, welcomed Kevin Burdon and Harry Conners, two new associates, to the Branch. A 144 Mc. converter constructed by Doug 2ADS was on display for the benefit of any members interested in constructing a similar one. Harold 2AHA gave a description and demonstration of his portable gear for operation on 80, 40 and 20 mx. Duncan 2MC gave a lecture on "Radio Communication in a Coal Mine." Judging by the amount of gear that Duncan had on display to illustrate his lecture, some fears were held that the coal mine had been put out of commission, but the meeting was assured that Duncan had not entirely stripped the mine of electronic equipment.

Two open orders for £5/5/- each were received from local firms to be used as prizes at the Hunter Branch Convention on 29th and 30th September. The hidden tx hunt at this Convention carries a first prize of £10/10/- and the blindfold tx hunt a prize of £5/5/-. Accommodation has been arranged for visitors wishing to attend this Convention. Please notify Hunter Branch Social Committee at least 30 days prior to the Convention date—the first 20 applicants will receive free accommodation.

During the month, one of our members, Chris 2FZ, was elected chairman of the Newcastle Division of the Institution of Radio Engineers, also during the month Les 2AOR and XVL attended the VK4 Palm Beach Convention to represent the Hunter Branch. Bill 2XT also planned to be present, but due to urgent business was unable to make the trip at the last moment.

Two of our associates deserve honourable mention, namely Bob Bailey and Ray James. Bob and Ray have done yeoman service for the Branch in transporting equipment, etc., for our field days and parties. Their latest service was to journey to Sydney by truck to bring back disposal gear for Branch members. So thanks, Bob and Ray, from the "boys".

Bill 2ZL has been very active on 40 mx and has ideas of an underground co-ax feeder to his antenna to try to cut down some of the noise at his location. Ron 2ASJ reports receiving a VE card after four years lapse and also has a card from KZBUW confirming Ron's c.w. contact using his foot-operated key. Harold 2AHA getting ready to go DX hunting again; Associates Jack Hamilton and Syd Daniels acting as second ops for Ron 2ASJ.

The next meeting of the Hunter Branch will be held at usual location on Friday, 10th Aug.

UPPER HUNTER GROUP

Activity in this area is at a fairly low ebb at present as most chaps appear to be pre-occupied in their individual pursuits in life. Geoff 2VU heard occasionally on 80 and 40 mx and has now upset his 2 mx gear and lost the band—a case for Sherlock Holmes, Geoff. I can see that QV06/40 coming into use. Tas 2GV putting in a good signal, mostly operates during the lunch hour and making good progress with the 2 mx gear. Tas, being up near the headwaters of the Hunter, will be able to furnish the emergency net with valuable data if the need arises. Perchance the recent widespread rain had most of us checking our emergency gear.

No news of Roy 2HC, let's hear from you sometime. Tried for a QSO by landline, but no luck at the time of writing these notes. In touch with Nev 2OS who informed me that he had not given up his interest in Amateur

Radio, but has been tied up with a concrete mixer in his spare time, as there is much to be done around the home. Has a 522 coming forward so it looks like more new blood for the v.h.f. bands, f.b.l.

Your scribe took a flying visit to Singleton and inspected 2VU's paint job—very f.b., Geoff. Main interest has been in stripping down and re-erecting a much-battered Command rx and negotiating for an old windmill tower. A good way to keep warm this weather is to take on splitting posts, hi!

NORTH COAST AND TABLELANDS

Bernie 2ZM (ex-1ZM) is in Kempsey installing f.m. gear for the P.M.G. A newcomer to Kempsey is George 2YT at the local broadcast station 2KM. George is not active so far. We now have a v.h.f. representative at Macksville. Welcome to J. E. Hughes with a brand new "2" call. A station at Macksville will be a great help to the coast relay network. Peter 2PA and Ted 2AVG are working on a Zircon Rutile plant at Southport and, by all accounts, enjoying life up there. 2AHH very busy and wishes he could be in two places at once, but still found time to snag YV0AA on 20 mx!

COALFIELDS AND LAKES

Very little heard from Gosford apart from 2RU who is regularly on 7, 56 and 144 Mc. 2LX is getting ready for 144 Mc. Doug 2ASA is getting good results on 21 Mc. and also is regularly on 144 Mc. with a 5 over 5. Bob 2KSF keeps Kurri Kurri on the map; thinking of bringing gear back to house; giving back yard shack away. 2MC not active. 2PZ busy erecting t.v. antenna. It will be 100 ft. high, so Amateur gear getting a spell. No news of 2ANU or 2VU. 2YL has new 3 over 3 on 144 Mc., much improved results, with 2ARG the best contact yet.

TAMWORTH

Noel 2ASQ has built a converter, pre-selector for his rx for 10 and 15 mx, and reports some very good results. He is also in the throes of building a cubical quad for 15 mx for the coming months in order to compare his three el. ground plane beam against it on DX contacts. Tamworth has acquired another Amateur, one Bruce 2ZAD, late of Chester Hill, and Bruce hopes to be going soon on 144 Mc.; he has a converter going and is in the process of completing a tx; tells me he already has gear going on 288 Mc. Sam 2ZBL, that was, has not yet received his new call from the Department, but is already to go. Syd 2APS has not been heard on of late, probably getting ready to tamper with the v.h.f. band, what say, Syd?

It is nearly time the old warrior from Waragamba put a signal on the air, namely, Bob 2AQR; we have to keep looking at the clock in the morning to make sure we are not late for work now that we cannot listen to his hearty expositions at breakfast time. Frank 2AFF is in the process of re-building the 144 Mc. gear for the umpteenth time, and is also building a three-band beam for 20, 15 and 10 mx that is alleged to perform as well as the quad antennae.

Ben 2ABT visited the town of Eden on holidays and visited VK2Always-Surrounded-by-Fish. Word has been received from Steve, ex-3ASS, who is now 4SK. Steve is having himself a good time at Mackay together with Don, ex-2YU, hauling out some good 30 to 40 pound cod (this will make 2ASF envious) while he works (?) at the local b.c. tx there.

SOUTH WESTERN ZONE

The main activity in this zone has been an effort to get 2 mx equipment under way at Griffith. It started when the v.h.f. Group arranged for Adrian 2HE to visit Griffith and lecture to the Griffith Radio Club on "How to get going on 2 mx." This was followed the next day by a demonstration of equipment and an effort to work out of Griffith on 2 mx. Contacts were made with 2AJO Colooman, 2WH Forbes, 2RS Albury, 2ALU Cowra, and 3ATN Birchlip. The week-end was particularly educational and enjoyable.

A new member to the ranks of Amateur Radio is John Mackie, from Hillston, who is awaiting his limited call sign. John spent the week-end in Griffith while Adrian was lecturing and demonstrating and he was able to gain a lot of useful information. John has since acquired gear and should be operating 2 mx in the near future. Others who should soon be heard on 2 mx are George 2ZAZ, Brian 2AVJ and John 2ZCJ. They all have gear for this band and are no doubt trying for the 6CW7 valve which Ross 2PN has offered to the first Griffith chap to work two ways from Griffith on his own 2 mx gear.

Don 2RS very active as usual on all bands and is building a xtal-locked converter for the Griffith Radio Club. Herb 2QD and Artie 2EU

frequently heard on the lower bands. Jim 2AJO not so much heard lately and is probably listening for that rare DX.

NORTH WESTERN ZONE

Tom 2AMR has been quite busy on 10 mx—reports good contacts on the DX bands. Chris, ex-2AJP, has built himself an experimental t.v. camera using a 2 inch iconoscope. Only uses 300 lines, but quite good for experimental purposes. Bill 2ACT, although 300 miles from the ocean, is experimenting with "marine" gear for 7 Mc., using a whip antenna from the motor boat. Results are very good and Bill has had contacts as far as the South Coast. Noise from the engine is somewhat troublesome. (How about oars, Bill?) Noel 2APE has been "flat to the boards" on telephone repairs in the flooded areas, whilst Cec 2AKC is on the air every day on 7 Mc. and has regular lunch-time skeds with 2AMR/2ACU. Rod 2ACU is operating on 7 Mc. only and is to be heard in the lunch-time gang. The funny background noises are "mumbled sandwiches"!

CANBERRA RADIO CLUB

On Friday, 30th June, a v.h.f. night was held at the club. About 20 were present. Stan 1ASB gave a talk on how to convert a SCR522; Ken 1AIL (President) talked on how to do a de luxe version of same; John 1ZBS showed how to stabilise a mod. osc. using a pair of 7193s, which he had fixed up for George 2ZBT. The mod. osc. was tuned in on Ken's 522 rx at the beginning of the talks (the rx being in another room) and the gain was turned down. The mod. osc. was left running into a dummy load during all the discussion and at the end the gain was turned up and hey presto! it was still tuned in on the nose. Also at this meeting, it was decided that 7.30 p.m. any night would be the local net time, so you folk on the other side of the border might try turning the beam towards the capital at 1930 hours any night (barring Friday, which is club night), but especially on Saturday.

Another topic, a perennial this, also covered at the meeting was aerials. The good results from 1ZBS' three halos has impressed the boys here. The big advantage is not having to rotate it; an omnidirectional beam in fact. However, 12 elements are still the most fashionable.

A list of those on the air and building 2 mx gear follows. This does not include a few dark horses suspected of kilowatt ambitions! 1ASB 144.162 Mc., 1ZBS 144.380, 1PM 144.14, 1GU 144.1, 1UH 146.5, 2ZBT 144.5, 1AVP 144.09, 1AIL 144.1, on the air as at 30/6/56; 1JG, 2AQJ, 1TV, 1AQP, 1ALR, 1RM, 1ZCA, 1ANR, all building or modifying SCR522s.

VICTORIA

There was a very excellent attendance of approximately 100 at the July general meeting. The lecturer was Mr. Jack Vertigan, VK3WR, and his subject, which proved to be a most interesting one, was on "Single Side Band Techniques." Some interesting features of his lecture included the fact that on many occasions he has had 100 per cent. contacts with DX stations when not a solitary a.m. DX signal was audible on the band. Jack gave a short description of the phased type of s.s.b. and a very detailed description of the lattice filter type. His many block diagrams made his explanations very clear and helped very considerably to allay fears of complications in s.s.b. tx's. He dealt very extensively with the ratio of b.f.o. to the signal when receiving s.s.b. on the ordinary a.m. rx and proved very conclusively with both description and tape recorded demonstration that too little b.f.o. injection made copy impossible on a.m. rx's. B.f.o. injection must be high or, alternatively, the r.f. gain must be turned down for good copy. Members thoroughly enjoyed the lecture and some mentioned they were eager to read up more on the subject as they felt text-books would now be more comprehensible after Jack Vertigan's very enlightening lecture.

Members were very pleased to see George 3AG present at the meeting. George was involved in a bad motor accident a couple of months ago and although he is still a little bit shaky on it, he assures us he is coming good. Mr. A. Frances-Williams, ex-VS2EU, and who is awaiting a VK call, was welcomed to the meeting and he gave a short talk on Malayan Amateur Radio. The following were welcomed as new members of the Victorian Division: Mr. P. Bennie, 3ZDP, as a full member, and Messrs. H. Zaal, B. O'Reilly, N. Bloumis and E. R. Price as associate members.

The lecturer at the next general meeting to be held on 1st August will be Mr. Hans J. Albrecht, 3AHH, and his subject will be "Radio

Control of Research Missiles." This lecture will be illustrated with slides. As the meeting room will not be available on the first Wednesday in September, there will be no general meeting in that month, instead a general meeting will be held on Wednesday, 29th August, when Mr. Alan Foxcroft, 3AE, will give a lecture entitled "Sunspots and DX". This lecture will be illustrated with films.

A 3 x 2 block and tackle, giving a 1-ton lift for a distance of 36 feet, together with a carrying case, has been donated to the Institute. This new addition to the lending section of the instrument library may be borrowed by contacting the Administrative Secretary at the Institute rooms, 191 Queen Street, Melbourne. Well, there goes your last excuse: there just is no reason why you can't get that antenna up now!

Hans 3AHH has received a letter from the President of VK2, Jim 2YC, asking Hans to convey thanks to all in VK3 who co-operated in keeping the emergency frequency 7050 Kc. clear during the recent floods.

Hey, didn't anybody read my notes last month. Surely you're not the one who clutters up the slow morse practice transmission frequency 3550 Kc. in the 80 mx band on Sunday evenings between 8.30 p.m. and 9 p.m. If you are, you're likely to have the 80 mx tx hunters tracking you down and personally requesting your consideration to keep the frequency clear. It's just for such a very short period and only once a week, you know. A new operator has been added to the roster for these transmissions. He is Vern 3YE and he will make his first transmissions during the month of August, and being new at the job he will be particularly anxious to receive reports on his transmissions, either by letter or a call on 80 mx. These transmissions are also relayed on the 2 mx band on 146 Mc.

There have been several requests that the names of the Victorian Division Councillors be again published in the magazine. They are as follows: President, G. Dennis, 3TF; Secretary, F. Bail, 3YS; H. Hodge, 3HE; H. Albrecht, 3AHH; J. Marsland, 3NY; K. Pincott, 3AFJ; H. Charles, 3AHC; L. Robinson, 3ALD; D. Wardlaw, 3ADW; C. Buckingham, 3QU.

Have you purchased a copy of the latest "Call Book", the Olympic Edition? It's a booklet well worth having. Copies are available at the Victorian Division Office where the Administrative Secretary, Mrs. May, is in attendance on Tuesdays, Thursdays and Fridays between 9 a.m. and 4.30 p.m. Are you ready for the Bi-Monthly All-Band Scramble to be held on Monday, 8th August, between 8 and 10 p.m. For rules, see copy of "A.R." for Sept., 1955, p.12. The Remembrance Day Contest is scheduled for 11th and 12th August. For full rules and details see "A.R." for July, 1956, p.5.

80 METRE TRANSMITTER HUNT

Despite a rather cold and windy day, we had a very good turn-up to the last 80 mx tx hunt. The crowd numbered 46 with Amateurs, their XYLs and families. We were very pleased to see several new starters come along, they included Tom 3AOG, George 3XJ, Bill 3AQB and Noel 3ANS. The tx was hidden by Ed. 3EM and was located at Altona. Ed. hid the tx in a hole in the sand and used a long wire for the aerial which was attached to a box kite and being a very windy day Ed. had no difficulty in keeping the kite sailing away merrily, high up in the air. The first to arrive in the vicinity of the hidden tx was Noel 3ANS, but unfortunately for Noel, he didn't snoop around quite enough and he drove off without detecting the tx. Eric 3ADU was the next one to come along and he found the tx and became the winner, he was followed by 3OJ second, and 3ZAD third.

The next hunt will be held on 5th August, when the winner, 3ADU, will be hiding the tx. How about coming along, we'd enjoy your company? Bring the family and friends and some afternoon tea and make a picnic of it. We are sure you'd enjoy the gang, too, as they are a very friendly lot. These hunts commence at 2.30 p.m. from the plantation in College Crescent at the rear of the University. Remember, Sunday, 5th August. We'll hope to see you.

VK3 QSL BUREAU

Would members please note that all QSL cards for VK3 (both inwards and outwards) are now handled at the Victorian Division's rooms. The correct address is Wireless Institute of Australia, Victorian Division, 191 Queen Street, Melbourne, Vic.

SOUTH WESTERN ZONE

The zone is still very active on most bands, no matter what time you turn the rx on you will always hear one of our chaps on one of the bands, particularly Jack 3JA, who seems to be the king of the 14 Mc. band, also Harry 3XI, who has now worked 165 countries, which is a very good figure, John 3ARJ is still getting his share of QSOs on the old AT5. Bill Wines and XYL spent a few days in Geelong on holidays and met 3IC, also went to the club meeting. Bill 3AWZ has had a little QSB in the old carcass which I hope has cleared up.

Norm 3EQ is still getting steamed up ready to remote control all the gear from the lounge. 3JA and XYL recently spent a couple of weeks in VK8. John 3AGD has been busy lately, having been visited by Kevin 3AKR and others. Leigh 3II had rather a good time in Central Australia with 3AMA.

The minutes of the last meeting should be in the hands of all concerned very soon, also the date for the usual Zone Convention has not been set yet, but will be either in October or the first week in November, the latter would be better. The Kinnear Trophy should be in the zone shortly as it has been engraved and 3XI will collect same.



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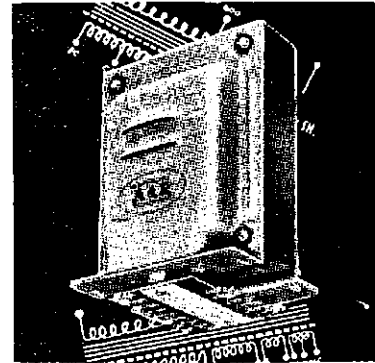
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CENTRAL WESTERN ZONE

We are pleased to welcome a new member to our zone in 3ACJ. Vic was in Merv's shack during a hook-up recently, so we had the pleasure of having a few words with him. He is already active on 40 mx and will be on other bands a little later on. We wish you the best of luck Vic and hope your stay is long and happy in this zone.

Our zone hook-ups have been going along fine and recently Herb 3NN came on with a five signal using his mobile rig while in the Quantong district. Bob 3ARM and Jim 3DP are two of the other regulars, both these chaps have been re-building some of their gear during the periods when the weather has made it impossible to carry on with their farm activities.

EASTERN ZONE

We wish to welcome two new calls into the zone this month. One is Cliff Traill, 3AIT, and the other Peter Thorne, 3ZDT. Congrats boys and hope we hear plenty of you on the bands. Cliff is already logging DX and Peter is building 2 mx tx gear. Had a letter the other day from a Dutch chap in Traralgon, Henry Zaal, who has become an associate member of the W.I.A. and an s.w.l., WIA-L3037. Very pleased to welcome you Henry and we will be pleased to see you at the general gatherings of the zone. A very pleasant evening was spent at Maffra on 22nd May when there were over 30 present. Keith Scott brought a television set back from Melbourne with him and gave a general talk on television which was of great interest to all. A very delightful supper was served by Mrs. Scott and the gathering broke up at 12 midnight.

It was very pleasing to see some of the chaps we should hear on the air at Keith's and to know they are still alive and kicking. Ron 3PR, Jack 3AJK, Ian 3AAV, Cliff 3AIT are the regular ones on 27 mx hook-ups. 3AEC was heard on during the month, he is in Bairnsdale. Jim 3DI and Ron 3ZD are still trying to work 2RS and 5BC, whose sigs have been heard by them on 2 mx. Stations active on 2 mx are Stan 3ZAB, Gordon 3TH, Jim 3DI, George 3ZCG, Reg 3ZCK and Peter 3ZDT. The 2 mx band is very active, more so than the lower frequencies. Ron 3PR has everything in hand for the State Convention to be held in Leongatha on 3rd and 4th November. Those who intend coming to the Convention should contact Ron Jardine, VK3PR, Blackmore Ave., Leongatha.

NORTH EASTERN ZONE

Doug 1IJ is now on 15 mx. Jack 3PF is on to a bit of 20 mx DX. Howard 3YV has his tx t.v.l. proofed already. Bruce 3QC has been away on a holiday. Jim 3JK is having a great time with that beam. Brian 3AMZ has been heard on 40 mx. Henry 3HP and his XYL are receiving congrats on the recent arrival of a daughter. Des 3EP was heard recently, testing very low powered equipment. Vern 3AXW is still reorganising his shack after moving it to the garage. Alan 3UI is, unfortunately, in hospital in Melbourne for a time and Keith 3JC is allowing only limited time to radio. Peter 3APF is mainly on the v.h.f. bands.

Johnny 3ACK is going on quietly with his hobby and Jack 3AKC is settling in to his new job in Shepparton. Syd 3CI is finding the cold weather hard to face in the shack. Des 3CO was busy organising for the Annual Convention held on 8th July last, in Seymour, when it is hoped that we will have met those associate members of whom we have nothing at the moment. Lastly, Frank 3ZU is doing an excellent job working the reply to the weekly broadcasts from SWI.

GEELONG AMATEUR RADIO CLUB

There was a good attendance at the annual meeting held recently and the following members were elected as officers for 1956-7: President, W. M. Zimmer, 3AWZ; Vice-Presidents, G. Woods, C. Hyatt, 3KH; Secretary, J. Barber, 3ABT; Treasurer, A. Forster, 3AJT.

The Ladies' Night held recently was a great success. Films and coloured slides were enjoyed by all. Jim Barber showed some interesting coloured slides of general interest and also a nice collection of coloured shots of the Warramboul Convention. Mr. V. McCarthy showed a series of 8 mm. films which particularly pleased the children. The men excelled themselves at the culinary art and a pleasant supper concluded a happy evening. Bill Wines visited the club and we had a rag-chew on the activities of the zone.

At a recent sale of disposals gear, the club received a handsome profit which will be used for purchasing equipment. A new syllabus has been arranged and it is hoped there will be a good attendance at the evenings set down.

QUEENSLAND

The June general meeting was like old times, there was an attendance which was like the old days and though they may have attended to hear the excellent lecture by Tibby 4HR on Television Interference Suppression, we hope that the attendance was a sign of things to come in the near future. Tibby's lecture was really first class and was recorded by Vince 4VJ and will be put over 4WI for the country boys to hear. Tibby illustrated his lecture with a tabletop rig he made for Doc 4MD, including all known forms of t.v.l. suppression. He stressed that the coming of t.v. will put a lot of "haywire" rigs off the air and that it is senseless to say "t.v. won't be in Brisbane for a year or more, let's worry about re-building our tx's then." We can't stress the point too strongly, start work now! If you are in the city your main means of suppression will be to have your rig completely shielded, your mains filtered and a low pass filter between your tx and antenna. If you are in the "fringe area" your job will be a great deal harder. You will have to get rid of all signals coming out of your rig on frequencies above 30 or 40 Mc. or stay off the air.

Phil Rand, WIDBM, at great expense to himself, published a book on T.v.l. Suppression and distributed it to Amateurs only without cost. Fortunately your Secretary had a QSO with him and a copy of the book is on its way out from U.S.A. and it will be at the disposal of the VK4 Division. Phil has given us permission to reprint anything at all from the book in "QTC" so we will arrange something to give you all the benefit of this handy publication. (Free copies were also available from P.E. and many Australian Amateurs received same.—Ed.)

You have all heard 4WI by now and its new operator, Bert 4AO. Bert's work is starting to pay off and he is really enthusiastic about the job of station manager. Bert is normally a c.w. operator, so please excuse him if he isn't fast at r.t. operating. Frank 4ZM is taking the 20 mx hook-up and Bert the 40 mx gang. On 40 mx your Secretary will be on hand each broadcast and that should give complete coverage to the Division. So if you have any questions to ask you will have the President on 20 mx and the Secretary on 40 mx.

We have kept all unfinancial members on the mailing list for "A.R." and the monthly bulletin "QTC", but Council decided to delete all unfinancial members from this copy of "A.R." When you send your sub. to the box, the magazine and "QTC" will be commenced again.

Getting back to the June general meeting, the number of familiar faces was very gratifying. Please try to keep the meetings well attended, after all it's only one night per month. Bert 4AO will be starting lectures from the July meeting. The subject is one which is vague in the minds of many members—A.C. Theory. We are trying to arrange to have a lecture each month and if the attendance is like the roll up at the June g.m. your councillors will be very pleased.

The V.h.f. Group is commencing regular hidden tx hunts on 2 mx and the first one will have been carried out by the time you read this. We still haven't received many of the Questionnaires filled in, so please hurry up with them, chaps, they're very important. A statement by Professor Webster on the International Geophysical Year was received and will be published in "A.R." Though the main observations will be in the v.h.f. portion of the spectrum, any unusual happenings on the h.f. bands will be of interest to the Investigators. You "beam" boys, if you notice signals coming over the South Polar path when they should be coming the other way, make a note of date, time, frequency and country you are working over the Pole and send it to Box 638J—Prof. Webster wants it!

Brisbane had a visit recently from Kev. Langsdorf, of Nobby 4OR, and he went out to see a few of the boys including Harry 4HX and Bert 4AO. If any of the country boys are visiting the "big smoke" let us know in advance so that something can be arranged.

TOWNSVILLE

Very sorry boys no notes appeared in the July "A.R." Unfortunately the day I generally put aside from other chores to write these notes, the old jalopy decided to play up; when using the crank handle, received a decent smack on the wrist—week off work, plus a couple of x-rays.

Quite a roll up at the May meeting, which took the form of a film evening and during interval a very tasty supper was provided. Many thanks to the few who really made it a success. It was decided to raise funds and more anon at a later date. From the grapevine reports two were successful in the recent exam and the more the merrier for the simple reason

It is hard to get a local ragchew and shift work does not allow many nights away from home.

Norm 4NT away on holidays fishing; no Amateur gear, and has promised to write a lengthy discourse on Cubical Quads for "A.R." Hope it rains so you can really get down to it!

What a pity the Authorities decided to give the Federal Capital Territory a VKI call sign. Pity to hear the DX fanatically calling and then finding out it is not a new country; better to have made it a VKU.

Visitors this month: John 4DK, up to see the N.Z.-Nth. Qld. football match in Townsville. Vern 4LK coming down to pick up the wife returning from a holiday in Rockhampton. Very little heard from the locals, Joe 4JH been away in Sydney for a break. Glad to say Eddie 4WH around once again, better have that operation. Ed. Myself 4RW, tried hard to work the DX Expedition KEAA and PSRT, but no luck in QRM.

SOUTH AUSTRALIA

The monthly meeting took the form of a film night with two features, one loaned by the Shell Co. on car racing, and the other from Reg 5RR on the canning industry, being a colour film showing all aspects of cans (not phones). Both were well accepted by all present who thanked those responsible. Smoko was taken at 9.20 p.m. when George 5RX, assisted by Joe 5JO, distributed QSL cards. That led to the usual repartee between the W receivers and the W non-receivers (like me), which is always a pleasant interlude at all Amateur gatherings.

The formal business proceeded under the control of President John 5KX and visitors were welcomed. By the way, visitors are always very welcome at these gatherings, so bring your interested friends along chaps, and particularly any interested fellow Amateur who may be visiting this State.

At the conclusion of formal business, Warwick 5PS gave us the details of the function, personnel, and working of the Advisory Committee, which was most enlightening; now we all know. Warwick concluded with details of an all-band r.f. choke, having one for inspection. That was most appreciated by the many interested in shunt feeding snags these days. Stout fellow, Warwick (I know I shouldn't have said that, but...), all the same, those real down to earth practical talks are really popular and do help a lot of us less informed members, particularly when coming from the mouths of experts!! (You'll get on—Editor).

Warwick went portable prior to Easter, up amongst the tall timbers at Oakbank and actually went on the air on 40 mx. Yes, I had a contact with him, and vice-versa. Ask me about it some day, for it was an example of communication decorum that was a lesson to all who may have been lucky enough to be reading our mail.

Sunday mornings after the 5WI session, the country boys really get a go on 40 mx these days (and some on 2 mx—Keith please note), and with conditions as they are at present, some excellent coverage is provided and good contacts made.

Don't forget to listen to the profound remarks of our ever-cheery "public relations officer" Norm, a character who appears to abound in strength and vigour, both in appearance and at the sound of his voice over the air. He put up a good one last week, that his cheery spirits were the result of having XYL interested in the hobby. Good idea, of course, but don't forget the dishes (hi, Warwick).

Errn 5EN puts a good signal down this way on most bands, singly of course, not all at once, and his latest 22 tube converter should be worth seeing and hearing. Must do that some day. Does it fit into the shack Errn? Or do you have a special annex for it? Rob 5RG has some nice converters working on the d.c. bands, very good signal to noise ratio on them all, too. Saw his s.s.s.b. gear recently, so get your technique brushed up for receiving it chaps. He may even reply to a.m. calls on it if asked! When are you going to fire it up Rob? A little bird told me John 5UL is likely to break out into s.s.b. soon, too.

Les 5AX had a spasm on something like that sounded like s.s.b. not long ago, but it wasn't planned, it just happened. How? Well, it's like this; one of his 866s, you know, Wally 5DF's friends, gave up the ghost and Les found he had sidebands but no carrier. I was listening to him at the time and thought he had swallowed his tongue. Anyway it was a new type of transmission that really confounded the experts, so for the want of a better name, we dubbed it a.s.b.n.c. (all side bands no carrier) which not being in his much-thumbed copy of the operator's handbook was abandoned in favour of A3.

Dave 5BF told of hearing IACA advising that the Canberra Club would be operating in

August from their Hobbies Exhibition. Answer their calls chaps, it's a great help to such functions and a big aid to promote interest in an exhibit like that if the contacts pile up. So do your share to help spread publicity of our hobby.

Bob 5RI busy re-building converters (better be careful here, this is v.h.f. stuff), all the same his other gear all working well and getting cleaned up ready for R.D. Contest. Bob is always a good contact. Lance 5XL has an atom-bomb-proof shack, dug into a hillside; complaints of the cold these days. Can't have it all ways. Lance, we are all a bit goose-pimply these days. Anyway, nice to hear you on. Keep it up. Notice recently that a lot of our boys are getting rather scientific and quote thermometer and barometer readings these days. Whg, soon they will be quoting input power to final or even radio active counts! Who will be the first to start that one?

The Woomeera boys at 5WC—now there is a gang for you—bob up regularly complete with rhombics, vee beams and verticals, with a 5 by 8 v.s. signal. But Ron and company, why always choose that time to apply a half round file to the mike base? If you want to file off the DD from the name-plate, do so when listening. George 5EC has had his XYL down with a plaster on an ankle, bad luck that, hope all will soon be well George.

News has been received that 5TG is the first in this State to gain a V. license, congrats OM. Best of luck to you in the new sphere, we will be looking for you. By the way, he had an interview with local publication who wrote him up well and he got front page publicity, pitcher and all, but what really upset me was that in the background of the block there was a W card displayed. Alas it's the only way I ever see such things.

Understand Joe 5JO has received confirmation of his W.A.C. Congrats Joe, D.X.C.C. coming up? Sorry no South East news this month, but we hope to be better organised next time and will make up the lee-way then. Your new scribe will appreciate a line or two from the outer (and inner) circle regarding your activities for compiling these notes. We want to keep them of general interest and representative of the whole Division. Rest assured your "mail" will be read for news but that won't cover the whole field due to variable skip from this QTH.

Gordon 5XU and formally Warwick 5FS (that stout type) and sometimes Doc 5MD did this job. They were amongst most of you. I'm further away and a great number of you don't know me yet, but you will!—SEF.

WESTERN AUSTRALIA

The June meeting of the Division, which was well attended, took the form of a visit to the Dept. of Civil Aviation at South Guildford, where members were welcomed by Mr. Harry Bush, of D.C.A., and spent a very enjoyable and instructive evening.

Country members, particularly, appreciate the good job Wally 6AG is doing as broadcast officer at 6WI on Sunday mornings. Transmitting simultaneously on 80 and 40 mx he presents the news in such a way that the more isolated members are kept well in touch with Divisional affairs and activities. Keep up the good work, Wally!

6MK is making a flying (air) visit to England this month. 6LG has set himself up with gear to listen on 144 Mc. and has been working some of the v.h.f. boys. I wonder what they talk about on 80 mx now? 6JG was heard recently using a temporary aerial, having once more lost his beam in a high wind. Says he is re-building it really strong this time! Others who suffered some aerial damage were 6FD and 6TH. The latter has a nice new rx and is active on all bands. Says he likes 15 mx and is now interested in cubical quads. 6TR is building a portable rig for 40 mx, also modifying his 2 mx converter.

6BE now firmly settled in his new QTH in the hills and is putting out f.b. S9 phone with a new EL34 (A.B.I.) modulator. 6KO has just completed a 20 mx shortened beam. 6JH has been heard on 40 mx phone and c.w. 6AG was recently heard calling CQ and testing at 0040 hours on 80 mx! 6BS still favours 15 mx DX, but also works 80 mx. 6LH just getting settled in new QTH, quite close to but 100 ft. above the previous one! 6DX was recently seen in Perth. 6WZ now settled in Albany and on the air again. 6TK is back from a visit East. Hope you had a good time, Terry. 6KJ is regularly heard on Sunday mornings. 6JR pops up occasionally on 80 and 40 mx. 6CN expects to be active soon, now a.c. mains have been installed. 6GU has been heard from his new QTH at Inglewood.

Local activity seems to be improving, your scribe having worked 53 VK6s on the i.f. bands

over the past 12 months, and many more are known to be active.

R.D. Contest, 11-15th August. Preparations are already under way in many shacks, and stations seldom heard on the i.f. bands, at other times, are appearing. Remember the date and have the gear ready. It looks as if this year's Contest will be a good one. I would not like to predict the result, for fear of discouraging the boys over East. Anyway, may the best Division win!

The 40 Metre Scramble has been fixed for 23rd September. This local contest was much enjoyed by all participants last year and is good fun. Don't miss out on it, VK6s.

A suggestion has been made that a monitoring group be formed to log commercial QRM on the Amateur bands and volunteers are asked for. Short wave listeners with suitable monitoring equipment can be in on this too.

Finally, don't forget to complete and post the Questionnaire and let your scribe have "copy" in good time to mail so it reaches H/Q by the eighth of the month.—6EJ.

PAPUA—NEW GUINEA

Alf 9AB has now left the Territory for ZL land and will be looking for QSOs from his old stamping ground. Another to leave us is Edwin 9VP who will be located in Canberra. The only gain that I know of is a new country added to VK9 on Nauru Island. This information comes from KV4AA, who is QSL manager for Danny on a world cruise and at present at VR1B. Incidentally, I've heard said that if you want a prompt QSL for one of his choice pasteboards, it will set you back one dollar which goes towards the financing of the DXpedition. Otherwise your card goes by the Bureau and Dick says may take up to two years before he gets them all away.

Harry 9HO is now returned from leave and at present located at L.c.e. He is re-building a nice outfit and should make his presence felt just as soon as he knows where his permanent posting will be. He found time to call in at the shack of 9RM recently, along with his XYL and harmonics, and all the usual interesting ground was duly covered. Les 9HI has now shifted QTH to a more suitable location for an antenna farm and intends putting up some fancy arrays. 9WI rig is progressing each week and we now need a modulation transformer to put out 250 watts of audio, if anyone can assist with a contribution. I have been informed that the Rabaul Radio Club is now in full swing with Bill 9BW in the chair and 9BS the first Secretary. We look forward to them joining the Sunday morning hook-ups with the rest of the gang. W.A.S. has now been earned by 9DB and 9RM and finished the race with a draw with both needing a couple of QSLs to clinch the deal, so it will be interesting to see who collects the first post-war W.A.S. award for VK9. While on the matter of awards, JA1AA, the J.A.R.L. Manager, informs me that the A.J.D. Award can now be obtained from W.I.A. with the necessary verifications instead of sending direct. Incidentally, I received one recently and they are quite an attractive piece of decoration, if anyone is thinking of chasing it.

By the time these notes go to press, will see your present interim sub-editor on his way south, complete with rig to be set up in VK5, so this is going to be my swan song. I have enjoyed very much my association with all the Amateurs in the Territory over the past 20 years, and it is with regret that I have to relinquish the close contact with you all, but look forward to meeting you all over the air at some later date. I can note a big increase of Amateurs over the years from the days of only half a dozen, when there was no Division here and no QSL Bureau, with every man for himself, so you will see things are really progressing in the fraternity.

I take this opportunity of wishing you all au revoir and a continued rate of progress within the Amateur ranks in the years to follow, and anything I have been able to do to further our aims has always been a pleasure—9RM.

CORRESPONDENCE

The opinions expressed in these letters are the individual opinions of the writer, and do not necessarily coincide with those of the publishers.

THE R.D. CONTEST

Editor "A.R.," Dear Sir,

I am against reducing operation time in this contest. The name would be incorrect. Would it be, say, "R $\frac{1}{2}$ Day Contest"? To combat some operating dissatisfaction expressed, may I suggest (1) Operation on 80, 40 and 20 mx bands

only; (2) Contacts to be either 100% c.w. or state contacts; (3) In the quiet early hours allow intra-state contacts on all bands—1 point per contact; hours to be fixed for each State, but Interstate contacts also permitted during the period; (4) Raise the points permissible for low eligibility. Having spent 13 years (out of 38 years since first licensed) in the country with no a.c. or d.c. power available, my suggestions would bring more country Amateurs into the Contest.

—ARCH J. HEWITT, VK5XK.

JOHN FLYNN MEMORIAL CHURCH

Editor "A.R.," Dear Sir,

Further to the references to the John Flynn Memorial Church contained in the June issue, I thought it might be of interest to bring to notice that in the "Memorial Wall" is a tablet mentioning the following names, in addition to those referred to in the article:—

D. G. Wyles, G. Towns, E. N. Gollan, H. Kinzbrunner, M. E. Anderson, and V. L. Kerr (the three lastnamed are VK4HK, VK3AMA and VK4LK, respectively), "whose counsel and technical skill enabled Flynn to realise his dream of effective communication in the outback."

It is established beyond doubt that the Traeger transceiver, as used extensively in "the centre," has materially assisted in the settlement of the more isolated parts of the country by making it possible for women and children to live on pastoral properties and still feel that they are not beyond aid should such ever become necessary.

—T. LAIDLER, VK5TL.

[Further information on this subject has come to hand and we hope to publish an article covering the early days of the Flying Doctor Service in a later issue. If you can supply any information on this subject please forward same to this journal.—Editor.]

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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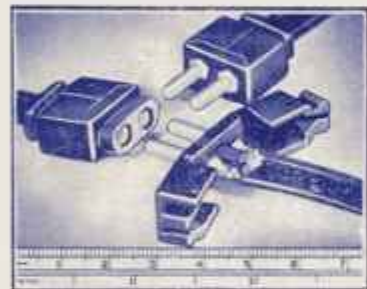
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These inexpensive plugs and sockets were designed for use with unscreened balanced twin feeder as employed in television and short wave installations. Accepts 80 or 150 ohm feeders.

L733/J—Free socket. This is similar to L733/P, but is fitted with socket inserts as in L677/J.

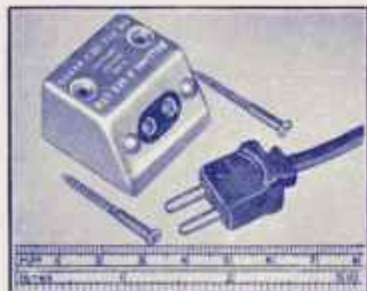


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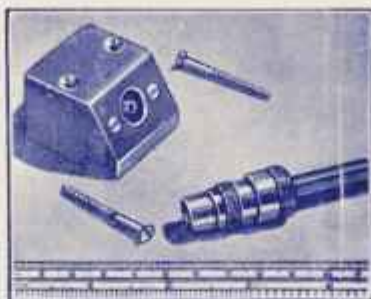
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L739—Outlet socket box, for 80 or 150 ohm feeder.
L701—For 300 ohm feeder.

A shirring board termination for unscreened balanced twin aerial feeder. L732/S forms the outlet socket which will take L733/P or L677/P.

Co-axial Outlet Sockets



L735—Outlet socket box.

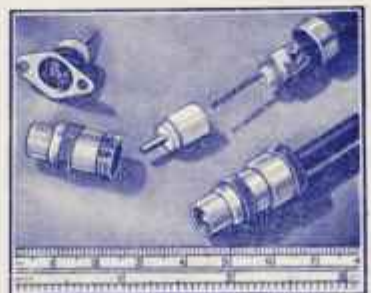
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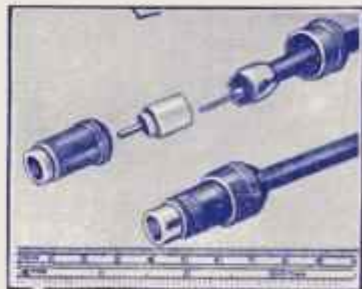
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L734/P and L1329—Standard free plugs.
L734/S—Fixed socket.

Co-axial Outlet Sockets



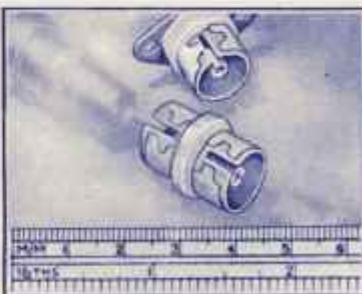
L781/P—Free plug, insulated.



L131/J/AT—Free socket.

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EDITORIAL



THE IMPORTANCE OF WE AND THE W.I.A.

The use of the personal pronoun "I" comes naturally to the selfish egotist, but never engenders the team spirit necessary for the progress of any organisation of the success of any project.

The W.I.A. is fortunate in having a preponderance of members who think in terms of WE. It is this selfless devotion to the cause of Amateur Radio and national need that has been responsible for the progress of the Institute and the high prestige its members enjoy in the community.

Where else could one find a body of people so diverse in political and sectarian outlook or educational

standard so closely wedded to their art, and so deeply concerned with the welfare of their fellowmen as the Amateur Fraternity?

The Remembrance Day Trophy perpetuates the memory of those unselfish Amateurs who gave their lives so that "WE" could continue to enjoy freedom.

Let us always remember the importance of WE—the members of the oldest Amateur body in the world—OUR W.I.A.—and eschew forever the selfish "I" which is characteristic of the Dictator and out of place in OUR democratic world.

FEDERAL EXECUTIVE.

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The G4ZU Three-Band Minibeam*

Details of a Compact New Array for 14, 21 and 28 Mc.

BY G. A. BIRD, G4ZU

THE G4ZU Three-Band Minibeam described in this article was designed with the object of providing a high gain directional aerial for 14, 21 and 28 Mc. A single feed line to the transmitter is used and no adjustment is required when changing bands. The performance on each band is equal in every way to that of a comparable single-band array.

In designing the Minibeam particular attention was directed to keeping the weight and physical size as small as possible to permit its use even in a very small back garden. The longest element is 24 ft. and the total weight of the beam in use at G4ZU is only 10 lb. It is therefore possible to use a cheap and simple supporting structure such as a 30 ft. scaffold pole.

The beam consists of three basic elements—a driven element, a director and a reflector. The elements are split at the centre so that on 28 Mc. the array becomes a five element beam. On 21 Mc. it operates as a three element array with an extended driven element giving somewhat greater gain than a conventional three element beam, and on 14 Mc. as a two element array with shortened elements, thus achieving a worthwhile reduction in size and weight.



Fig. 1.—Three methods of resonating beam elements to the same frequency.

The aerial is normally fed with 300 to 450 ohm balanced line, but a matching unit has been designed for converting to 75 ohm co-axial feed where this is preferred. The three-band matching unit is automatic in operation and does not require re-tuning when changing from band to band as would be necessary when using a normal type of aerial tuning unit. In practical operation the station transmitter or receiver can be switched to any of the three bands covered by the system with the assurance that a high gain directional aerial with a good front-to-back ratio will be instantly available. The advantages this offers for contest work cannot be over-estimated. Provision has been made in the matching unit for operating the aerial and feeder as a top loaded vertical on 3.5 Mc. when operation is required on this band.

DESIGN OF THE ELEMENTS

The method employed for obtaining three-band resonance is rather unusual and merits some detailed description. It is fundamentally a system of inductive loading with electronic switching by means of quarter-wave stubs. To illustrate the principles involved it is necessary to consider first of all the

The design of the aerial system described here has been protected by a British Patent Application (No. 33589/55) but this does not prevent individual Amateurs employing the system for their personal use. Sole rights to manufacture and sell aerials of this pattern have been granted to the Panda Radio Co. Ltd., to whom thanks are recorded for permission to publish this article.

design of the director. There are two ways of altering the resonant frequency of a parasitic element. One is to change its physical length, the other, less commonly employed but equally effective, is to insert inductance or capacity at the centre of the element (Fig. 1). Inductance will lower the resonant frequency. Capacity will make the resonant frequency higher.

In this particular application the director (Fig. 2) is 16 ft. long and is loaded with inductance at the centre to permit operation as a director on the 21 Mc. band. If this inductance were shorted out by some form of switch or relay we should be left with a plain element 16 ft. long, correct for operation on 28 Mc.

To obviate the need for mechanical switching advantage is taken of the rather unusual properties of a quarter-wave stub. If a piece of twin feeder is cut to be a quarter-wave resonant length at 29 Mc. and one end is left open, the other end will appear like an electrical short circuit at this frequency. At 21 Mc., however, it will no longer behave like a short circuit but will behave electrically like a small capacity. If this stub is connected across the 21 Mc. loading coil it will perform the switching function automatically. On 28 Mc. the loading inductor will be shortened out by the stub. On 21 Mc. the stub will merely appear like a small capacity across the loading coil. The condition for automatic two-band resonance has thus been satisfied as far as the director is concerned.

A somewhat similar approach is used for the reflector, the physical length of which is 23 ft. (Fig. 3). It is loaded with inductance for operation on 14 Mc., a quarter-wave stub automatically shorting out the inductor for 21 Mc. operation. The reflector also performs a useful function on 28 Mc. On this band

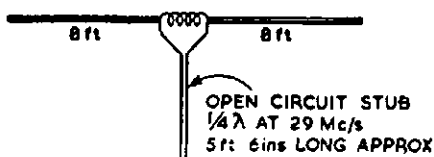


Fig. 2.—A two-band director for 21 and 28 Mc.

its behaviour is similar to that of two half-wave reflectors in phase. Due to the relatively wide spacing the tuning is quite broad and no critical adjustments are necessary. The reflector is spaced 7 ft. from the driven element and 12 ft. from the director.

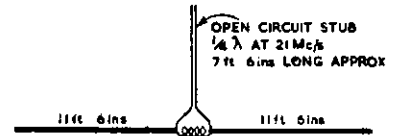


Fig. 3.—Three-band reflector for 14, 21 and 28 Mc.

Coming now to the driven element, it would have been quite possible to employ stubs and inductors in a similar manner to the parasitic elements, but it was felt that this would unnecessarily complicate the system. As will be seen later, the design finally decided upon provides several incidental advantages. It should perhaps be explained at this stage that although half-wave driven elements are normally employed in parasitic arrays, this is by no means essential and in certain cases there may be definite advantages from the point of view of gain and radiation resistance in using a length other than a half-wave. The length finally decided upon, 24 ft., was selected with three objects in view:—

- (1) To permit operation as a five element beam on 28 Mc., the driven element being effectively two half-waves in phase on this band.
- (2) To improve the band width and radiation resistance on 21 Mc.
- (3) To minimise reactance changes when switching from band to band.

The residual reactance changes are usefully employed in resonating the automatic matching unit described later.

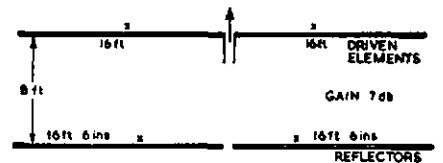


Fig. 4.—Four element beam for 28 Mc.

The design of the aerial as far as 28 Mc. is concerned was influenced to some extent by an article in the April, 1955, issue of "QST." In this article, W6AJF showed that a four element beam—Fig. 4—could be replaced by a three element array using a shortened driven element and a single director (Fig. 5). He claimed that this arrangement gave a higher front-to-back ratio and resulted in no loss of gain, although the saving in size and weight was considerable (forward gain 7 db.).

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

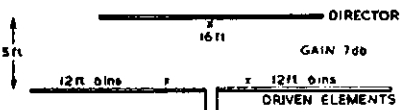


Fig. 5.—Three element array using a shortened driven element and a single director.

In the Minibeam an arrangement of this nature has been backed up by a reflector giving a further 2½ db. gain (Fig. 6). The beam on 28 Mc. is effectively a five element array and gives more gain and greater bandwidth than could be obtained with five elements in line. The bandwidth is probably sufficient to cover the American 27 Mc. band so that in the United States the array could be correctly described as a four-band beam.

FEEDING THE MINIBEAM

The matching unit is located at the lower end of the feeder. This means that all matching adjustments can be made at ground level with the beam in its final working position. This overcomes the difficulty commonly experienced with parasitic beams of a change in feed impedance as the aerial is raised to its final working height with a consequent increase in standing wave ratio. This can often entail serious loss with co-axial type feeder.

The feeder recommended for use with the Minibeam is 300 to 450 ohm open wire line. This value was selected because it gives the lowest average standing wave ratio over the three bands covered. Losses due to standing waves are extremely small with this type of feeder. It is not always appreciated how much power is lost with the normal type of co-axial cable. With low impedance feeder and a T- or Gamma-match, it is often found, due to changes of reactance, that the standing wave ratio may rise to 3.5:1 or more at the band edges even when the s.w.r. at the band centre has been reduced to a satisfactory figure. The writer is convinced that in many Amateur aeriels much of the power is lost before it ever reaches the radiator. With open wire feeder, however, reactive components can be largely ignored and may even be put to some useful purpose. This is what led to the idea of a matching unit which could resonate automatically on each band.

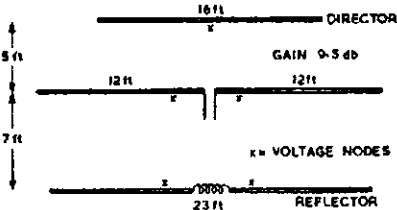


Fig. 6.—The Minibeam for 14, 21 and 28 Mc.

The impedance, as seen at the bottom of the feeder on 21 Mc., is arranged to be largely resistive. A series tuned circuit approximately resonant at 21 Mc. is connected across the end of the feeder. If the driven element and feeder length are suitably chosen an inductive component will appear at the lower end of the feeder on 14 Mc. Providing the L/C ratio is correctly chosen this inductive component appearing in series with the tuned circuit will automati-

cally de-tune it to a lower frequency, i.e., 14 Mc.

On 28 Mc. an opposite effect occurs. On this band a capacitive reactance appears at the bottom of the feeder automatically shifting the tuned circuit to a higher frequency, i.e. 28 Mc. It will be apparent that if the series tuned circuit is coupled to the transmitter with a co-axial link, it is possible to have an aerial tuning unit which will resonate automatically on three bands without adjustment. To make up any random variations that may occur in practice a trimmer condenser can be provided on the tuning unit, but with the model constructed by the writer, this condenser, once set, requires no further adjustment when changing from band to band.

With a two-turn coupling link correct transmitter loading was obtained on 21 and 28 Mc., but on 14 Mc. coupling was found to be slightly less than optimum. To correct this, the reactance of the link at 14 Mc. was tuned out by a series condenser of approximately 120 pF. This provided tighter coupling on this band without affecting the other two bands to any marked extent.

The automatic matching unit (Fig. 7) is not, of course, an essential part of the beam. The 450 ohm balanced line can, if desired, be connected directly to any aerial tuning unit of normal pattern. With an ordinary parallel tuned circuit it is probable that all three bands could be covered with a single coil providing the tuning condenser has a sufficiently large maximum capacity.

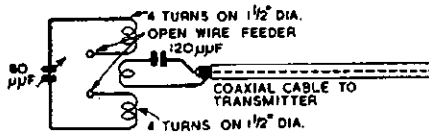


Fig. 7.—The Minibeam automatic aerial matching unit.

For correct operation with the automatic matching unit the feeder should be cut to a length of between 38 and 40 ft. If a normal type of aerial tuning unit is used, the system can be operated with almost any length of feeder, but in order to maintain a resistive termination on all three bands, a feeder about 56 ft. long is recommended.

If the two feeder legs are strapped together the aerial will operate quite efficiently as a top loaded vertical on 3.5 Mc. A switch is provided on the Minibeam matching unit for selecting this condition when 3.5 Mc. operation is desired.

The circulating currents in the matching unit are relatively low, with the result that power loss is negligible, and quite small coils can be used without fear of over heating. The circuit tunes most sharply on 14 Mc., and once it has been resonated on this band by means of the trimmer condenser the bandwidth on 21 and 28 Mc. will generally be found adequate to accommodate these two bands without further adjustment.

COMPARISON WITH FULL-SIZED ARRAYS

On 21 Mc. the array is a normal three element Yagi except that the radiation resistance and gain are somewhat higher

than normal due to the extended driven element. On 14 Mc. the gain is about 1 db. less than a full-sized beam due to the use of shortened elements. It was decided not to make the director resonant on this band as it would have resulted in too great a loss of bandwidth and radiation resistance. It does, however, help to improve the front-to-back ratio and lower the angle of radiation by a small amount. A number of checks against full-sized three element beams on 14 Mc. have resulted in surprisingly favourable comparisons on the score of signal strength.

The writer would like to express his appreciation of the help given by Mr. A. Woolvern (G3HLS) and many other Amateurs in checking the performance of the system on 14 Mc. Matched against the three element wide-spaced beam at G3HLS, which weighs about 700 lb., it was found that the Minibeam could put a signal into Australia, New Zealand and the United States which was in most cases of identical strength and rarely more than one "S" point down.

On 21 Mc. numerous checks were conducted with the help of G2CDI, G5SD, G3GKF, G2CCD and G3HCU, to mention only a few of the many willing helpers. The array seems to be capable of holding its own with all comers on this band and the same applies to 28 Mc. During poor conditions on the latter band the signal from the Minibeam is often reported as the only one getting through the noise in Australia and New Zealand. With 28 Mc. wide open, the large number of replies to a CQ call can sometimes become rather embarrassing.

On the score of front-to-back ratio, measurements made on site were checked against on-the-air reports. G2MI at a distance of about five miles provided the following reports:—

Band	Front of Beam	Back of Beam
14 Mc.	S9 + 60 db.	S3
21 Mc.	S9 + 60 db.	S6
28 Mc.	S9	S3+

† Listening on 21 Mc. aerial.

Checking simultaneously with G2CDI, 60 miles to the west, and G5SD, 10 miles to the east, provided these results:—

Band	Station	Front of Beam	Back of Beam
21 Mc.	G2CDI	S9 + 40 db.	S4
	G5SD	S9 + 10 db.	S3
28 Mc.	G2CDI	S9 + 20 db.	S3
	G5SD	S9 + 10 db.	S4

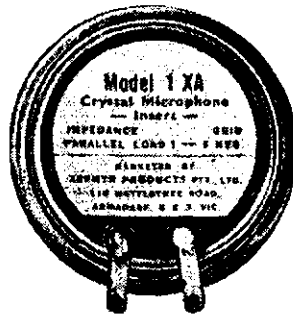
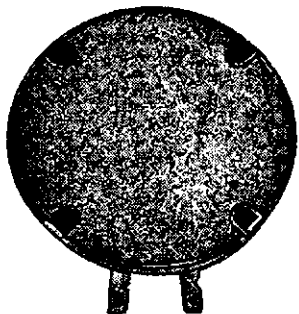
The front-to-back ratios obtained in this way are noticeably greater than measurements made on side, but serve to indicate that the discrimination is more than adequate for all normal purposes.

The principle of stub switching can, of course, be applied to other types of array and the writer is experimenting at the moment with a compact two-band beam, a two-band ground plane, and a three-band beam where loading coils can be eliminated. It is felt, however, that the arrangement described herein is likely to be generally most attractive, and it is hoped that many Amateurs who have so far been deterred from erecting a beam, due to lack of space, may be encouraged to try the system. Its use should enable them to compete successfully on the crowded DX bands of today.

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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.
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PULSE THEORY

PART ONE

A PULSE is any non-sinusoidal waveform. It can be shown that if an infinite series of sine waves is added, the resultant of this superimposition is a square pulse. See Fig. 1a. If only the higher harmonics are present the resultant is a peaked wave. (Fig. 1b). If only the lower harmonics are present, the resultant is more curvilinear and is said to be sinusoidal (Fig. 1c).

DEFINITIONS

Pulse Repetition Frequency (P.R.F.) is the number of pulses per second.

Pulse Duration (P.D.) is the time interval between the commencement of pulse rise and the end of pulse decay.

Pulse Recurrence Interval (P.R.I.) is the time interval between commencement of rise of the preceding pulse and commencement of rise of the following pulse. (See Fig. 1d).

These last two quantities are measured in micro-seconds.

Relationships:

$$P.R.I. = \frac{1}{P.R.F.}$$

$$\text{therefore } P.R.F. = \frac{1}{P.R.I.}$$

Power Measurement for Pulse Peak Power = EI, where E is the average voltage during the pulse, and I is the average current during the pulse (see Fig. 1e).

Average Power. Peak power averaged over the pulse recurrence interval (Fig. 1f).

$$\frac{\text{Average Power}}{\text{Peak Power}} = \frac{\text{Pulse Duration}}{\text{Pulse R.I.}}$$

$$\text{Duty Cycle} = \frac{\text{Average Power}}{\text{Peak Power}}$$

by definition,

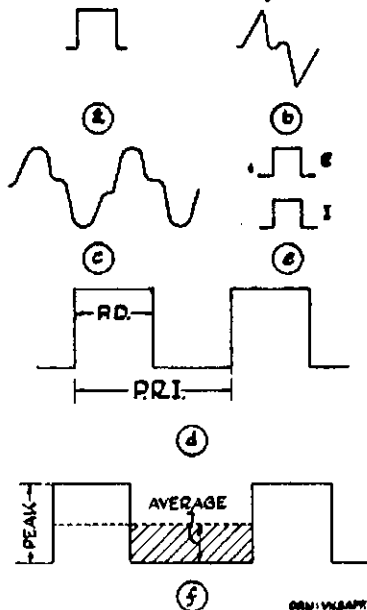


Fig. 1.

During the last war pulse application received considerable impetus, mainly due to radar and allied techniques. Now that we have been granted experimental television licences, knowledge of pulse theory and its applications will be of use to the Amateur.

In addition, high fidelity amplifier enthusiasts know that square wave testing of audio amplifiers is considered a very accurate check on performance and this should interest them, too.

hence

$$\text{Duty Cycle} = \frac{P.D.}{P.R.I.}$$

$$= P.D. \times P.R.F.$$

EFFECT OF AN R/C NETWORK ON THE SQUARE PULSE

It is well known that if a sine wave is passed through an R/C or an L/R network, the pattern remains unchanged—if we put a sine wave in, we get a sine wave out.

The condenser, or inductor, whichever it may be, follows the a.c. swing of the voltage, due to the regular rate of change of the voltage, and the comparatively long time interval for each cycle of the oscillation.

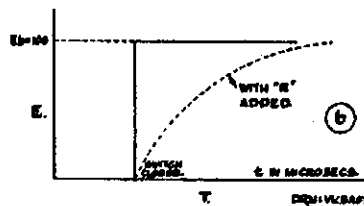
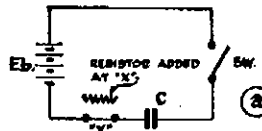


Fig. 2.

However, if a square pulse is applied to such a network the output is not usually a square pulse. The reason is that the rate of change of voltage at the beginning and end of the square pulse is very great (theoretically, it is infinite) and the C/R or L/R network having a finite time constant cannot follow the voltage rise and fall.

Refer first to Fig. 2a. This circuit shows a battery in series with a condenser and a switch. Let Eb = battery voltage = 100 volts. If we close the switch, the condenser charges instantaneously to 100v.; the potential-time graph (Fig. 2b) illustrates this fact.

Refer now to Fig. 2a. A resistor is now added to the circuit. When the switch is closed, the current is limited

BY I. F. BERWICK,* VK3ALZ

initially by the value of the resistance in circuit. Thus condenser charging is not instantaneous.

The graph (Fig. 2b) of E against T is therefore an exponential curve or is said to have first order curvature. This exponential curve has the property that no matter how great we make T, E will always be able to rise to a slightly higher value if a further time interval is taken. That is, the condenser never fully charges to Eb (= 100 volts) no matter how long we wait.

In practice therefore the condenser is said to be fully charged after time T = 5 CR microseconds.

In Fig. 3a we have in circuit a fully charged condenser and a switch which initially is open. On closing the switch the condenser discharges instantaneously. Fig. 3b shows the graph of E against T, the dotted line shows the same circuit with the addition of resistance R.

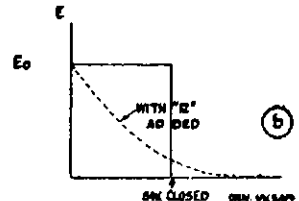
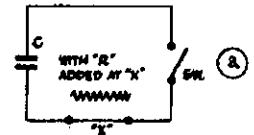


Fig. 3.

On closing the switch the rate of condenser discharge is again an exponential curve, but of negative gradient (or slope) and from this we see that E never falls to zero no matter how long we wait, i.e. the condenser is never completely discharged. However, in practice again we say that the condenser is discharged after time = 5 CR microseconds.

We are now able to see what will happen when a square pulse is applied to a C/R network. Fig. 4a shows a circuit of large C/R, i.e. of long time constant, to which a square pulse is applied.

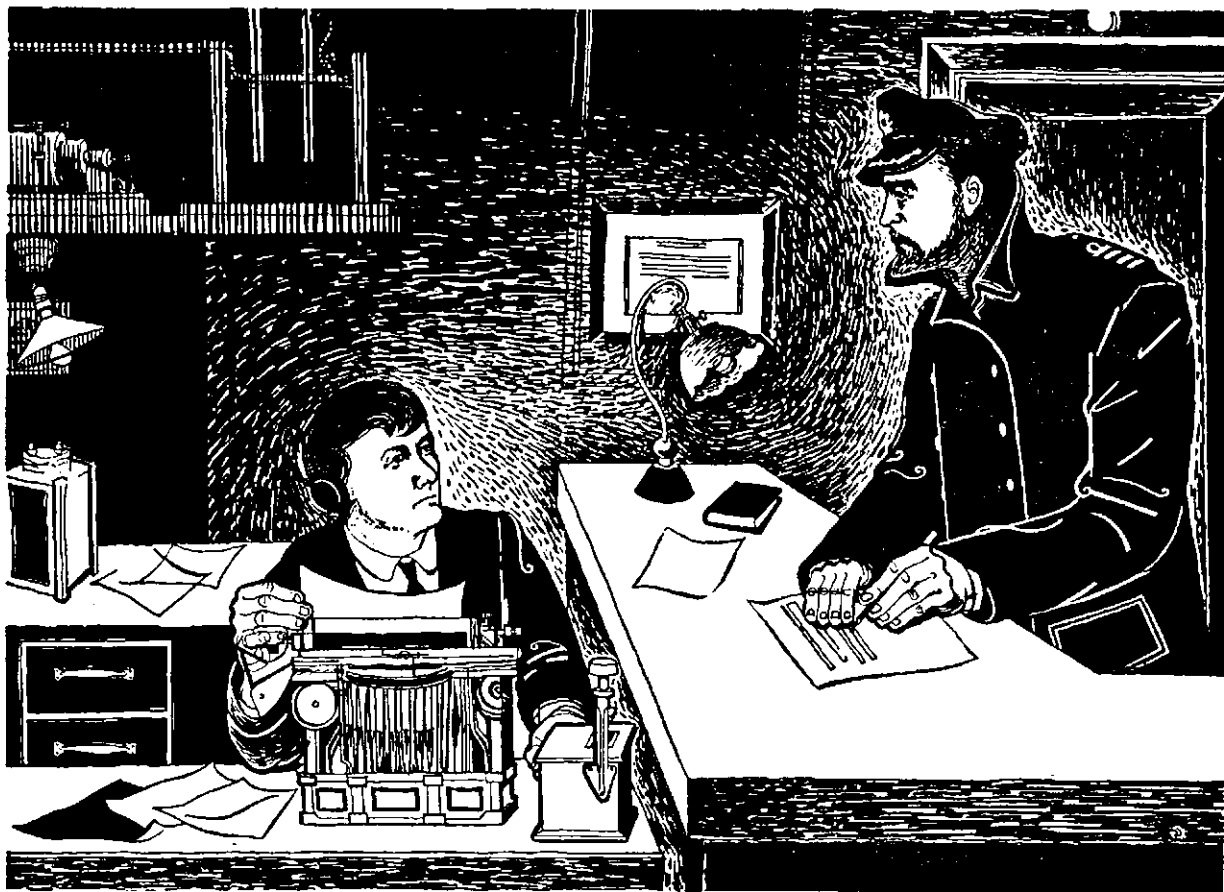
Figs. 4b, 4c, and 4d show the graphs of Eb (applied voltage), Ec (condenser voltage), Er (resistor voltage) against time.

Consider Ec first. Initially Ec is zero—as the pulse begins the condenser starts to charge, therefore Ec rises exponentially. Due to the long time constant, Ec only rises to a small percentage of Eb before the pulse ends. We take a figure of 10v.

When the pulse ends, C discharges exponentially through R, again with a long time constant. Hence the curve for Ec comprises two separate exponential curves—one with positive gradient leading and one with negative gradient following.

(Continued on Page 7)

* Lot 35, Loongana Avenue, Glenroy.



Danger in the Deep . . .

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The suggestion was made in the wireless room of a ship everyone believed was un-sinkable.

A radio officer looked up and laughed.

The time was 12.45 a.m., the date, April 15, 1912, and the sinking “Titanic” sent out the first SOS in history.

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Rust is costing Australia more than £3 every second of the day.

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**Shell Ensis Oils.*



BY A. K. HEAD,* VK3AKZ

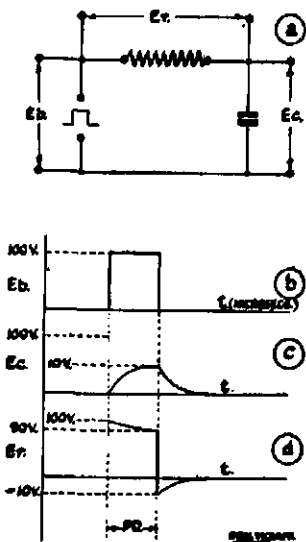


Fig. 4.

Next consider E_r . Initially E_r is zero—but as soon as the pulse arrives E_r immediately rises to E_b as the condenser has not had time to charge at all. As E_c rises due to charging up of C , E_r falls in an exponential manner until the pulse ends. At this stage $E_r = E_b - E_c = 100 - 10 = 90$ volts. However, as soon as E_b falls to zero, E_r also drops by 100 volts and is now -10 v. Thus E_r starts to rise exponentially towards zero volts as E_c falls exponentially to zero volts.

It should be borne in mind at this stage that the foregoing deals with a C/R network of long time constant, and the voltage patterns obtained apply only to this type of network.

NETWORK WITH SMALL C/R

In Fig. 5c and 5d we see the graph of E_c and E_r respectively.

Let us consider E_c first. As the pulse starts C charges exponentially towards E_b , however as C/R is small, this occurs quite quickly and for the rest of the pulse duration $E_c = E_b$. Now the pulse ends and E_c discharges exponentially to

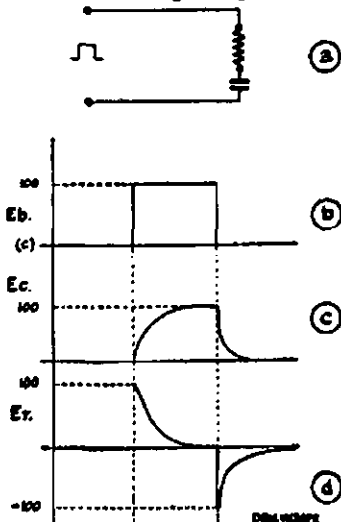


Fig. 5.

THIS is the oft told tale of how a new r.f. tube can rejuvenate an old receiver. The receiver in question is a Marconi CR-100, a classical communications receiver covering 60 Kc. to 30 Mc. in six bands, two r.f. stages, 455 Kc. i.f., crystal filter, variable selectivity and so on. A pleasant receiver to use, but the noise generated by those 6K7 r.f. tubes on 21 and 28 Mc. was overpowering. When 10 metres was open it was possible to hear exactly three stations, all locals who would be S9 on a crystal set.

Of course the remedy was obvious, a change to low noise r.f. tubes. This meant miniature sockets, which meant taking hammer and chisel to the octal sockets. But on a number of occasions, when about to strike the first blow, the upraised hand was frozen at the thought of the new high gain tube bursting into oscillation, which would probably only be controlled by a complete re-wiring of the r.f. end.

This was sufficient excuse to defer any action for many moons. Finally, I came back to the old idea of having a trial run by using an adaptor consisting of a miniature socket mounted on an octal base. I had been rather cold on this idea at the thought of leads criss-crossing inside the adaptor in order to get the right connections. However, when I got round to examining the connections, it was a pleasant surprise. Apparently the person who decided on what pins should be what in the miniature tubes, was also thinking about adaptors. Take a look at the following table where the octal list is for 6K7, 6J7, 6U7, etc., and the miniature for 6BA6, 6AU6, 6AK5, 6AG5, etc. (but beware the Z77).

If the octal socket has heater pin 2 active and pin 7 earth, then the table

* 3 Annadale Street, Kew, Vic.

zero, quite quickly due to small C/R, the E_c curve is more regular in shape than is the case for a large C/R.

Now consider E_r . As the pulse starts E_r rises instantly to E_b and then falls exponentially quite quickly to zero as soon as the condenser charges up; for the rest of the pulse duration E_r is zero. When the pulse ends the E_r falls by 100v. (= E_b) and is now -100 v. Once again therefore E_r charges up with a short time constant to zero volts.

As can be seen from the graph (Fig. 5d) E_r is a peaked wave and bears no resemblance whatever to the square pulse, this means that circuits with short time constants play havoc with square pulses and in practical circuits for pulse amplifiers must be avoided if a reasonable pulse shape is to be retained.

The pulse developed across a condenser is known as an **integrated** wave, while the pulse developed across a resistor is known as a **differentiated** wave.

If the integrated and differentiated waves are added graphically, the resultant obtained is the input pulse (adding Figs. 5c and 5d would give us Fig. 5b).

Octal	Miniature
1 Shield	3 Heater
2 Heater	4 Heater
3 Plate	5 Plate
4 Screen	6 Screen
5 Suppressor	7 Suppressor or Cathode
6 Blank	Blank
7 Heater	1 Grid
8 Cathode	2 Cathode or Suppressor

shows that all connections in the adaptor are direct. The connection to the grid of the miniature socket depends on whether the grid lead is wanted above or below the chassis. If below, then pin 6 of the octal socket is available. In my case, it was more convenient above, so a grid cap was soldered to a stiff wire which poked up from the adaptor.

The only traps in making an adaptor appear to be to forget to earth the central sprigot and shield of the miniature socket or to break up a tube to get an octal base and then find it hasn't got all the pins needed (in particular, pin 6 is often missing).

The next question was what tube to use? Good reading on this is the article by W0SYF in May '55 "A.R.," its sequel in June '55 "QST" and the correspondence in the same "QST." Of the tubes on hand a 6AG5 seemed the most suitable so it was tried as the first r.f. tube. With a certain amount of morbid satisfaction it was found to take off when the receiver was tuned to 21 Mc. In fact it was almost a disappointment to find that all that was needed was better screen and cathode by-passes. The original ones were 0.1 uF. paper condensers about 2 inches away from the socket, and when 0.001 uF. micas were added right at the socket it became perfectly stable. And it was now a different receiver. The bands suddenly became populated, the antenna trimmer could be peaked on noise and there was an increase in noise when the antenna was connected.

Next was the question whether a.v.c. and/or manual gain control should be applied to the 6AG5. It was decided to use neither, but let it run flat out at all times, for being a sharp cut off tube it does not take kindly to any form of gain control. The second r.f. tube has been left as a 6K7 as there is no advantage in using another low noise tube here and its good a.v.c. action is needed to protect the mixer on strong signals. Very strong signals can be handled by detuning the antenna trimmer and no snags in running the 6AG5 flat out have yet come to light.

Since everything appears to be satisfactory, I suppose I should take hammer and chisel and instal the 6AG5 permanently. What did I say, everything working satisfactorily? Then why not just let it be? Ho-hum!

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VK-ZL DX CONTEST, 1956

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, 6th October, to 1000 G.M.T. Sunday, 7th October.

C.W.: 24 hours from 1000 G.M.T. Saturday, 13th October, to 1000 G.M.T. Sunday, 14th October.

Duration for all contestants is 24 hours.

RULES

1. There shall be three main sections to the Contest—

(a) Transmitting C.W.

(b) Transmitting Phone.

(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. sections 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. **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.

8. **Scoring: For VK and ZL Stations ONLY**—15 points will be scored for the first contact on a specific band with any overseas country, 14 points will be scored for the second contact on the same band with the same country, 13 points for the third, and so on to the fifteenth contact which will score 1 point. All contacts with that particular country on that band will thereafter count 1 point each. This scoring procedure will be repeated on each band to encourage multiband operation. There will be no VK-ZL contacts between each other. Official A.R.R.L. countries list will be used.

Note.—Points will not be entered in the log for each contact; totals for each

country will be shown in the summary. Each call area in the U.S.A. will be a "Country" for scoring purposes.

For **OVERSEAS STATIONS** only. One point will be scored for each contact on a specific band with any VK-ZL district. The final score will be derived by multiplying the total contacts on all bands by the total number of VK-ZL districts worked on all bands. VK-ZL districts are ZL1, 2, 3, 4; VK1, 2, 3, 4, 5, 6, 7, 9.

9. Logs—

(a) Logs must show in this order: Date, time in G.M.T., band of operation, call of station worked, serial number sent, serial number received.

(b) A separate log must be submitted for each band. For each band an analysis sheet must be given showing: List of countries worked with numbers of contacts for each country and points claimed for each country worked for that band.

(c) A summary sheet to show—

1. Station call sign.

2. Name and address of the operator.

3. Phone or c.w.

4. List of points claimed for each band.

5. Grand total of points.

6. Brief description of gear used, power, etc., etc.

(d) A declaration that all Contest rules and regulations for Amateur Radio in your country have been observed, and that the log is correct and true to the best of your belief.

10. 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.

11. The ruling of the Executive Council N.Z.A.R.T. will be final. No dispute will be entered into.

12. Awards—

(a) N.Z.A.R.T. will award certificates to the top scorer on each band, and the top scorer in each VK and ZL district. Other awards will be announced independently by W.I.A. and N.Z.A.R.T. Additional certificates will be awarded depending on the number of logs received.

(b) **Overseas Stations:** Certificates to the highest scorer in each country (each call area in the U.S.A.). Additional certificates will be awarded depending on the number of logs received, e.g. certificates may be awarded to the high scorers on different bands and to place winners other than first or second.

13. **Entries from VK and ZL stations should be posted to N.Z.A.R.T. Contest Manager, 86 Lytton Road, Gisborne, N.Z., to arrive not later than 31st December, 1956, while overseas logs should reach N.Z.A.R.T., Box 489, Wellington, by 24th January, 1957.**

RECEIVING SECTION

1. The rules of the receiving section 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. Logs will take the same form as for the transmitting section.

3. To count for points, the call sign of the station being called, the strength and tone of the calling station, together with the serial numbers sent by the calling station must be entered in the log. Scoring will be on the same basis as for transmitting stations.

4. It is not sufficient to log a CQ.

5. VK receiving stations may log overseas and ZL stations, while ZL receiving stations may log overseas and VK stations.

6. Certificates will be awarded to the highest scorers in each country on the same basis as for transmitting stations.

R.S.G.B. Telephony Contest

The first-ever R.S.G.B. Contest exclusively for telephony operation and open to stations throughout the world is to be held on November 24-25, 1956. Its aim is to encourage stations to operate on the 21 and 28 Mc. bands during the years of high sunspot activity. Contacts between any station in the British Isles with any station in the rest of the world (including Europe) will count for points—the first time, incidentally, that any R.S.G.B. Contest on these lines has been arranged.

Full details and rules will appear in a later issue of this journal.

TELEVISION STATION OPERATOR'S CERTIFICATE

The Australian Broadcasting Control Board has notified the following candidates that they were successful at the examination held on 12th June, 1956, for the Television Operator's Certificate of Proficiency—

Melbourne: Ian George Holmes, John Isaac Young; **Sydney:** Frederick John Appleton, Arthur John Brown, John Terry Christopher, Alan Laurence Ellis, Kevin Arthur Long, Stanley Wainwright Owen; **Perth:** David Couch.

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 the Royal Melbourne Technical College.

Examinations are conducted twice yearly, on the second Tuesday of June and December. Applicants who have passed any section 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 11th December, 1956. Applications for the December examination must be lodged with the Secretary of the Board, 497 Collins Street, Melbourne, by the 15th November, 1956.

TELEVISION RECEIVERS

In order that members will have a clear understanding of the circumstances surrounding the consternation in regard to Television Receivers, Federal Executive briefly relates action taken in this matter.

On being advised that certain Television Receivers were employing Intermediate Frequencies in the 21 Mc. band, a letter was directed to the manufacturer requesting his observations on the matter. At the same time, an air-mail letter was despatched to the A.R.R.L. Headquarters posing a number of questions as to what happened in U.S.A. in regard to this particular frequency.

In Federal Parliament, questions concerning Television Intermediate Frequencies were being asked and the Postmaster-General promised consideration.

As it was now most important to have all information available, Federal Executive requested Divisions to supply urgently the I.F. of Television Receivers being manufactured in their State and the rapidity with which answers came to hand was most gratifying.

The next necessity was to clarify the position of Amateurs operating on 21 Mc. should they cause interference. With this in mind, Executive wrote to the Amateur Administration requesting a Departmental ruling. It was pointed out that certain sets which did not follow the recommendations of the Australian Broadcasting Control Board used 21-27 Mc. band Intermediate Frequencies and should interference be caused it need not be due to negligence on the part of Amateur operators.

To glean yet further information to place before the authorities, on the 7th July, Executive wrote to Mr. Phillip Rand, well known in America for his work on Television Interference. Again a series of questions were asked.

Due to the activities of Amateurs discussing the problem, some public concern was evinced and this prompted a Melbourne weekly with circulation in Sydney to make inquiries. In the course of so doing, this newspaper contacted Federal Executive. It was now felt that a public statement of an official nature indicating the viewpoint of the Wireless Institute was necessary. This was devised and released to newspapers in Melbourne.

Now coming to hand were the replies to overseas letters. These indicated, to quote A.R.R.L.:—

(a) "Nearly all the TV receivers produced in U.S. today have an Intermediate Frequency in the 41 Mc. region in accordance with recommendations of the F.C.C."

(b) Referring to the 21 Mc. band and interference—

"The old 21 Mc. Intermediate Frequency was chosen by manufacturing engineers some years before Amateurs obtained a 15 metre band. Even then, however, there was interference to TV reception from shortwave broadcast stations thousands of miles away operating in the 21.7 Mc. region." Referring to tests carried out by the A.R.R.L., "These tests proved conclusively that an Amateur Station near a TV Receiver

with 21 Mc. Intermediate Frequency created real problems of interference."

Mr. Rand's letter supplemented this. In regard to 21 Mc. interference he stated:

"This TVI extended out to a radius of about three miles from an Amateur Station using 500 watts."

He also shed light on the 27 Mc. Video Frequency saying, "TV Receivers having a Video I.F. in the range 27 Mc. receive severe interference from medical diathermy and industrial heating units in addition to Amateurs in the 11 metre band."

He added, "Interference on 21 Mc. comes not only from Amateurs, but also from high power s.w. broadcast stations in Europe in the 21 Mc. range."

Mr. Rand also pointed out the effect of the h.f. oscillator of 21-27 Mc. sets caused TVI to neighbouring sets as far as the U.S. TV channels were concerned.

Relevant sections of the A.R.R.L. letter were brought to the notice of the authorities and the point of Amateur interference was again pressed.

On Thursday, 19th July, the Postmaster-General, Mr. Davidson, made an important announcement to the public concerning the Intermediate Frequencies recommended by the Australian Broadcasting Control Board and indicated that interference could result if these were not used. This, however, did not clarify the position of Amateur operators.

The Postmaster-General said that with the commencement recently of experimental transmissions by Commercial Television Stations in Sydney and Melbourne he anticipated that an impetus would be given to the purchase of Television Receivers. Accordingly intending purchasers should realise that they were securing a relatively costly and complex unit of equipment and they should

therefore take every possible precaution to ensure that their installations would provide an efficient and trouble-free service.

Mr. Davidson suggested that the public, when making their purchases, might bear in mind the technical standards which has been recommended by the Australian Broadcasting Control Board for adoption by receiver manufacturers. These standards had been formulated in consultation and agreement with representatives of receiver manufacturers at conferences arranged through the Associated Chambers of Manufacturers, for the purpose of ensuring that receivers would be designed to best meet the requirements of the Australian Television Service. Representations had, however, been made to him by a number of responsible bodies to the effect that some of the receivers now being offered for sale to the public did not comply with the standards recommended to manufacturers, and Mr. Davidson said that he felt it necessary to emphasise that prospective purchasers should, in the first place, make certain that the receivers in which they were interested used intermediate frequencies of 30.5 megacycles per second for the sound carrier and 26 megacycles per second for the vision carrier, which are the frequencies laid down in the Board's standards agreed to by the manufacturers. Unless this standard was adhered to, there was every reason to believe that serious interference to reception would result. Although a somewhat complex technical matter, he was sure that retailers would do all they could to provide purchasers with full information so far as sets being sold by them were concerned.

It was also essential, said Mr. Davidson, that all receivers should be capable of being tuned to all the ten channels which had been allocated for Television Stations in the Commonwealth. This was particularly important because, although only three channels were to be used immediately, additional ones would

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be brought into use later and, at that stage, the public could be involved in some expense in the modification of those sets which did not incorporate facilities for tuning to all the channels.

Mr. Davidson concluded by saying that although the Australian Broadcasting Control Board, as the appropriate instrumentality of the Government, has statutory powers with respect to many matters concerning television, it has no authority to prohibit the sale of receivers which do not comply with the standards which have been promulgated. The Broadcasting and Television Act recently passed by Parliament did, however, provide for the making of regulations with respect to interference and although it was desired to avoid the making of regulations if at all possible, because of the wide implications involved, such a course might ultimately be forced on the Government.

A fortnight later, on Thursday, 2nd August, Mr. Davidson made a further announcement.

The majority of Australian manufacturers of Television Sets have given assurances that sets being made by them fully comply with the technical standards recommended by the Australian Broadcasting Control Board and agreed to by representatives of the manufacturers, the Postmaster-General said.

Mr. Davidson said he had received these assurances following his recent warning that intending purchasers of Television Sets should take every precaution to ensure that receivers in which they were interested met with Control Board standards.

Nevertheless, the Minister said, he was informed that certain receivers were still being sold which employed intermediate frequencies, differing from those recommended by the Board.

The Board's recommended intermediate frequencies were 30.5 megacycles per second for sound carriers and 36 megacycles per second for the vision carrier.

"I want to repeat that receivers employing intermediate frequencies, other than those recommended, could be subject to objectionable and serious interference which could be difficult to eliminate," Mr. Davidson said.

The Minister said that because of the non-standard frequencies being used in some receivers, interference could be caused by the transmission of Amateur Radio Stations operating in their authorised bands. There were some 3,000 of these stations in the Commonwealth.

"Licensees of Amateur Stations were normally obliged to ensure that their transmission did not cause interference to other services, but they could not be held responsible for interference to Television Receivers which did not comply with standards recommended by the Board.

"The Wireless Institute of Australia has already been informed accordingly and an assurance given that no restriction would be placed on the present activities of Amateur Radio Stations in such circumstances," added the Minister.

"I emphasise that intending purchasers of Television Receivers should seek assurances from retailers that the receiver they intend to buy complies with the recommended standards of the Board," Mr. Davidson said.

In furtherance to this, Executive received from the Amateur Administration, a reply setting out the attitude of the Department and herewith is an excerpt of relevant portions.

"As you are, of course, aware, present practice provides that, where Amateur Station transmissions in any authorised band cause interference to medium frequency broadcast reception the Amateur Station licensee concerned is obliged to accept responsibility for clearing the interference and to desist from transmitting until such time as it is cleared to the satisfaction of the complainant.

"It is proposed to apply similar principles generally in regard to interference caused to Television reception.

"Where it is established, however, that the interference experienced by the Television Receiver arises from its employment of intermediate frequency amplifier channels utilising frequencies within bands authorised for use by Amateur Stations the Department will not require Amateur Station licensees to accept responsibility to clear the interference or to restrict their legitimate transmitting activities in any way."

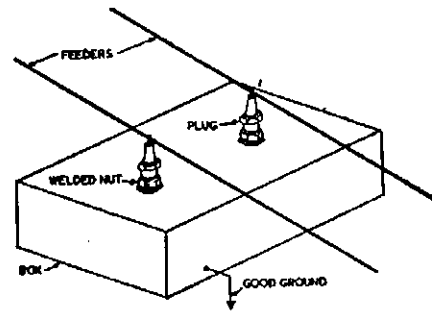
It is therefore apparent from the foregoing that Federal Executive has been most active in taking all possible steps to bring about this very satisfactory solution. It is hoped that members will cease to be perturbed in this regard.

Finally, Executive is confident that Amateurs will be most circumspect in their efforts to avoid interference and should this unfortunately arise, will extend their fullest co-operation.

HINTS AND KINKS

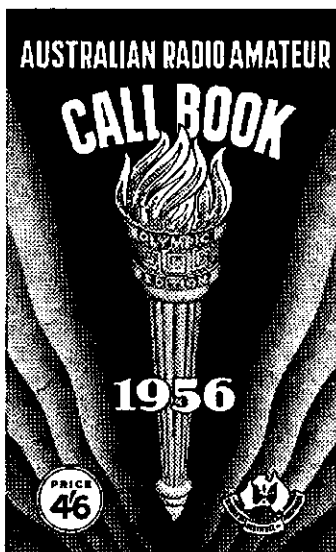
LIGHTNING PROTECTION

A very useful lightning protector can be made simply by taking two 14 mm. car spark plugs and re-cut the thread to $\frac{1}{8}$ " S.A.E. Now get two nuts to screw on. Take the nuts and weld to a mild steel box which has been welded airtight with only the two holes which the nuts are welded over. Heat this box and whilst warm, screw the plugs into the nuts. This is now an airtight box and moisture will not corrode the points. (This is set to 0.040".)



Secure the unit to a water pipe or suitable ground. Bring the feeders to just connect to each of the plugs and then carry on to the transmitter. You will be surprised at the static, etc., that will leak across the points.

—By ZS4CM, reprinted from "Radio ZS," Sept., 1955.



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the . . .

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- DX Countries, Prefixes and their Zones.
- World-wide Awards available to Amateurs and Short Wave Listeners.

VK5WC—THE WOOMERA AMATEUR RADIO CLUB

By R. A. CATMUR,* VK5FY, Hon. Secretary, Woomera Amateur Radio Club

THE call sign VK5WC, of the Woomera Amateur Radio Club, probably brings several thoughts to your mind when you first hear it. Maybe the call itself promotes a smile, particularly when you receive our card, or perhaps you think of the QTH—Woomera, a place much talked about in the press from time to time. No doubt many of you are thinking "So what, it's another Amateur Club, what's interesting about that?" But, how many Amateurs have their QTH shown as Woomera? The answer is none, and therein lies a story, the formation of the Club in Woomera.

Wherever you have a township the size of Woomera, there are bound to be a few Amateurs, and since Amateur Radio is their hobby they set about going "on the air." In Woomera their first disappointment is a letter from the P.M.G. Department which states:

"It is regretted that you cannot be authorised to operate from that address."

To the best of our knowledge Geoff Svenson, VK3AHS, was the first Amateur to receive such a letter, way back in 1948, so he applied to the Department of Supply for permission to operate in Woomera. Unfortunately, as so many Amateurs have found, the average man (even in high places) is not aware that the Amateur has Regulations to which he must adhere, but imagines that we get our transmitter going, find a quiet hole in the frequency spectrum and press on regardless. So, not without good reason, the Department concerned replied, stating that if a Club was formed, they would again consider the matter.

Going back through the files, we find that such a Club was thought about, but try as he may, VK3AHS just could not seem to find enough Amateurs, or those interested in Amateur Radio to really start something. Despite Geoff's efforts, the whole thing became bogged down and eventually he was posted elsewhere, when of course he was happy to be "airborne" again.

About this time, Don Burkitt, VK3FP, arrived in the area, and he too tried to overcome the problem. Again, the only licensed Amateur in Woomera was himself, and he got nowhere fast—to coin a phrase. There were plenty of people interested in general radio, but only a couple really interested in the Amateur aspect. So once again the spark was there but the kindling wood damp. In 1952 VK5FY arrived, and it was not long before VK3FP and VK5FY were in cahoots and started to fan the spark. A meeting was held and the three present, Don Burkitt, the author and Mr. Geo. Eastland, formed themselves into a pro-tem committee, VK3FP President, VK5FY Secretary, and George Eastland Treasurer—with no funds, hi! It was decided to produce a constitution for the proposed club and if the authorities accepted it, then the club could be formed.

Group Captain A. G. Pither, R.A.A.F., was the Superintendent of Woomera at this period, and he assisted in the club's formation at the higher levels by somewhat smoothing out the path over which our request must travel. In July, 1953, the constitution had been approved by the Department of Supply, and then VK5FY visited the P.M.G. Wireless Branch at Adelaide to discuss the license application.

On 6th August, 1953, the first general meeting of the club was held, and present were the Patron, Grp./Capt. A. G. Pither; the President, VK3FP; Secretary, VK5FY, and Treasurer, Mr. G. Eastland, with two prospective members.

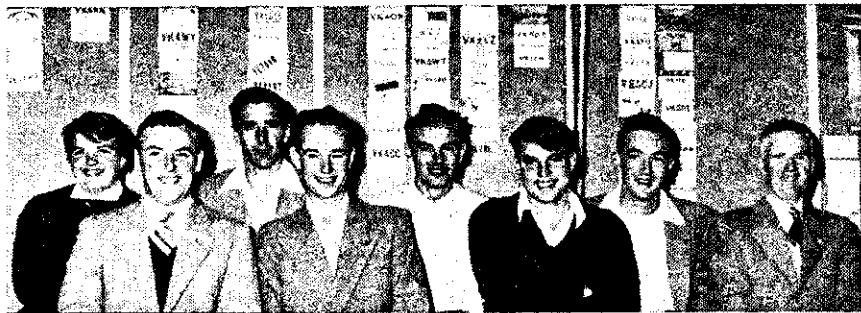
At this meeting the President stated that the Club had an approved constitution, the license was on its way, and a clubroom had been acquired (an old powerhouse approximately 15 x 20 ft.).

agement and support; and to Mr. John Maddern who assisted us in problems peculiar to Woomera. Our thanks also to Captain J. B. Newman, R.A.N., the present Superintendent, for allowing us to publish the history of the Club.

The Club has been affiliated with the Institute since its inception, and the majority of its members are also individual members of the Institute.

The rig at the Club consists of an AT14 Transmitter (purchased from disposals) which has been modified for plate and screen modulation and uses an 813 in the final.

We have three antennae—a rhombic firing into VK6 land, which is one wavelength long on 80 metres (what it is to have wide open spaces!). Its efficiency can be guaranteed by the VK6 boys who reside in its major lobe! There is a 40 metre dipole, and a long



Members of the Woomera Amateur Radio Club. Left to right: Mrs. ("Cec") Angrave; Ron Catmur, VK5EY; Ray Farmer, VK5FF; Keith Angrave, VK5ZAS; Bernie Waight, VK5QW; Sid Murray; Mick O'Reilly; John Allan, VK3EI.

This meeting was a milestone in the progress of Amateur Radio at Woomera, and it was agreed that at the next meeting (which would be well publicised) the members would elect their own Committee. The six people present then completed their application forms, paid their subscriptions and the Club was under way.

On 10th August, 1953, the Club License was received and VK5WC went "on the air" with a transmitter and receiver loaned by the Department of Supply.

Since that date when VK3FP and VK5FY added a little more congestion to our bands under VK5WC, the following Amateurs have been members of the Club: VK5OC (Len Baker), VK5JE (Ted Cawthron), VK5FF (Ray Farmer), VK5QW (Bernie Waight), VK5ZAS (Keith Angrave), and VK3ARO (Ray Pulford); VK5FF, VK5QW and VK5ZAS took their examinations at Woomera, also an ex-member, VK5ZAZ (John Gluyes) received his license after he had left the area.

We must acknowledge gratefully the help received from the Department of Supply during the Club's formation, and afterwards by the loan of equipment. Our special thanks to Grp./Capt. A. G. Pither, R.A.A.F., who, as Superintendent during those days, gave us much encour-

wire 132 feet long. The receiver is a B28 (CR100), backed up by members' own receivers from time to time.

The Club took part in the first R.D. Contest to come its way, when VK5OC (Len) knocked up a good score at VK5WC, and no doubt assisted VK5 in winning the Trophy. The rhombic was originally erected for that Contest, and since it was still standing, it helped VK5WC log VK5FF, VK5WC log VK5FY and VK5WC knock up a few points last year. VK5 won it again, and we hope to help this year.

The Club's QSL policy is 100% to both Amateurs and Listeners (Listeners please note that a stamped addressed envelope will assist our Treasury no end). Up to date we have some 200 cards on the walls, including a few rare ones, but relax boys, we're a long way from the DX C.C. We have been trying hard to "work all W.I.A. stations" but so far VK5WI is the only one who has sent us a QSL—how about it, W.I.s.?

During its lifetime the Club has been publicised on the A.B.C. when an actual QSO was recorded and broadcast. We have received many personal visits from Amateurs, including Gs and Ws. We now seem to be well established in Woomera, and hope to meet you on the band one day. 'Til then, 73 from the gang at VK5WC.

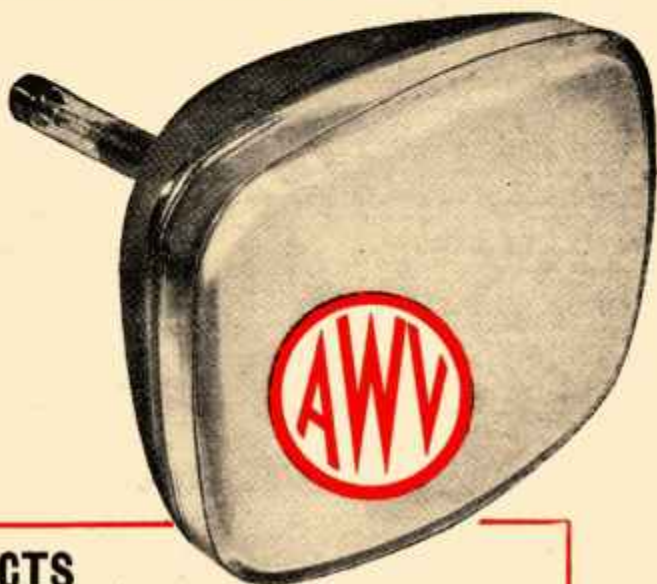
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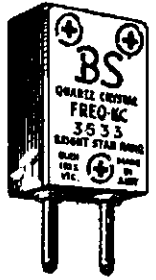


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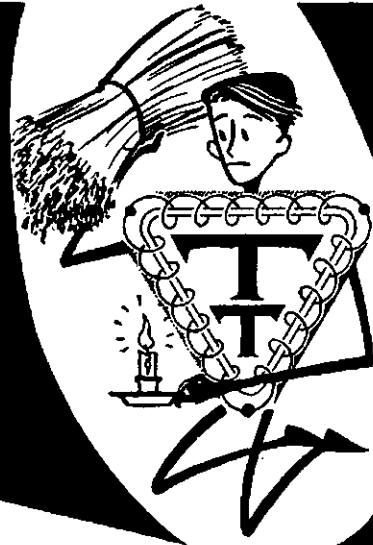
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DX ACTIVITY BY VK3AHH†

PROPAGATION REPORT

3.5 Mc.: Conditions do not appear to be particularly poor on this band, but world-wide activity seems to centre around the higher frequency bands which have improved with the commencement of another sunspot cycle.

7 Mc.: All continents were well represented on this band. Nevertheless, conditions have been somewhat erratic and the expansion of commercial stations does not encourage DXing.

14 Mc.: This band again showed fair to good conditions to all continents. Due to the general improvement of this and the higher bands, it is difficult to define times of break-throughs.

21 Mc.: Contacts with all continents have been reported, and propagation generally seems to stabilise and improve.

27/28 Mc.: African and North American openings have been reported.

NEWS AND NOTES

Things look bright for a new DXpedition to Zanzibar. ZE3JO expects to operate there from 13th August to 4th September, using the call VQ1JO. One frequency may be 14035 Kc. (from NC DXC).

It is hoped that many VK-DXers were able to contact Spitzbergen, SM8KV/Portable having been there from 3rd to 17th August (from 5WO).

Cocos Islands are back on the Amateur-Radio map! VK1RW is on the low end of 7 Mc., on c.w. (from BERS195).

Danny Weil has commenced operation as VK9TW—Nauru.

During the last couple of months, W2AIS/MM, aboard "Pioneer Cove", has visited a number of Australian ports. We were very pleased to meet you, Pat!

Along with a bag full of information on doings of the s.s.b. fraternity (see "Activities"), 3WR reports another addition to the list of s.s.b. VKs: VK3AHR—using QRP on 14 Mc. and around 3.7 Mc. Thank you, Jack!

About this time two years ago, the S.w.I. Group of the W.I.A., Vic. Div., was established, and Groups in other States followed. By joining the Groups, beginners have the chance of learning their initial steps in Amateur Radio and can, at the same time, participate in W.I.A. activities. Also, W.I.A.-L numbers are available to all financial members. Like the Vic. Div., other Divisions will have found that these Groups provide a very desirable influx of Associate Members, and there can be no doubt that the entire scheme, suggested more than two years ago, has been a tremendous success. Congratulating the S.w.I. Groups on a fine job done, let us encourage the Groups in all States! Beginners are always worthy of our assistance!

QTRs OF INTEREST

- (from 5AB, BERS195, and the Northern California DX Club)
- VP5RR—Via WSHVV.
- VP5MS—Via W0BTX.
- Ex-VK1ZM—Bernie Shaw, 22 William Road, Herne Bay, N.S.W.
- ZD6BX—Victor Thorne (ex-G3DFI/VS1BX), Nyantyre Airport, P.O. Chileka, Nyaland.
- Ex-ZM6AB—Evelyn Scott, 266 Alamitos Ave., Long Beach 2, Calif., U.S.A.
- KG1BF—Via W2UGL.
- VS4BC—Via VS1BC.
- OD5BC—Box 2559, Beirut, Lebanon.
- VK1RW—R. C. Widows, H.M.W.T. Station, Direction Island, Cocos Islands.
- ZS2MI—C/o Secretary of Transportation, Private Bag 193, Praetoria, South Africa.

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

ACTIVITIES

3.5 Mc.: 3AHH heard ZM6AS.

7 Mc.: Laurie 2AMB reports KP4CC*, VE2L1*, VE8ZG*, CO2OX*, and VE7AER, VR2BZ (on phone), Neville 2APL follows with VE6ZG* and VE2LI. BERS195 heard FB8ZZ (1700z), LZ2KCS, 1ZCT, JA2ZO, JA8AE, JA8EO, UM8KAA, UP2KBA, VE7AQ, VK1RW, VQ4AQ, VQ4ERR, VSIGV, YQ3RF. John W1A-L3019 adds SM5BT1, LZ2KG, YU1HS, YU1CE, DL7E†, DL9NA, YU2FC. The next in line is Dave Jenkin with DU3DO, PJ1AA.

14 Mc. C.W.: 2AMB: CT* and HP1EH, PJ2MC, VE8MO, KW6CD, VSI. 2APL: KW6CD*, Bud 2AQ: VSI*, VS6*, YU*, UAI*, JA*, KL7BO†, KL7UM*, 4S7PT*, and VE8AW, UB5UB, DL, OE, FB8ZZ, I. Allan 3BH: PA*, UA0KJA*, UA3BR*, SM*, UB5UB*, EI5C*, UA1KA*, XE*, VK9TW*, YQ2KAB*, YU*, Jack 3JA: VP7BE*, YV0AA*, VP8BO*, OE*, Lance 3ZA: HK8KY*, UA1KA*, DJ*, VE8CN*, Des 5DK: 9S4*, DL*, ZD6*, HA*, UA0*, LU*, Ray 5RK: G*, 4S7MR*, Avestin 5WB: UZCKAB*, EI8S*, UA0KJA*, VK9TW*, 5WB: BERS195: DL, KX6, LA, OH, SM, VS6, W1A-L3019: OY2Z, UA9KAB, VP9BM, UZCKAB, UA3EG, F. Dave Jenkin: XE, XZ2AD, VUZKM, UA4KCE, VS6, UA1KA*, VK1GA, DL, OE, KP4CC, KL7WAF, CN8FC, G, KGIAG.

14 Mc. A.M.: 2AMB: 9S4BN, EA, VR2, VK-9TW, FUBAC, YV5EZ, VSIMS, VP5AO, 2AQJ: CT*, JA*, VR2*, ZK1BL*, VE* and VS4, C5, Neil 8HG: FA3GZ*, EA8BC*, VP1EK*, EA7HM*, VK9TW*, LZ2KN*, ZC5C*, FB8BC*, 3HL: FA3GZ*, FA8IB*, OE*, VP7NB*, VQ5GC*, CT-3AN*, ZE2KP*, VP5AO*, VQ4ERR*, 4S7YL*, CO2VN*, PJ2CE*, VQ5EK*, EA*, I*, G*, 3JA: T99P*, R-r-m 5AB: EA*, PJ2AI*, UQ2AN*, HB9*, VK9TW*, GW4CC*, KZ1BS*, FA8IB*, OZ4R†, ON*, F*, ZS6FN*, ZM6AS*, VR3D*, I*, CN8MM*, KA*, JA*, VP5RR*, 9S4AD*, 9S4BN*, G*, VR1B/MM*, VE*, VP9CY*, CT*, KL7WYM*, 4S7YL*, KTIEXO*, EA7DP*, KG-6IG, 5WO: CT*, ON*, GW4CC*, VE*, CN8MM*, G*, GI3CWY*, FMTWQ*, KW6CE*, VK9TW*.

14 Mc. S.S.B.: Jack 3WR: WTPUG, W3CHZ*, VE3KT*, W9EVS*, W9EVZ*, GW3EHN*, W4-NQN*, G5EJ*, W5PZ†, W4KQW*, KC4USA*, W5BGP*, W5AFX*, W2GCK*, W8CAJ*. Cyril 8ABE: KG6AAY*, OH2OJ*, XE2JK*, XR2WC* (?), VQ4EO*, OZ7C*, PJ2MC*, W9CXX/Air Mobile* (over North Pole!). Lindsay 4AB: ZS1FD*, KL7DRA*, COSLF*, ZB1BS*, KC4-USA*, KC4USB*, VQ4EO*, K6GG*, Clive 4CC: GW3EHN*, ZB1CZ*, ZD4BF*, ON4CC*, Vince 4VJ: KR6QI*, KR6JK*, F9HF*, ZS6OY*. (All the above s.s.b. info. was forwarded by 3WR—thanks!)

21 Mc.: 2APL: XE1PJ*, FA8CR*, 3HO: GC6FQ*, ZP5JP*, KP4ADX*, VP7NQ*, PJ2MC*, HR1LW*, VQ5GC*, HClARE*, 3JA: ZD4BV*, ZE2JJ*, ZS*, FS7RT*, ZE2KP*, 4S7YL*, FB8BZ*, CT*, OQ5EW*, VP8L*, ZS3S*, MP4BBW*, VS4BO*, HA*, EA9AZ*, VK9TW*, 5AB: FS7-RT*, VQ5GC*, ZS3KG*, ZS*, 4S7YL*, T12RX*, KP4ADX*, VP7NQ*, HR1LW*, ZD6RM*, VQ-4FI*, VQ2GW*, ZE2KP*, KV4BB*, KV4BQ*, VS4BO*, HClARE*, ZK1BL*, KZ5DG*, KZ-5GD*, VS2*, ZE2JK*, 4X4HK*, VP5RR*, VP-5MS*, CO2BK*, CR6AO*, CR6BH*, ZE4JR*, 5WO: ZS*, VS*, ZD6RM*.

27/28 Mc.: 3HG reports ZS* and W*. 5WO also mentions ZSSDS*, ZS8TV* and W*.

Rare QSLs were received by: 2AMB: F08AN, ZK1AC, VR1B, PY4AO, VP2DA, VP7NS, VP9BM, JZ0AG, LA2B, 3HG: BV1US, VP7NQ, 3JA: VP2DA, CR10AA, YJ1AA, ZD4BV, VP5DX, VP5DC, MP4KAC, ODSAV, VP4LF, VS4BA, 5WO: HZ1AB (c.w.), VP7NS, F9RY/FC, CT-3AN, CX2CO, BERS195: LZ1KPY, VK1ZM.

Thanks to the Northern California DX Club, and VKs 2AMB, 2APL, 2AQJ, 3HG, 3HL, 3JA, 3WR (QSP reports 3AEE, 4AB, 4CC, 4VJ), 3ZA, 3AEE, 4AB, 4CC, 4VJ, 5AB, 5DK, 5RK (QSP report 5DK), 5WO, and s.w.I.'s BERS195, W1A-L3018, and Dave Jenkin.

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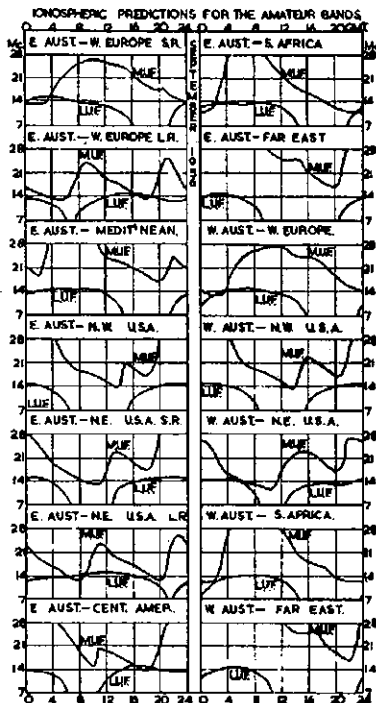
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PREDICTION CHART FOR SEPT., '56



YL CORNER

BY PHYL MONCUE

A luncheon engagement with VK3YL and a most enjoyable couple of hours spent in her company. We had not met previously and so had arranged for both to wear our W.I.A. badges, this made recognition a cinch. We chatted on many subjects of mutual interest, but of course radio took predominance. I was most anxious to find out how somebody quite small in physique, and just a tiny bit shy and very feminine in approach could have tackled such a man-sized job as getting an Amateur license. I'm afraid I bargaged her with questions. And now I'd like to introduce her to you.

VK3YL, Mrs. Austine Henry, received her Amateur license 26 years ago last May. She was the first YL to sit for the A.O.C.P. exam in Melbourne and at that time became the third YL in VK to receive a license and the first to hold the letters "YL" in her call.

But that was not the beginning of it all by a long shot. It, the radio bug, all started long before that when Austine was quite a little girl. She had been sick and had her tonsils out and was convalescing, when a kindly uncle promised to buy her a present and asked her what she would like. She didn't hesitate for a moment, she knew what she wanted most of all—a wireless set. At this time there were no wireless sets in the family; it was just like a kid these days asking for a t.v. set. Also there was nobody even remotely interested in radio amongst her family or friends. It was just something that was in her, herself.

She got her wireless, a crystal set it was, and her very great joy and pride. (Today it has become a family heirloom, she still wouldn't part with it for anything.) She gradually got around to examining it, pulled it to bits to find out how it worked, started reading books on radio, then built other crystal sets and from there to valve sets. Always thirsting for knowledge and always finding it more and more interesting.

When she was working for her ticket she found old Amateurs were always ready to help. She recalls Chris VK3JR and Max VK3BQ both being wonderfully helpful. Her then husband-to-be, Bill Henry, also played a major part helping her with studies in theory and code. Bill, though not an Amateur himself, has a very considerable knowledge of radio and has never ceased being interested in her hobby with her and is just the sort of husband a YL or a 3YL anyway, needs. They have one son, Austin, aged 20, and up until recently he had no interest in radio whatsoever. He just liked fishing, football, cricket and his motor-bike and all the things that young men seem to enjoy. This was secretly just a little bit disappointing to Austine, but over the last couple of years radio has started to "get" young Austin, too, and he is now doing a course in radio engineering. Austine is delighted.

She holds the certificates DXCC, WAC, WBE and BERTA and just recently was awarded the YL-WAC-YL, the first issued ever in the world, also is awaiting confirmation of the OTC and needs only one more confirmation to be eligible for the silver medal award of the DUF. Pre-war, VK3YL was active on 80, 40 and 20 mc c.w. and 56 Mc. phone, but post-war has been active mainly on 14 Mc. Her QTH is at Murumbidgee and is in a fairly good location for DX. She loves DXing mainly for the many friends she has developed all over the world and particularly in G and W lands. She entertained Evelyn Scott, W6NZP, during her stay here last year and hopes some day to visit Evelyn and many of the other friends she has made.

Post-war she has worked 180 countries with 168 confirmed. Pre-world war II, she was a member of the Royal Australian Air Force Wireless Reserve (the first YL operator to join the Wireless Reserve) and during the war years helped to instruct in Morse code classes at the Wireless Institute of Australia (Victorian Division) while her OM was on active service.

Her other interests include motoring, she loves driving herself and also classical music, particularly operatic. She enjoys cooking and according to her OM, is a very excellent cook, but cooking really isn't her favourite past-time, but then how very understandable with all that c.w. waiting there on the band. She occasionally operates phone, but prefers c.w. for which she has a pretty mighty fist. Listening to her QSOs she seems to copy any speed at all on the band and sends it back just as fast. But then 26 years of c.w. is one heck of a lot of practice.

YLs and XYLs, you are invited to contribute to this, your column. Next issue, "TV Fever."

S.W.L. SECTION*

The weather has been beautiful and I've received correspondence from VK2, 3, 4, 5, 6 and 7. Yes, you can read that again! VK2 to 7 inclusive. "What more could I want?" you may ask. Just VK1 (Aust. Capital Territory) and VK9 so as to include all VK prefixes in this column. So if you live in any of these territories just drop me a line telling me all about your activities.

VK2—NEW SOUTH WALES

B. F. Cartwright from VK2 is a young lad, 17 years old. He read of s.w.l.'s in the July issue of "Amateur Radio" and makes some queries about s.w.l. activities. He hasn't yet had much experience in this game beyond building crystal sets, which he says have given him hours of enjoyment. I'll be answering your queries as soon as possible my friend.

No information has been received from Stan Abbey or Jack Ashley this month, so we hope you two boys are still doing alright.

VK3—VICTORIA

July Group Meeting: This meeting of the Group was in the form of a surprise night. Six members of the Group were each handed a sealed envelope in turn in which was enclosed either a question to be publicly answered or instructions to be carried out. These ranged from an instruction to David 3ZAQ requiring him to tell us how he achieved his v.h.f. 100, to a question asked of Frank Nolan as to what techniques he used in listening for DX stations. The evening was very instructive and entertaining.

Coming Events: Members of the VK3 Group are asked to keep in mind the following: Sept. meeting—Tuesday, 25th, talk on Radio Astronomy by Ron 3ARV. Oct. meeting—Tuesday, 30th, talk by Len 3JLN. Don't forget any of these meetings, chaps.

Correspondence: Henry Zaal, WIA-L3037, from Traralgon, has honoured us with another letter. He included a list of stations he has recently heard and also some queries. Henry goes on to mention that he is now contemplating building an audio amplifier. Hope everything goes well Henry and let's hear more from you.

Another country correspondent, Dave Jenkin, WIA-L938, has found time to put pen to paper. Dave is using a r.f. rx, the line up being as follows: IN5 t.r.f. amp., IN5 det. followed by an audio stage of 4 transistors, namely OC71, OC71 and a pair of OC72 in p.p., the latter being a matched pair of transistors. His antenna is a multiband affair of two 66 ft. lengths, one length horizontal, the other semi-vertical, fed with a three-wire open wire line. This antenna can be altered by switching the connections to have the two sections either in or out of phase. The antenna was described by 3AHH in "A.R." for May, '53. Dave also has some plans for more building, too. Let's know all about it when it comes off Dave.

S.w.l. 100 Certificate: The first of this certificate has been won by yours truly and he is very proud of it. This is one well worth trying for and it's not too hard either. To qualify you must be resident in Victoria and produce evidence in the form of confirmations of having heard 100 Amateur Stations. This certificate is free to W.I.A. members, whilst a nominal fee of 2/6 is charged to non-members. Confirmations must have been made since 1/1/48. Cards should be forwarded by reg. mail to the Vic. Div., W.I.A., 191 Queen St., Melb. and return reg. mail postage should be enclosed. So have a go at this one.

APPEAL TO AMATEURS

Interference to Slow Morse Transmissions
Some of you apparently may not know that the Vic. Div., W.I.A. conducts these transmissions on the 80 mx band, freq. 3550 Kc. every Sunday evening from 8.30 p.m. to 9 p.m. E.A.S.T. Interference on these transmissions has been very heavy of late and numerous complaints are being received from s.w.l.'s Interstate (i.e. outside VK3) and also local stations have been heard on the freq. So OM, for our sake when on 80 mx, listen first before throwing that switch. You may save yourself the embarrassment of having your call listed in these notes.

VK4—QUEENSLAND

VK4 is kept in the news by a letter from Donald Scott Cribb writing from Mount Morgan. Don is trying to arouse some interest among chaps in his area and so we wish him luck in his efforts. He has a rather impressive line up of gear including an ART and a Panoramic Rx. However, full details of his equipment are too long to give here.

VK5—SOUTH AUSTRALIA

Mac Hilliard on behalf of the VK5 Group provides some information on their activities. The

July meeting of the Group was held on the 16th and after some general discussion they were shown over Radio Station 5KA by Mr. Bob Patton (SPS please note). The thanks of the VK5 Group go to Mr. Patton and Len Cragen for making the visit possible. Mac also included a list of stations heard. Thanks for your letter Mac.

VK6—WESTERN AUSTRALIA

From Inglewood, I am informed by K. C. Bicknell that there are at least two s.w.l.'s in W.A., himself and Roger Forte. Both boys are using converters fed into AR8 Rx's and like the VK5 boys looked forward to the R.D. Contest. Hope to hear a lot more of your activities from VK6.

VK7—TASMANIA

My correspondent from Launceston unfortunately only gave his first name, which is Roger. Glad to have your letter anyway. Roger is using a 4-tube home-brew rx and is at present constructing another set. His antenna is a windom half wave on 40 mx, 36 ft. high.

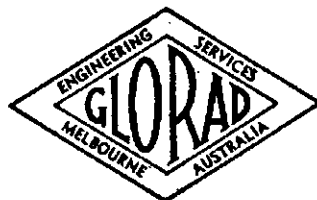
Well unfortunately as space is limited, I cannot include details of the logs you have all so kindly sent in. I do however feel that the news of activities is very important and should take precedence over reports on the bands.

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FIFTY-SIX MEGACYCLES AND ABOVE

NEW SOUTH WALES

Plenty of activity on 144 Mc. band was the order of the week-end of the Mid-Winter Contest. This year the Contest took the form of a message relay instead of the usual scramble. The country stations had a grand opportunity in the field with a record number of city and metropolitan stations taking part. Quite a number of logs have been returned and it will take the Contest Committee considerable time to work out the final result. Never before have the country boys heard the 2 mx band sound so much like 20 mx. Activity ranged as far out as Tumut, where messages from 2ZAA and 2FN originated and passed through many hands before reaching Sydney. At Forbes, 2WH remarked that he has never heard the 2 mx band so continuously active; at Blaxland, 2MX, although hazy about the rules, had a whale of a time handling the messages. Some stations who just popped in for a few QSOs found themselves remaining in the Contest for the duration. Altogether it proved so successful that a Field Day held on these lines has been set down for Sunday, 21st October, 1956, and will be held in lieu of the usual Spring Field Day on the six-hour holiday week-end, which this year has been allocated to the South-West Convention to be held at Griffith.

A new type of Fox Hunt was held on Sunday, 5th August, and commenced at 10 a.m. The fox was Bob 2OA accompanied by 2ZAV and 2APQ who travelled to eight different locations, making a ten-minute transmission from each and left behind a visual clue, and then proceeded to hidden location for his final transmission which lasted for 45 minutes and terminated at 4.15 p.m. Six cars chased him around the countryside which resulted in a win for 2ANF/EW/Es Griffith, second place to 2YM, third 2HL/NP (despite Charlie's navigating), followed by 2AJZ/AJA/AAK (ex-2L3FP), 2ZCF/ER, 2AZO/ATO. Described by one of the hounds as "superfluous" but enjoying the run and the afternoon tea at Lake Parramatta, several XYLs and harmonics were also present. The committee have decided that this type of fox hunt with modifications will be repeated.

The event for September will be a nocturnal hidden transmitter hunt of the normal kind and will take place on Wednesday, 5th September.

At the August monthly meeting of the Group an attendance of 35 allowed business to occupy a minimum of time so that the meeting could listen to a lecture from Max 2OT on Sweep Generators and their use. Max gave a lot of gen on these generators and demonstrated his points on a typical communications rx and a TV front-end. He has offered to expand some of the points of his lecture at a future date.

2ANU has reported from the Northern Area and he says "During the recent Mid-Winter Contest the following stations were heard by 2ANU: contacted 2HE then heard Bob 2ARG, Ted 2XX and Roy 2EO busy with messages, but unable to attract their attention. Activity here in the North fairly quiet. Tas 2GV has 3 x 3 beam ready to erect and is now busy with a g.d.o. Bruce 2ZAD and 2AFP, of Tamworth, working cross-town with mod. osc. Frank has put new radiators on his beam with a vast improvement in radiated power as per meter, now runs 24w. to a xtal controlled rig using a 2E26; signal now audible here at Muscle Creek. No v.h.f. news from Inverell or Armidale. Geoff 2VU constructing a v.h.f. g.d.o. in preparation for intensified work on the band. Ken 2ANU has at last secured a tower and is gathering material for a 16 el. phased array and had much pleasure in constructing xtal controlled rig for 2AFP which has paid dividends as his signal is now audible. Try as we may, could never make it with the mod. osc."

The gang at Canberra are in the throes of organising a v.h.f. group and IASB has been appointed v.h.f. liaison officer for the Canberra Radio Club. He reports the following Amateurs are active on 2 mx: IASB, IZBS, IZBT, IFM, IAIL and 2AQJ (Queanbeyan) with about seven more near future starters.

Adrian 2HE and Ted 2XX made a flying (?) trip to Bathurst on Saturday, 5th August, arriving back in the early hours of Monday morning, and it is known that they visited quite a number of the Amateurs on the Western Highway. Roy 2HO has settled his difference with the local Council and now will erect his tower which has been withdrawn from sale. Agents please note. John 2ANF has very willingly agreed to provide and deliver a very interesting lecture for the Group's September meeting. He will demonstrate the measurement of horse figures, and RC circuits and their effect on wave form.

After Sunday's Fox Hunt, Phil 2ER has become very mobile-minded, so keep a look out for Vaux. (or fox) wearing a halo. Vic

2VL has replaced his tunable converter with a xtal locked job and now wonders why he did not do so long ago.—2AFM.

VICTORIA

A freezing cold night it was and all sorts of things turned up at the last Fox Hunt. They included 1 fox, 11 hounds, 3 hot water bottles, 7 XYLs, several thermos flasks of hot coffee and a number of friends who all do their bit either as drivers or navigators, also 2 Boy Scouts, Rolfe McKellar and Bill Michie, 3ZCM. In all 28 spartans braved a very cold night just for the fun of it. The fox, 3LN, gave them a run for their money as usual and found some very unique hiding places. The first was along a rough track beside the railway line near the Montague railway station, then he traversed South Melbourne and St. Kilda where he found another one of those "T" shaped lanes. Near the Gardiner Creek in Hawthorn he found a park with a cycling track and at one time the fox and two hounds were all chasing one another round the track, however the fox managed to get away without being caught at this spot. Another good hiding spot was in some aniseed bushes further along the Gardiner Creek.

All hounds made several catches during the evening and all declared they had a lot of fun. It was their first try-out for the two Boy Scouts (scouting commissioners they are really) and Rolfe and Bill 3ZCM did very well indeed, they were on the fox's tail the whole evening. Our two Associates, Ray Price and George Robertson, joined the fox crew and Ray took over Len's phones and did a job of monitoring for the fox. Ray with normal hound-type of blood surging in his veins couldn't quite get used to being an assistant to the fox and told everyone he'd had a wonderful signal all evening, didn't lose it once! Bob 3OJ, who has recovered from his illness, was back on the job as control station again. Many thanks Bob. The final location was at the home of Jack 3VZ in Balwyn where the Group filled in a very pleasant hour having supper and a chat. The winner for the evening was Tom 3AOG, second was Roy 3ARY and third Laurie 3ALY. Our thanks are extended to Mrs. Duncan, Sr., and Jack and Phyl for opening their home to the Group.

There was an excellent attendance of 28 at the last V.h.f. Meeting. The programme was a series of short lectures given by members of the Group. Laurie 3ALY was the first lecturer and he gave talks on three pieces of equipment which he had brought along for inspection. They were his grid dip oscillator, a battery operated converter for 7 Mc. and an Antennascope. He also discussed the mystery problem in a recent issue of "QST" and what he considered was the solution to it. He had the problem solved with four half-wave rectifiers. The next lecturer was Alan 3ZBE who demonstrated and discussed his 2 mx converter which he had constructed to 3YS' article published in "A.R." last year. Alan had featured a small shielded microphone pre-amplifier using an EF86 tube. Associate Ray Price followed Alan with a practical demonstration of his

transistorised field strength meter for 80 mx tx hunts, also a personal portable altered for d.f.ing on 3.5 Mc. Then came Roy 3ARY with his mobile transceiver, the prize exhibit of the evening. It was magnificently constructed with plug-in transmitters and converters with remote control supplies from the boot of the car and the complete job was built in a fashion that raised the admiration of all. Lastly, Fred 3YS demonstrated his grid dip oscillator which he operates from a soldering iron transformer.

The t.v. fever seems to be getting the 2 mx fellows. Kevin 3AKR is reshaping his 2 mx converter to test t.v. reception at his QTH at Westmere. Laurie 3ALY can hardly spare time to eat his evening meal so great is his enthusiasm to get going and build up a rx. Laurie has just finished building a beautiful caravan and of course there's a little recess in it for the portable gear and having one job completed, his interests have again returned to radio with the accent on t.v. Geoff 3AUX has been working on t.v. gear for quite a long time. Gordon 3TF is full of ideas and hopes to build a rx later on. 3AMU is deep in the throes of it and is collecting all the information he can on the subject. Andy 3ZDF is working on a rx. Len 3LN is cracking his neck to get going, but is tied up with re-building alterations to his QTH and also is in the middle of moving his shack into the next room up the passage, quite some move it's proving, too, after 26 years in the one room. Most seem at the very least, to be thinking about it, and listening around the band all seem to be talking about it. T.v. has come and with it a wonderful new interest.

Max 3ZCW of Ouyen and Hugh 5BC of Springcart Gully have had 105 100% contacts on 2 mx in the last six months. That's some pretty solid working, too bad we can't give them a certificate for 100 contacts on v.h.f.

Rather good DX conditions were apparently prevailing on Sunday, 15th July, as 2RS at 144 Mc. at S2. No contact was made, but 3ZD feels sure he heard 2RS' carrier.—Phyl Moncur.

WESTERN AUSTRALIA

The July meeting was held at the residence of Syd 6SJ and considering the weather, the attendance was excellent. Our lecturer for the evening was Alf 6EA, who chose as his subject "Regulated Power Supplies" or power supplies capable of being varied in its output of volts. After explaining various circuits and their working, Alf gave working demonstrations of Thyratons, etc., and their patterns on a very nice c.r.o. Thanks again Alf.

Then followed pictures dealing with Monte Belos, Atoms in Industry and Vintage Cars; in all a very good show. After the usual good supper the meeting closed at a late hour.

What do you know? Len 6LG has got himself an AR301 on 2 mx. I think he rather enjoyed the crossband contacts. When's the tx coming up Len? Bob 6BE is trying out n.b.f.m. on 2 mx and is gradually ironing out the bugs.

Saturday, 14th July, saw another Tx Hunt in progress, 6AW and 6ZAQ doing their best to fool the opposition, but strange to say, three parties dead-headed at the site in just under 30 minutes. 6ZAZ, 6BO and 6HK and parties being the winners. Supper was partaken afterwards at 6ZAQ's QTH.—6ZAV.

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 Fed. Secretary: L. D. Bowie, VK3DU, Box 2811W, G.P.O., Melbourne.
 QSL Bureau: R. E. Jones, VK3RJ, 23 Landale Street, Box Hill, E.11, Vic.
 Awards Manager: A. G. Weynon, 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 Kahibah Rd., Highfields, via Adamastown; Coalfields and Lakes: H. Hawkins, VK2YL, 9 Comfort Av., Cessnock; Western: W. Stitt, VK2ZWH, "Cambijowa," Forbes; South Coast & Southern: E. Fisher, VK2DY, 2 Oxlade St., Warragong; 8th. 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

REGION I. CONFERENCE

The Second Triennial Conference of I.A.R.U. members in Region I. was held in Stresa, Italy, on June 12-18, under the sponsorship of the Associazione Radiotecnica Italiana. About forty official delegates from fourteen countries were present, and three other societies were represented by proxy. Your Secretary (I.A.R.U.) and WILVQ of A.R.R.L. were present as observers.

R. G. Hammans, G2IG, President of the Radio Society of Great Britain, was elected Chairman of the Conference, after welcoming speeches by Sig. Roberto Sesia, IIFA, President of the host society and President of Honor of the Conference; the Mayor of Stresa; the head of the Tourist Office; and, Capt. Per-Anders Kinnman, SM2ZD, President of Sveriges Sandare Amatörer and Chairman of the Region I. Executive Committee.

The first session was devoted initially to the organization of the Conference and to receiving the reports of the officers and of the Executive Committee. Jean Lips, KB8J, was elected Chairman of the Administrative Committee, and H. A. M. Clark, G6OT, Chairman of the Technical Committee. After discussion, it was decided that it would not be necessary to send a delegation to the C.C.I.R. meeting at Warsaw in August. A number of recommendations by the Executive Committee dealing with routine business matters of the Region I. Division were acted upon.

It was voted unanimously to send delegates to the next I.T.U. Convention. A considerable fund has already been set up to cover the expenses of I.A.R.U. representatives from Region I., and additional contributions to the fund were voted later in the meeting. The Executive Committee was authorized to appoint delegates when the time comes.

The Executive Committee presented a draft of Rules for the Region I. Division of the International Amateur Radio Union. After discussion, the Rules were adopted with a few minor amendments.

The next two days were devoted to meetings of the Administrative and Technical Committees, each of which forwarded recommendations to be acted upon at the final session. On Friday, the delegates enjoyed sightseeing tours, a banquet and a ball arranged by the host society.

The final session was held on Saturday. In connection with the problem of non-Amateur Stations in the Amateur bands, the group adopted a standard form for reporting such stations. It was decided to limit reporting at first to broadcast stations and identifiable commercial stations, with a wider range of monitoring to follow after the societies and their members have gained experience. The Con-

Divisional Sub-Editor: Phyl Moncur, 235 Union Road, Ascot Vale.

QSL Bureau: Inwards and Outwards—W.I.A., 191 Queen St., Melbourne, C.1, 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. Ellason, VK3ALE, 72 Orr St., Shepparton; Far North Western: M. Foie, 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, VK4PR, 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, VK4PR.

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, VK5KX.
 Secretary: B. W. Austin, VK5CA, Box 1234K, G.P.O., Adelaide. Telephone: UX 2621.
 Meeting Night: Second Tuesday of each month at 17 Weymouth St., Adelaide.

ference urged occupancy of all the Amateur bands by all Amateurs to discourage "squatters' rights" use of the bands by non-Amateurs, but they disapproved of tactics involving deliberate interference to legitimate stations sharing the 80 metre band.

The delegates commended the growth of reciprocity in licensing, especially among European nations, and expressed the hope that work in this direction would continue. The Administrative Committee had discussed the possibility of Region I. Amateurs getting temporary permission to use the 50-54 Mc. band during the present part of the sunspot cycle, but the chances appeared most remote since TV is operating there in Region I. The French and Russian Amateurs already having a segment at 72-72.8 Mc., it was agreed that other Region I. members seek privileges in that segment. An extensive paper submitted by the Savez Radioamatera Jugoslavije, concerning ways of increasing comradeship and good will among Amateurs, is to be studied in greater detail.

The assembly also urged that more emergency networks be set up. This action followed reports by several societies to the Administrative Committee on the systems in use in their countries. The European Band Plan was hailed as a fine example of international co-operation, and the only change voted was to move the limit for exclusive c.w. operation in the 20 metre band from 14125 Kc. to 14100 Kc.

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- 28200-29700 Kc.—Telegraphy and Telephony.

The Conference encouraged the growth of s.s.b. after reports on progress to date were heard at the Technical Committee sessions. It

SILENT KEY

It is with deep regret that we record the passing of:—

VK3EO—Ron Russell. July 29.

Divisional Sub-Editor: E. C. Daw, VK5EF, 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: F. A. T. Tredrea, VK6FT.
 Secretary: J. Mead, VK6LJ, Box N1002, G.P.O., Perth, W.A.

Meeting Place: Perth Technical College Annexe, Mounts Bay Road, Perth.
 Meeting Night: Third Tuesday of the month.
 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, VK7JF.
 Secretary: M. Hurburgh, VK7MH, Box 371B, 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, 36 Mark St., Burnie, Tas.

PAPUA—NEW GUINEA

President: F. M. Nolan, VK9FN.
 Secretary: D. F. Lloyd, VK9OQ, C/o. O.T.C., P.O. Box 56, Port Moresby.
 Divisional Sub-Editor: To be appointed.
 QSL Bureau: R. Lloyd, VK9ZAL, C/o Commonwealth Dept. Works, Port Moresby.

was further recommended that more use be made of transistors, especially in emergency gear. To foster exchange of technical information, and thus speed up technical progress, it was agreed that each editor of a society magazine will send English abstracts of the main articles in every issue to the other societies in the region.

The I.A.R.U. Secretary was invited to speak on the problems of Amateur representation at International Telecommunications Conferences. Pointing out that only governments have voting rights at these gatherings and that the main business is to arrive at compromises of plans formulated long before the actual conference by each government, the Secretary urged that Amateur groups start to work with their administrations a couple of years in advance so that the government's recommendations in each case will be as favorable as possible toward Amateurs.

A budget of 1200 pounds sterling per annum was adopted, with each Society contributing an amount in proportion to its membership. A permanent v.h.z. committee was set up, with DL3FM as chairman and ON4BK as secretary; membership is open to any of the societies.

The gentlemen listed below were elected to serve on the Executive Committee for three years: H. Laett, HB9GA, Chairman; Arthur Milne, G2MI, Secretary; Jacques Simonnet, F9DW, Treasurer; Othfried Luhrs, DL1KV; Massimo Giovannozzi, I1XX; Per-Anders Kinnman, SM2ZD; and Janex Znidarsic, YU1AA.

The delegates commended the Associazione Radiotecnica Italiana on its excellent preparations for the Conference. Simultaneous translations of all the speeches were made in English and French; clerical arrangements were well planned; and the personal arrangements for the delegates were of the best.

The next Conference of the Region I. Division will be held in 1959, at a place to be decided. The Deutscher Amateur Radio Club is considering sponsorship.

Those present were: SM2ZD, G2MI, G6CL, PA0DD, G2IG, and HB9GA, Executive Committee members 1953-56; DL1WA, DL1KV, DL3FM and DL1JB, of D.A.R.C.; G6OT and G2WS, of R.S.G.B.; ZS5KL, of S.A.R.L.; ON4BK and ON4QZ, of U.B.A.; O22NU, of E.D.R.; EA2CA and EA2CQ, of U.R.E.; OH2TK, of S.R.A.L.; F9DW and F8GB, of R.E.F.; PA0NP, of V.E.R. O.N.; IFO, I1BDV, I1BEY, I1ABR, and I1BEE, of A.R.I.; CN8MM, of A.A.E.M.; SM5MN and SM6SA, of S.S.A.; HB9J, HB9FH, HB9HS, and HB9FF, of U.S.K.A.; YU1A, YU1AA, and YU2CF, of S.R.J.; the Secretary I.A.R.U. and WILVQ, of A.R.R.L.; and HB8SI, of United Nations.

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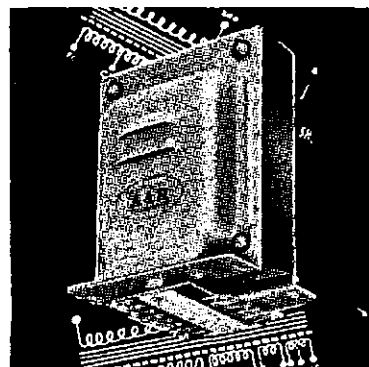
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FEDERAL QSL BUREAU

RAY JONES, VK3RJ, MANAGER

Since the amendment of the Australian Capital Territory prefix from VK2 to VK1, the Canberra Amateur Radio Club has formed a QSL Bureau with Bud Pounsett, VK2AQJ, as Manager. The address of the Bureau, which will handle all A.C.T. VK1 cards, will be Box 59, Kingston, A.C.T.

Divisional Managers and others please note an additional change in A.R.R.L. QSL Bureau. The address of the W2-K2 QSL Bureau is now Box 746, G.P.O., Brooklyn, I., N.Y. The QSL Manager is Frank Huberman, W2JLL.

The L.R.E.M. (Liga dos Radio Emissores de Mocambique) announce that on the occasion of the visit of His Excellency the President of the Portuguese Republic to Mozambique, the L.R.E.M. will put its station CRYBS on the air during the Economic and Cultural Mozambique Activities Show. The station will work on all Amateur bands on phone or c.w. as propagation conditions permit. The Show will run from 7th August to the 31st October and they will be glad to contact Amateurs anywhere in the world. All contacts will be confirmed by a special card commemorating the event. The address of the L.R.E.M. is Caixa Postal 812, Lourenco Marques, Mozambique.

Details of a new award issued by the Finnish Amateur Radio League have come to hand. The award will be known as the OH award. Conditions are as follows: Contacts must have been made after 10th June, 1947, except as provided in the footnote hereunder. C.w. or phone, or both, are permitted. The minimum reports acceptable are RST 338 and RS 33. Contacts with Finnish Mobile Marine Stations will not count. Non-European applicants must produce evidence of contacts with at least 15 different OH stations including at least five call areas. Contacts may be on any band but 3.5 Mc. contacts will count as two contacts. Applications should be sent with the confirmations and five International Reply Coupons to the OHA Manager, Postbox 306, Helsinki, Finland. The footnote provides that stations OH8ND through to OH8PQ will be counted as OH9 stations if contacted before 1st June, 1954.

Brisbane, Adelaide, Sydney and Melbourne Amateurs were pleased to meet an old friend in Henry (Pat) Miller, W2AIS, K6ARA, and ZC8PME, whilst his ship "Pioneer Cove" was in the abovementioned ports. Pat, who is an entertaining and personable chap, made the most of his stay in each port. Whilst in Melbourne Pat was desirous of making a recording for the A.R.R.L. Voice of America shortwave broadcast, of some of the notables among Australian Amateurs, particularly Max Howden, VK3BQ, Bert VK3PG generously offered the use of his recorder so a miniature hamfest was hastily arranged at the home of your scribe and the recording duly made. Eric VK1EM brought along his projector and permitted the gathering to view scores of excellent Kodachromes of Mawson and the surrounding Antarctica. Amateurs present were VK3 3BQ, 3CX, 3FG, 3YS, 3AHH, 3XB, 3RG, 1EM, W2AIS and yours truly.

NEW SOUTH WALES

The New South Wales Division's July meeting was held at Science House on Friday 27th. The lecture was delivered by our old friend, Yardley WAWH, better known as Professor Yardley Beers, of the C.S.I.R.O. Yardley's talk on the latest developments in the microwave field was delivered in his usual capable style and was much enjoyed by all present. Again the attendance was rather disappointing as only 60 members were present. Perhaps the warmer weather will once again see the bumper attendances we should have in this, our largest Division.

As this goes to press the building at Dural for VK2WI is really getting under way, with foundations being dug and bricks arriving at the site. There will be plenty of opportunities for all who are interested in getting on with this job of providing the Division with its first "fixed asset"—a home for VK2WI.

Many stations have been heard making last minute preparations for the very popular Remembrance Day Contest. Looks like all the "big guns" will be in there hoping to do better this time. Hope you did well, OM, and that you weren't TOO tired on Monday morning!

Again not much news of the doings of the city gang this month. Still having a little trouble with that "spy ring." Barry 2AAB, Jock 2ATW and John 2PG have been recently heard with good signals from mobile 7 Mc. gear. Don 2ASW off on business trip to G land via the land of the kilowatts both ways, nice business! Some of the boys conducting tests with "one eyed monsters" mostly with the expected results! Regular transmissions are to com-

mence in Sydney very soon and much disassembly and quiet re-building is going on. The Divisional BC1/TVI Committee is doing a very good job and would appreciate helpers.

That's the lot from HQ this month chaps. Hope to have more news of the city doings by next issue.

HUNTER BRANCH

A fair gathering of members and associates were present at the July meeting to attend to Branch matters, see technical films of topical interest and to hear a lecture by Doug Rogers, 2ADS, on "Converting the SCR522." Doug's lecture caused much interest as he gave data on the conversion using circuit diagrams and explained the reasons for some of the conversion methods.

The Hunter Branch Convention will be held on 29th and 30th September at Blackalls Park, near Newcastle. The activities will commence on the Saturday afternoon and close on the Sunday night. Programmes of the events, prizes, and other necessary information are being printed immediately and will be distributed to all interested members.

The programme is as follows: Saturday, 29th Sept.: 3.30-5 p.m. lectures and demonstration of equipment by the V.h.f. Group; 5.30-7.30 p.m., tea; 7.30-10.30 p.m., series of short lectures on subjects of topical interest.

Sunday, 30th Sept.: 9-11 a.m., 144 Mc. Hidden Tx Hunt with a prize of £10/10/-, second prize will be a Rebecca Tx; 11-11.30 a.m., Registration and listen to 2WI broadcast; 11.30, depart for locations for Hunter Branch Scramble (all gear, including antennae, must be at the departure point at 11.30 a.m.); 11.45 a.m., Scramble commences (any band, any power, but must not use power from a.c. mains); 12.30 p.m., Scramble ceases, return to park; 1-2 p.m., lunch; 2-3.30 p.m., children's sports, games, races, etc.; 3.30-5 p.m., blindfold tx hunt, first prize £5/3/- order.

The nearest main line station to Blackalls Park is Fassifern. Trains will be met, if the Social Committee is notified. Accommodation for the OMs is free, for information re fee for family groups contact the Social Committee. All bookings for accommodation to be made before 15th Sept. Who are the Social Committee? They are the following: 2AHA, 2XT, 2ADS, 2AGD, 2AOR, 2CS, 2ARV, Associates Bob Bailey, Roy James and Gordon Sutherland.

The activities among the Hunter Branch this month are many and varied. Jim 2ART has been pouring cement for his new 70 ft. tower; is at present using a two-wire beam to work 14 Mc. phone DX. George 2AGD mostly QSOs locals on Monday nights, also looks like George prefers the perils of Sydney driving to the QRM on the Amateur bands. Varley 2SF is still in the throes of c.r.o. building, but finds time for 7 and 14 Mc. phone. Leo 2QB is rapidly developing into a midnight DX hound after fulfilling more pressing social engagements; he has nice phone now on 20 mc. Bill 2XT pops up on 40 mc and lets VK2s know of the coming Branch's "Do", just like a good President should.

Lionel 2CS can be heard with the other greybeards on 80 mc each Sunday night. John 2XQ also frequents the "old man's band" on phone and c.w. Charlie 2ARV worked some daylight DX on 20 mc while on his holidays.

N.S.W. DIVISION SOUTH WESTERN ZONE Fourth Amateur Radio Convention

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Location—

GRIFFITH

SATURDAY, 29th SEPT., '56

SUNDAY, 30th SEPT., '56

at

I.O.O.F. HALL, Banna Ave.

★

Registration £1 each Adult.

Harold 2AHA been working on local mobile marine. Bill 2ZL not been feeling the best, active only during day, but is keen to work some 20 mc DX. 2AGR has started on his shack; he hopes to be active from West Maitland soon. Dave 2BZ joined by an ex-Hunter man, Jack 2ADT, and 2ZX from Inverell, and v.h.f. man Major 2RU of Gosford, journeyed to 2ARG's Palm Beach (N.S.W.) QTF for barbecue "buck's" party. Harry 2AFA has been quiet of late, he has been working a little DX on 20 mc. Johnny 2DX busy selling TX rx's. Associate Jack "The Major" Hamilton had a week off as 2ASJ second op., being a victim of the flu. Ron 2ASJ and Syd Daniels expect to be in VK6 when these notes are published. We all wish them a good trip.

The next meeting of the Hunter Branch will be held on 14th September at 8 p.m. at the Institute of Technology, Tighes Hill.

Don't forget our Hunter Branch Convention, 29th and 30th September. Also listen to 2AWX, the official Hunter Branch station on 14140 Kc. every Monday night at 8 p.m.

UPPER HUNTER GROUP

It's months since we have had really fine weather in this area. Believe it or not, there's a drought! No rain for two whole weeks, hill! Tas 2GV still working on 40 mc during the lunch hour and busy with 2 mx gear. Geoff 2VU putting out occasional signal on 80 mc with his ATR2B as main tx still dismantled. No news from Roy 2RC since he went bush; drop us a line Roy and give us some news. Nev. 2OS busy around the home, laying out a garden, I believe.

2ADT/ZX mobile was worked by 2ANU. Jack and Ted were on their way to a gathering at Gosford. Geoff was also honoured with a visit en route and a cuppa caged. Local interest in Amateur Radio in this area appears to be on the increase as your scribe has had several enquiries from interested parties and has endeavoured to put them on the right track. Well chaps that's all for this month. Let's hear from you sometime as your news will help to make these notes more interesting.

NORTH COAST AND TABLELANDS

2ADT and 2ZX (how did they get in again?) were reported to be giving each other driving lessons by radio amongst the traffic on that recent trip! 2AEY also has the mobile bug, we hear. Believe the Grafton boys have been getting some good entertainment listening to one of the v.h.f. services up that way? Noel 2AHH tuning up for R.D. Test (big score expected from you, Noel—Stan.).

SOUTH WESTERN ZONE

Lyn 2AQE at Wagga is once again active after quite a long spell of inactivity. Lyn called on your scribe last week so I have the inside information. He is contemplating changing mod. from cathode to plate and screen. Alf 2BW also at Wagga has been doing a mighty job as control centre during flood emergency at Wagga. Congrats Alf on a job well done. Stan 2AID also active occasionally from Wagga; Stan has been rehashing the rig. Jim Pratt, at Illabo, is about ready to go on 144 Mc. Jim was "butter-fingered" with his 8 Mc. rock so he has to wait for a new one to come along before he can fire up the rig.

The three Tumut chaps are all active on 2 mx at the moment. Keith 2ZAA has increased power and Geoff 2BQ has also a new p.a. Ross 2PN has I think something still on the secret list. Don 2RS at Albury still active on 2 mx and now has a lounge-rig built. "Wot? Too cold in the shack Don, or is Glenda getting lonely?" Hope to see you all at the Convention on 29th and 30th September at Griffith. Book early.—2AJQ.

TAMWORTH

We start this month's notes with a suggestion that chaps of a Sunday morning may find it more convenient to use 80 mc for local working as this band is in excellent shape in the mornings. Sam 2LY has his rig ready to fire up and should be heard holding forth by the time these notes are in print. Nothing has been heard of Syd 2APS, but we note he has now acquired quite an antenna farm in his backyard. Noel 2ASQ has been too busy sitting for exams at his job to do much operating, so has not got very far with his cubical quad; after he gets the quad up it will have the ears pounded off it by s.s.b. sigs as he is starting to get very badly bitten with the bug.

Bruce 2ZAD, after going to a lot of trouble to put up a 4 el. beam on 2 mc, forgot to anchor the feeders; yes, they broke. Never mind, Bruce, we will bring you down a bosun's chair! It is a fact that 2AET did arrive home safely after being down Eden way; he did not get lost in the mud on the Hume Highway, nor did he get too ensnared with the

Fishermen's Club of Eden. Rod 2ACU heard putting in a nice zig from his pi output in the ATZL. Frank 2AGF re-built 2 mx beam with increased output (the hopes) and apart from working Ken 2ANU, so far has not been able to raise anyone else. Also sat up from 5 a.m. one Saturday morning, with Ken 2ANU, listening for 2ADT/ZX mobile. It appears they passed within 400 yards of the place but could not be heard. You'll have to connect the antenna next time Jack.

COALFIELDS AND LAKES

Due to writer's inactivity in past month practically no news is available for this issue. Conditions generally have been patchy. 2PZ at last has his TV array on top of the 72 ft tower, and I believe results quite good. 2KF on now and then, also doing some building. Have not heard 2VU on 144 Mc, so may be the band still "lost." Nothing from Gosford or Lakes boys this month. 2RU is generally on some band and could give any dope re boys there if contacted. 2YL very quiet this month, a couple of 2I and 144 Mc. contacts being the issue.

CANBERRA RADIO CLUB

Recent lectures, "Crystallography" by Mr. W. Roberts, of National University, on 13th July, and "History of Broadcasting" by Mr. G. Barland, Manager of commercial station 2CA, on 20th July, were well attended by members and proved to be extremely interesting. Further lectures coming up include a series on Television by Mr. B. Asman, of the Patents Office.

John 1ZBS, one of the Club's most active members, is leaving for a colder climate. Yes, there is one colder than Canberra—Macquarie Island! A determined effort for an unlimited ticket is to be made before departure from Australia. Stan 1ASB is v.h.f. manager and would like to hear from anyone interested in v.h.f. contacts with Canberra, particularly on 2 mx. There is a whisper that one of the low band dileards is about to appear on this band with full power and a 16 el. beam. Les IPI says that "DX quality" phone really works. Les recently blew up his modulation transformer and substituted a power transformer. Undeterred by unflattering local reports he says DX reports are bigger and better. Bud 2AQJ is still knocking them over with his ground plane on 20 mx. Ted 1AOP has almost finished a new all-band tx.

Ken 1AIL, our worthy President, has plenty of trouble working Ws. It seems that his WJK fixed beam only recognises such calls as LA5, OH2, OZ4, EA2, SMS, etc., etc. as DX. Harry 1HW and the boys at R.M.C. Radio Club, Duntroon (1RM) seem to have found the elusive frog in the tx and have been heard with good phone. Rumour has it that they actually bought a xtal mike. Bob 1TV is grappling with a new three-band rotary. Preparations are well in hand for operation of the Club Station 1ACA from the Albert Hall in the Annual Hobbies Exhibition. The special QSL card is a beauty as those fortunate enough to work 1ACA will know by now. Visitors are always welcome at meetings and entertainments at the clubhouse every Friday night. Two tall white masts on a hill at Riverside will guide you, so come along!

VICTORIA

Hans Albrecht, VK3AHH, gave a very interesting lecture at the general meeting to a large crowd of about 90 to 100 Amateurs. The lecture was entitled "Radio Control of Research Missiles," and was adequately illustrated with slides which Hans himself had prepared. He discussed the atmosphere around the earth and the types of man-made objects to record research data from the upper levels of the atmosphere. He also described the various ways of radio controlling rockets and guided missiles and the relay of the research information back to earth stations. He concluded with a short resume of the satellite which it is proposed to launch into the upper atmosphere in the Geophysical Year in 1957-58. All were greatly intrigued with this lecture on such a little known subject and many questions were put to Hans in regard to space travel, etc.

The following new members were welcomed to the Institute: Messrs. D. Jenkin and E. Daniel (as Associates), and Messrs. I. Wardle and H. Stagg (Junior Associates).

Owing to the fact that the Radio School is not available in September, there will be no general meeting held in that month, instead the next general meeting will be held on 28th August when Mr. Alan Foxcroft, VK3AE, will give a lecture entitled "Sunspots and DX." This lecture will be illustrated with films.

For the October meeting it is hoped to arrange a "Frogman Lecture" to be illustrated with films, by Commander Batterham, R.A.N. It is with deep regret that we record the passing of Ron Russell, VK3EO, who was a senior constable and radio technician at D24. Ron died suddenly on Sunday, 28th July, and the sympathy of the Victorian Division is extended to his widow and young family. Ron was only 43 years of age.

The Victorian Division has received a donation of a Valve Checker which tests all types of valves including the new miniature locals, etc. It has been placed in the lending section of the Instrument library and may be borrowed by financial members on a deposit of 10/-. Here is your opportunity to go through all your old disposal valves in the junk box in the convenience of your own home rather than having to carry them into the Institute for checking.

The Annual State Convention will be held at Leongatha on the week-end of 3rd and 4th November. Ron Jardine, VK3FR, 8 Blackmore Avenue, Leongatha, will be handling arrangements for accommodation, etc., from the Leongatha end. Items to be included on the agenda paper should be forwarded to the Victorian Division without delay.

Another course of the A.O.C.P. Classes has got away to a good start with a satisfactory number of students attending. The ever-popular Jay 3JL is again running the c.w. and regs. class and the new instructor for the theory class, Cliff 3ATP, is putting a lot of preparation into his lectures and should make a great success of the job.

Another disposals handout has been conducted by the Victorian Division, lists having been forwarded to all financial members and as the disposals committee has been able to gather together a considerable stock of equipment for disposal to members, most look like being lucky with their applications.

The Victorian Division extends best wishes and congratulations to former Hon. Secretary and Councillor, Col 3FO and his XYL, Pat Gibson, on the arrival of their first harmonic. The baby, a little girl, to be named Cheryl, arrived on 18th July. The progress report is— all well including the father.

And now a word to those interfering so-and-so's who keep cluttering up the slow more practice transmission frequency 3550 Kc. every Sunday evening. How on earth do you think I'll ever get my c.w. if you keep on mucking it up on me! And I'm not the only one, the Short Wave Listeners get terribly disappointed every time the transmission suffers from QRM. And think of the operator, all his preparation and time goes for nothing. What about giving us all a break, it's not much to ask, it's only for half an hour on one night in the week. Please co-operate and keep the frequency, 3550 Kc., clear between 8.30 and 9 p.m. on Sunday evenings. Thanking you in anticipation.

80 METRE TRANSMITTER HUNT

It was one of those really perfect sunny days and a very excellent crowd of 51 turned up to the 80 metre Tx Hunt. The tx, which was hidden by Eric 3ADU, was located at Bulla. It was hidden amongst rocks and bushes beside the river and could be approached only by means of crossing the river via a very wobbly suspension bridge. The only ones who enjoyed the suspension bridge were the harmonics. Eric, as usual, got up to tricks and this time employed an electric fence to harrass those seeking the tx. The location was very delightful from a scenic point of view with a deep ravine with the river at the bottom complete with a waterfall and this most picturesque (though wobbly) suspension bridge. When all competitors had arrived they gathered together and had a picnic afternoon tea in a sheltered grass covered cutting by the side of the river. All declared it was a most delightful way to spend a Sunday afternoon. The winner was Laurie 3ALY, second was Herb 3JO and third Reg 3ZAD. The next Hunt will be held on Sunday, 16th September, when Tom 3AOG will be hiding the tx. How about coming along and joining in with us?

NORTH EASTERN ZONE

The annual meeting was held in the R.S.L. Hall at Seymour on 8th July. Des 3CO had a much appreciated fire going where those who braved the elements managed to thaw out before the meeting got under way. After a late start, the proceedings were rushed through so that the gang could hear about disposals from Gordon 3TF, who knew all the answers on that score. New office-bearers are: President, Bruce 3AGG; Vice-President, Des 3CO; Secretary, Andy 3FD; Zone Correspondent, Les 3ALE, with assistance from Howard 3YV, Ken 3KR, Des 3CO and Jim Harrington; Communication, Frank 3ZU and Ken 3KR, and Zone Co-ordinator, Henry 3HP.

Those present were SACK, 3JC, 3AXW, 3AFP, 3CO, 3FD, 3ALE, Jim Harrington and brother. Apologies were received from almost all other Zone members. Visitors were Gordon 3TF, State President of the Vic. Div.; Fred 3YS, Hon. Sec. of the Vic. Div.; and Cliff 3ATP. Fred managed to interest most members in a new Call Book and the new W.I.A. Log Books.

Des had teed up a visit to the Woollen Mills where the works were inspected with much interest after which yours truly had to leave but other visits were on the agenda. XYLs and harmonics present had a good rag chew around the fire and are to be commended for braving the weather with their OMs.

The zone hook-up is still to be at 1330 hours on or around 7050 Kc, when this frequency is not in use during emergency work. Listen around chaps, we will be around near this frequency. The average number of zone members on the hook-up is four; for a zone of this size that is very poor, so chaps it's up to you. —SALE.

SOUTH WESTERN ZONE

The zone has not been quite as busy this month owing to the bad weather conditions that we have had although 3JA has been on 14 Mc, just the same, also Harry 3XJ and John 3ARJ, who I believe has had a lot of work to do owing to his father getting pneumonia, well let's hope he is soon OK again. Norm 3EQ is still flat out on the remote control business. Harry 3HF seems to be getting back to his usual 14 Mc. QSOs. Wally 3UT, from the cacti country, doesn't seem to be very pleased with the a.c., never mind Wal, these things are sent to try you. Kevin 3AKR has been on a few hook-ups lately also Brian 3ADV and Fred 3ALE and Bob 3IC, but 3BU unfortunately can't come on as he has a queer little interference that happens with the local church amplifier, so Bill will have to be excused. We all hope Bill 3WT is feeling much better now and hope to hear you back on the air soon. Ted 3PS is still looking for a Type 3 or ATR2B so as to get on again. 3PO made a short appearance one morning on the hook-up. Jim 3ABT has made himself known on a couple of hook-ups. Bert 3VA seems to bash 3ACE's ear a lot.

We have the Kinnear Trophy in the zone so what about all helping to keep it? I suppose you have all heard that saying that one voice cries alone in the wilderness. We all hope to see a good muster at the Convention as the Ballarat boys always put on a good week-end. Bill Wines is now the owner of 2 el. 14 Mc. v.w. beam so when this is put on the tower, waacko for 20 mx; also has 5/5 to mount above this for 144 Mc. John 3AGD and Leigh 3II are still on the bands a lot. Ian 3BV is busy cleaning up the hum in the tx.

EASTERN ZONE

Graham 3QZ and XYL have gone on a caravan trip to Central Australia. He took the Type 3 with him and his c.w. sigs were heard on the zone hook-up at 569 from Alice Springs. Graham has shifted QTH, still in Traralgon, but a new residence, so we are looking forward to hearing his signal on 80 mx again when he gets back from his holidays. Ron 3PR has everything under control for the State Convention which promises to be a great event for the zone. Ron has a new rx now, an AMR300, which he says performs very well. Ian 3AAV is re-building the final of the big rig, going in for an 813. Cliff 3AIT is putting out a beaut signal and he has got himself a Geloso to build an all-band rig. Gilbert 3AYM is back on the air again, after a re-build, with a good sig. Ewen 3AEC is on each Sunday night; has a capable second op. in Ray Dorington.

Len 3LV has been on sick list for some time now, but is slowly recovering. Jack 3AJK has the new rig going at last, running 25w. input to single 807. George 3ZCG still contacting the boys on 2 mx with the 522 and I hear he is going on a trip to the outback up north. Peter 3ZDJ has now shifted to Melbourne; we wish him all the best down there. Bernie O'Reilly is now an Associate member of the W.I.A. Congrats. to you Bernie. Don't forget s.w.l.'s in the zone to write in to the S.w.I. Section in the magazine and keep the Eastern Zone on the map. All intending to go to the State Convention are asked to contact Ron Jardine, 3PR, Blackmore Avenue, Leongatha.

GEELONG AMATEUR RADIO CLUB

At a recent meeting, Mr. A. Forster, 3AJF, gave an interesting talk on "PI Couplers." The speaker showed how to work out requirements by mathematics and put them to practice. The boys recently helped Bill 3AWZ erect his new 5 over 5 rotary beam on 2 mx. Several stations have been contacted at good strength, e.g. 3ZAY, 3CP, 3AE, 3ALZ. Television aerials now appear skywards and we wait anxiously—

interference possibilities by both t.v. rx's and maybe Amateur tx's.

On 2nd Sept. our first field day on 80 mx will take place. Bring along the family and have a good time. The usual Sunday outings have taken place and the boys have had some interesting contacts.

QUEENSLAND

BRISBANE AND DISTRICT

Well, gentlemen, it's arrived! By the time you read this quite a few of our fellow Amateurs in Sydney will have received their "Baptism of Fire" in combat with t.v.i. Fortunately, the VK2 Division has formed a T.V.I. Committee which we're sure will meet the challenge and be victorious. They have been preparing for t.v. for quite some time and won't be caught by surprise. This is all leading up to an appeal to members of this Division to "get cracking."

Adolph Hitler conquered most of Europe between 1939 and 1941 and he used psychological warfare on his intended victims to soften them up. How well this worked we discovered too late, but we can prepare to defeat our future enemy by just the same tactics. In the company of friends, at Club meetings, when you are having a couple with the boys, a little talk will fall on the ears of intended t.v. viewers and, possibly, will soften them up and prepare them for the interference they certainly will get. Emphasise the point when the t.v. pictures are "fouled-up" the cause could be a car with un-suppressed spark plug leads, a noisy fridge motor, an electric lawn mower or any un-suppressed electrical equipment. Tell them that

faulty or un-suppressed electrical apparatus can cause havoc with t.v. so that when they have t.v.i., the local Amateur won't be blamed. Make certain you do mention that a couple of manufacturers have insisted on using 21 Mc. for their sound i.f. and 26 Mc. for their video i.f. against the advice of the Broadcasting Control Board, and that the choice of 21 Mc. clashes with a frequency which the Amateurs were allocated by International agreement. Quote the statement of the Postmaster-General, Mr. Davidson, on this point and use everything within the laws of libel to make John Citizen realise the mistake he would make in buying a receiver made to specifications contrary to the advice of the Board. It's up to you now, so do something.

Now that we have that off our chests, leaving only the remnants of a nice bout of U.R.T.I. (Upper Respiratory Tract Infection), which has been on a rampage in Brisbane, we would like to let all members of the VK4 Division know that we have secured a batch of 30 crystal inserts at quite a reasonable price and "QTC" will give you details of how you can obtain one. They are completely moisture-proofed and the frequency response is excellent. We have also tendered for some really nice disposals gear and if our tender is accepted we will let you know in "QTC." One point, if you see a note in "QTC" that we have some gear to be disposed of, don't wait till the last moment to get your name in because the gear will almost certainly go to ballot and if you don't want to miss out, be quick smart about getting your name in. Please don't send a cheque until after the ballot is drawn.

The "a.c. band" boys have been having great fun with their 2 mx d.f. hunts. John 4FT won the first hunt on his motor cycle outfit and took only 22 minutes to discover the hiding

place. The second hunt was tinged with humor. The gang arrived, one by one, at a spot near Mt. Cootha to find it was the meeting place of those "gentlemen" who prefer to drink methylated spirits and other beverages with a similar punch. A truck was parked in this convivial spot and two characters were stretched out in what appeared to be a "Bacchanalian Stupour." With the activity of the "hunters" they roused, mouthed vehement oaths and threats, but did this discourage our d.f. men? No, and luckily they persevered to find that the "followers of Bacchus" were subtle plants. The first to realise this was Jack 4JO who, with the assistance of Lou Hill, won the hunt.

Well, please give our "ranting" on t.v.i. series thought and with your co-operation we can lick it. Don't forget the general meeting on the fourth Friday and make an effort to attend.

MARYBOROUGH

4AI is building a new tx—what, again? Each of Alan's successive rigs gets smaller, so we will bet on transistors for the next one. Alan comes on 14 Mc. for an occasional contact. 4CB should have his steel tower up in a month or so. Arch still works Brisbane on 2 mx, and is also working on his new h.f. tx. 4BG now has a 6146 in his band-switched final and is working mainly on 20 mx, phone and c.w.

4AI hopes to get rid of some public offices and make a comeback on the air soon. Plans a quad for 21 Mc. Arch 4CB nearly finished his 50 ft. tower. Had to get in a mobile crane to turn it over so he could rust-proof it underneath. 4BG still chasing DX on 20 mx and picking up an odd new one. At present re-building power supplies to increase the input. Has 6146 in pi-network final working well.

TOWNSVILLE

The meeting held on 12th July was poorly attended and do not know whether it is due to the cold weather, or that the locals cannot just be bothered, unless we have a firm to hold their interest. Anyway the few stalwarts do attend and have a real ragchew about everything in general. The Secretary is in hospital while the notes are being penned and just getting over an operation which was not successful and after regaining his health will have to submit to the knife again. Ed, all the boys wish you the best and hope better luck next time. You will be missed from the R.D. Contest this year and hope you are able to win a trophy again next year.

Alan 4BE in Brisbane doing a refresher course at school and will be able to see the Exhibition. Wally 4RU now the proud father of another girl. Congrats to Eileen and yourself. Hope your wish will come true someday. Ted 4EJ put up the G4ZU beam and really delighted with same; hopes to do a little pruning to get it to his own satisfaction. Graham 4BX coming on a few times to work the W boys. Edgar 4GF bobbed up during the week on 7 Mc. on the lunch time net. Vern 4LK and Collin 4CE trying to find out where their 144 Mc. signals are going; try looking down some of those old mine shafts around Charters Towers. John 4DK hopes to get s.s.b. going before long and has nightly discussions on 3.5 Mc. with Vern on various problems.

The boys from far north are not breaking through to well, must be the weather.

SOUTH AUSTRALIA

First of all I must acknowledge the many "good wishes" expressed to me, by both those at the last general meeting and by letter, some may have been bolterously stated, but none-the-less acceptable. To those who promised to send me items of interest from time to time many thanks, that will be a great help.

The monthly meeting of the Division, held at the usual place, was very well attended, with all executives present under President John and including the following visitors: Messrs. C. Appleby, H. Hancock, I. Johnston, J. Gibson, D. Hockley, and Keith Smith a visiting mobile marine type ZS2FW and GW3JZS of the "King David." Your scribe had a visit a few days prior to the meeting from Keith ZS2FW and was happy to thus meet him, he was accompanied by Keith SMT and Col 5RO and as most of our talk and action was v.h.f. we will leave it to SMT to tell you about it. Oh, yes, the meeting. The formal business got the usual attention and those present were advised of the Council's activities of the S.w.I. Group's doings, some Grey Beard Certificates were presented (and it is surprising who were too), Contest Certificate given to Awardees and Joe 5JO received his W.A.C. Loud clapping and some cheers of approval greeted each award.

Smoko and QSL cards distribution followed, and what cards there were too. One chap got a handful of European ones—GW, PO, EI, and

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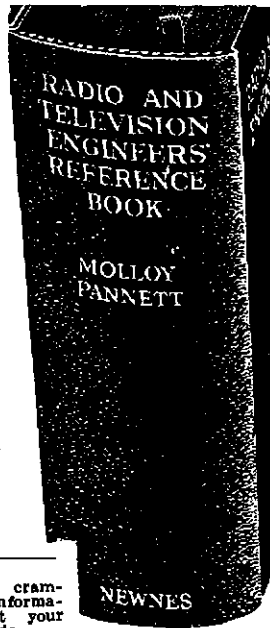
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so on. My XYL thought them to be a satisfactory addition to the already untidy heap—what am I saying. Les 5AX was not present to see the above glory for he had his nose out of joint—no, not because of the said GW, PO, and EI, but the result of a swift smack in that organ by a spanner that a machine buried at him. Bad luck Les, hope the snorkel will soon be central and functioning normally.

Tender of equipment concluded the evening, led by those cheerful and hard-working fellows, Dougal and Norm. There was not a great deal of gear offering, but it was of good quality. By the time you read this the VK-ZL Certificates should be out and about—congrats to those lucky ones, the Committee spent many a long hour checking and regretted the delay in issue, but consider accuracy essential.

Our T.V.I. Committee still keeping us advised of activities and movements and generally keeping right up-to-date themselves, so when the problems face us we will have a "knowledge pool" to draw on. They are asking us to advise prospective t.v. purchasers to watch they don't buy or commit themselves for equipment that deviates from the laid down Aust. standards of i.f. frequencies, etc., particularly in view of the announcement by P.M.G. that they could not be expected to protect non-standard receivers from t.v.i. It will help us a lot to be active in this for we will be blamed for plenty without having a set near us with an i.f. on a possible Amateur band or harmonic thereof.

Keep clear of 7146 Kc. on Sunday mornings from 0930 to 1130 C.S.T. at least to avoid clashing with other Division's sessions. Gordon was giving this out last week just as some bod came on the same frequency and really did some damage. It was probably accidental—but then we can sometimes avoid such accidents by knowing beforehand.

Why does our Public Relations Officer, Norm, always arrive at morning tea time? He never looks to me as though he uses such things, but then it must be his "system". Bruce 6OR doing a fine job on the Morse Classes—the Council made an appreciation—very nice Bruce, your help is very welcome to the newcomers. By the way, the other Sunday p.m. when returning home saw a dirty big 6OR scratched on my beautifully rolled, levelled, graded driveway. Guess who? Always pleased to see anyone all the same. Austin 5WO was steamed up for the R.D. in spite of a possible "away" job on that day, good luck fellow, hope more followed your example. Gordon 5XU-5WI has had a busy time checking logs again (will have to get Les to knock up an electronic brain for you) and marking exam. papers. Not A.O.C.P. papers surely. Wal 5DF has his 868s well oiled up lately, very steady good signal and his pre-session contact with John 5KX usually gives an indication of possible conditions for the rest of the morning. You would not believe it, but John 5KX actually asked Wal for the correct time last Sunday! Him above all people, I always thought he was the bloke who saw to it that his show kept "our" clocks right, bad show John.

NORTH WESTERN ZONE

Congrats to Dave Barker on passing his "Limited" which should help raise interest in 2 mx work there, another antenna or two won't hurt up there Dave, give the place some character. Bernie 5QW has finished a small rig, much to his surprise, and of the others, it works! He isn't the only one there with low power rigs ready for portable use, the birds tell me Ron 5FY has one that he tried out on the Northern net recently and apart from the fact that F. & S. modulation would complete it, he puts in a good signal here at Gawler. The reason why clamp tube modulation is used in this rig is that he cannot find room for even a sub-miniature transformer, in fact the room in the case is so limited that there is no room to screw the speaker to the panel, no room for the screws that is, he relies on the magnet of the speaker itself to hold it in place!

Some time ago a writer in "QST" told us how to build a vertical using beer tins; well, not to be out-done the 5WC boys have started on just that, but in their case, being of a different pattern, for they are using baked bean tins. So far they have a quarter wave on 10 and hope by vigorous consuming of more and more beans to finish up with quarter wave on 40. Life begins at 40, remember?

Haven't heard Keith 5AS' voice lately and understand he hasn't been slamming the club door much of late. Home-building or swatting c.w.? Ray (Mark II.) 5ARO has gone on to greener pastures and will no doubt pop up under his own call sign soon; that will make the others green with envy. Ray (Mark I.) 6FF pops out of hibernation occasionally, being torn between the rat race on 40 and the quietness of v.h.f. They tell me its that quiet on 2 up there that you could hear a beam drop! Sid,

the QSL Manager, makes the best brew known (what of Ron), and is swatting hard, give it a go Sid and be in the swim.

SOUTH EAST

Sorry your notes were late last month, so missed the Issue, but on the theory better late than never, we include now. The second anniversary of their monthly meetings was celebrated with a cake with candles supplied by Col 5CJ, with Tom 5TW providing the wind to extinguish same. A good old natter preceded the disposal of John 5FD's gear, or at least some of it. John is forsaking the bands for motor cycle racing. Keep the front wheel on the band John. A demonstration by associate member Don of the progress on his tape recorder impressed all with its efficiency. Stuart 5MS not heard on the air much these days, understand he is having trouble with his beam. If you want a hand at building a shack see Col 5CJ, for his infrequent appearances on the air are due to building activities, a smart job, too, from all accounts. Heard that Les 5ZAG acquired 5FD's power supply, right, now match it Les with r.f. gear, and let's hear you. Claude 5CH is a step further to his new rig with John's modulator in his possession—looks like Col may get some QRM when this new "gallon" gets going. Erg 5KU has reduced possible wind damage to his beam by re-building to a 2 element job, hope it's "up and doing" by now, 20 is fairly active these times, so don't miss out.

WESTERN AUSTRALIA

At the July meeting of the Division, 6RU deputising for 6MK, who has gone on a brief visit to G land, gave an excellent description of the Collins 75A4 rx. It was evident to members that the emphasis on rx design has been placed on selectivity and the means employed to obtain it. Not only is the bandwidth cut to narrow limits for phone reception, but interfering c.w. signals differing by as little as 1 Kc. can be completely wiped out. The frequency stability equals that of the well known BC221, and is even better as regards drift. The demonstration amply convinced members as to the claims made for the receiver.

George 6GM has been made a Life Member of the VK6 Division, an honour which has been well earned, after 28 years' service, during which time he has served in practically every capacity. George is the second Life Member in the Division, the other being old-timer Wally 5AG, who this year celebrates 80 years in Radio.

Others of the old gang are Jack 6AV, active once again from a new QTH (with power laid on), and Clarrie 6CP, who has been heard quite often lately. Quite like old times to hear the well known voices again.

Two rare visitors to the last Divisional meeting were Lionel 6LM, who threatens to come back again as soon as a new workshop allows him to return to the shack for normal operation, and 5ET, a very active member particularly on 20 and 10 mx. Carrying on the tradition is Tom 5TH, who after only being on the air for less than six months with his A.O.C.P., has already explored 80, 40, 20 and 15, and is now embarking on 10 and intends doing a full-time job in the R.D. Contest. Congrats, Tom!

The Constitutional amendment is now law, and limited licensees are admitted as full grade members, with stated voting restrictions.

To collect information on commercial QRM in Amateur bands, a monitoring group has been formed, consisting of 6BE, 6ZZ and 5AG. Please log any QRM heard on exclusive Amateur bands and send to one of the group, giving date, time, frequency and any other particulars known.

The 40 mx Scramble is fixed for Sunday, 23rd September. Rules same as last year, providing for contacts for one hour before lunch and one hour after. Conditions should be better this year. Don't miss this.

Advice has been received that an Amateur in Western Germany has been granted a t.v. license on condition that only pictures or photographs may be televised. It seems that his log will consist of a photo album!—6EJ.

TASMANIA

News this month as in previous months non-existing—no mail, telephone or telegraph services in this State taking the amount of correspondence received. Conditions also have not made it possible to eavesdrop to any extent on the bands.

Recent months have seen a good roll up at times on the Sunday morning hook-up and on other occasions the ether has been a complete void at this QTH. Yours truly and Reg 7WN recently visited the headquarters for a monthly

meeting to find an excellent roll up and spent an enjoyable night, even allowing for an auction sale where certain gentlemen did not allow for our country simplicity. Visited Leon 7JP during tour in newly acquired vehicle and found him all fired up preparing for Contest. All-band v.f.o., link coupled final, pi coupler, but where is the sky wire Leon. Jim 7ZAM visiting last meeting, but as yet no report.

The highlands club should be launched by the next appearance of notes, some fifteen to twenty enthusiasts are lined up, from which we hope some new call signs will emerge.

All chaps forwarding Handbooks, etc., are gratefully thanked for their interest and we hope their contribution will be of good use in the future.

The lack of notes in last two months are attributed to lack of any contributions from members allied with unexpected leave and family sickness at this QTH. Contest time will again have passed when this appears in print, so we hope next notes can record a VK7 victory. Well, chaps, unlike the well known axiom, "No news is bad news," as far as this Division is concerned. A little ink and a little time is most inexpensive.

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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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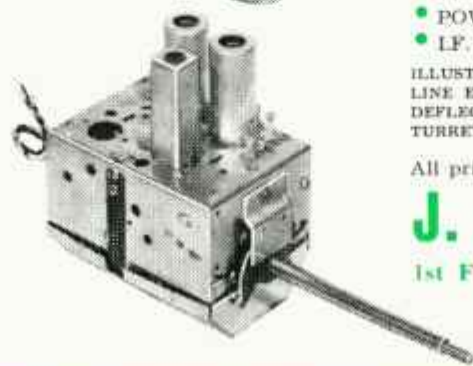
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5050 Kc.	7011.5 Kc.	7053.5 Kc.	7145 Kc.	10.524 Mc.
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EDITORIAL



TO REPRESENT OR NOT TO REPRESENT

The report in the July issue of the R.S.G.B. Bulletin on the results of the Stresa Conference in Italy brings to notice a matter which is of some concern to your Executive. How is the W.I.A. represented at the next I.T.U. Radio Conference which appears to be scheduled for 1959 with Geneva the likely venue?

It is obvious from the report on the Stresa Conference, that Region 1 is well organised, constitutionally and financially, and furthermore, that they will be well represented at the I.T.U. Conference when the time comes. But what of our Region—Region 3? It is certain that everyone will agree that we must have some sort of representation but preferably by a well briefed Amateur and not by proxy. The determination reached at the 1947 Atlantic City Conference made it all too clear that at future Conferences we would have to stoutly defend our hard-won privileges, and with the increasing clamour by commercials and others for more and more frequencies, the next Conference will be an even tougher proposition.

How then is it best to achieve the representation we must have? There are several methods that may be adopted—one of proxy—by briefing say another member society such as the R.S.G.B. who will be present. This method, however, is not entirely satisfactory in that they will have

their own problems peculiar to Region 1 to attend to and could not be fully informed of our attitude to certain problems that may arise. The second method could be a briefing of our Administration's representatives which again could not be entirely satisfactory for the same reasons. A third way might be that one of our members may fortuitously be on vacation in Europe where he may find the time to attend and put our viewpoint.

None of the above methods could be 100 per cent. effective, and the remaining and only sure way of effective representation would be for the Institute to send a fully briefed and accredited delegate especially to the Conference. This, of course, more than any of the other methods, means finance of some magnitude. Your Executive has been considering this problem for some time in an endeavour to find the simplest and cheapest method, but inevitably the finances of such a venture will fall largely on the Divisions. If we are to be effectively represented and if we consider our privileges worth fighting for, now is the time to commence thinking and planning. If we don't face the obvious facts, we cannot but blame ourselves for our apathy and for the often unpleasant decisions made which our united effort of proper delegation may have prevented.

FEDERAL EXECUTIVE.

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Analysis of World-Wide Ionospheric Propagation to and from Australia, 1953-54

BY HANS J. ALBRECHT,* VK3AHH

INTRODUCTION

THE principles of ionospheric propagation have been known for some time and research work during the last two decades has resulted in reasonably complete information on the mechanism of the ionosphere, as far as short-wave propagation is concerned. Predictions of propagation conditions between any two points on this globe are of reliable standard, since the concept of maximum usable frequencies (M.U.F.) and lowest useful frequencies (L.U.F.) was introduced about 15 years ago. For general long-distance communication the present methods are satisfactory for forecasting both frequencies on any circuit. This is, to a large extent, due to the relative consistency of the factors involved. Although readers are, for basic information, referred to appropriate literature^(1,2,3) it is thought that some comments on the fundamental principles of ionospheric propagation are not amiss.

Let us recall that the M.U.F. is defined as the critical frequency, i.e. the maximum frequency reflected back to earth at vertical incidence, multiplied by the so-called M.U.F.-factor. This factor consists of the secant of the angle of incidence, which has to be multiplied by another factor if the curvature in the ionosphere has to be taken into account. The critical frequency of a layer is an indication of the ionisation density. On the other hand, the relative sunspot number has been found to be related to the intensity of the ionising agent of solar radiation, mainly ultra-violet radiation.

The relative sunspot number can be predicted for several months in advance, by using the 11.1-year standard sunspot cycle derived from all previous cycles which have so far been observed. Thus a forecast of conditions can be obtained for any circuit by regarding the lowest value of the M.U.F.'s at two circuit control points—about 1,250 miles from each end—as the representative M.U.F. of the entire circuit. This forecast is regularly published in the form of prediction charts for different regions of the world. Each month the forecast of propagation to and from Australia is published in this journal by the Australian Ionospheric Prediction Service⁽⁴⁾.

The L.U.F. can be assumed to be mainly governed by ionospheric absorption, atmospheric noise level, and the power used, and its forecast is more complicated due to the number of factors involved. While it is not intended to discuss this aspect in detail, it may be mentioned that the ionospheric absorption is a function of the ionisation in the ionospheric regions, and that approximate information on the atmospheric noise level is available from noise charts which are usually drawn on a world-wide basis. Predictions of the L.U.F. are also made available by the Aus-

tralian Ionospheric Prediction Service in the monthly prediction charts.

As indicated above, the propagation predictions produced by prediction services all over the world are accurate enough for normal communication requirements. However, constant checks are essential and investigations into several aspects of ionospheric propagation, not necessarily restricted to communication, continue on a wide basis. Important are observations of ionospheric disturbances and their effects upon the propagation conditions. Other essential research work refers to the actual ionospheric path between the control points of a circuit.

USING AMATEUR OBSERVATIONS

Ever since radio was established as a means of communication, Radio Amateurs have greatly contributed to the progress in this research field. And, referring to the early development, the physicist Heinrich Hertz would not have made his fundamental discovery (1888) without that mixture of scientific skill, experimental knowledge, and technical curiosity, which has always been characteristic of Radio

Amateurs. And Guglielmo Marconi, who later succeeded in establishing the first contact across the Atlantic Ocean, began his career as an Amateur. In the early 1920's, the discovery of world-wide communication by short waves was a milestone in the history of Radio and of Amateur Radio.

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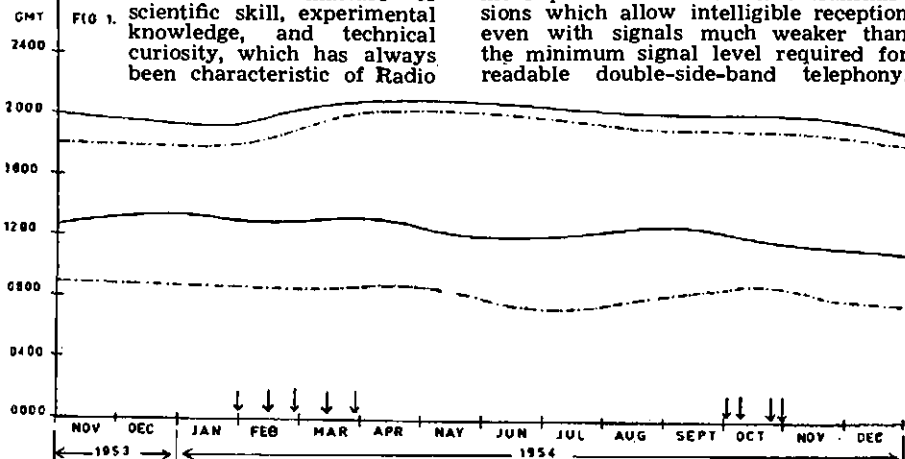


Fig. 1.—3.5 Mc. analysis for Western Europe (top) and North America (bottom), centred on Eastern Australia. Arrows indicate contest dates.

Amateurs. And Guglielmo Marconi, who later succeeded in establishing the first contact across the Atlantic Ocean, began his career as an Amateur. In the early 1920's, the discovery of world-wide communication by short waves was a milestone in the history of Radio and of Amateur Radio.

Even today, Amateur observations can be very useful for research, if they are interpreted correctly and compiled appropriately. With reference to ionospheric investigations, a skilled DX operator may have far more experience than research workers who have never had an opportunity to gain practical knowledge. Considering some aspects of ionospheric propagation, careful observations of Amateur DX signals may even provide more useful data than the continuous recording of signals from communication stations, because the in-

terest of the Radio Amateur lies, as a rule, more in the scientific line. While the problem of communication engineering is the reliable contact between two or more stations, irrespective of the operating frequency, Amateur operators are not restricted in their experiments as long as they confine their transmissions to the bands allotted to them, and do not exceed the power limit.

Particularly important are Amateur DX contests which normally take place on week-ends. With reference to ionospheric propagation research, these are equivalent to "International Geophysical Days", viz.: days on which numerous propagation observations are performed on a world-wide basis. The evaluation of such a contest is of unquestionable value for research, because the entire short-wave range is usually covered. Another advantage of using Amateur observations is the fact that the experienced DX operator is able to observe the existence of propagation down to very low signal levels. This is obviously more pronounced with c.w. transmissions which allow intelligible reception even with signals much weaker than the minimum signal level required for readable double-side-band telephony.

Nevertheless, disadvantages are also encountered when using Amateur observations for research work. Amateur Radio being a hobby, the Amateur cannot be expected to be active at times unsuitable to him, unless he has special interests in propagation investigations. This limited activity must be taken into account when evaluating Amateur reports. Thus few Amateurs operate between midnight and 0600, local time. On the other hand, on week-ends the activity reaches a peak. However, shortcomings of this kind do not exist during contests, and this is one reason for the usefulness of DX contests.

Another disadvantage may be the lack of understanding in certain Amateur

* 10 Belgavia Avenue, Box Hill North, Victoria.

circles. But Amateurs who are interested in DX work and keep in touch with this branch of Amateur Radio will usually be found to be enthusiastic and reliable co-workers. Speaking of reliability, there is no reason why there should be any difference in reliability between reports of human research workers and those of human Amateur operators.

PROPAGATION ANALYSIS

Making use of his position as DX-Ed., the author felt that a useful contribution could be made to ionospheric propagation research by an analysis of world-wide propagation conditions to and from Australia, based on observations by Radio Amateurs located in all parts of Australia. From the standpoint of research, the conditions during the sunspot minimum are of particular interest, because they make it possible to separate, to some extent, the different factors involved which at other times overlap each other. The last sunspot minimum having occurred around April/May 1954, this analysis covers the period from November 1953 to December 1954.

As a check of predictions during this period is one of the main tasks of the analysis, the predictions published by the Ionospheric Prediction Service are used as a basis of discussion, as long as forecasts were available for the band concerned. It must be mentioned that these predictions are expected to be correct for fifty per cent.

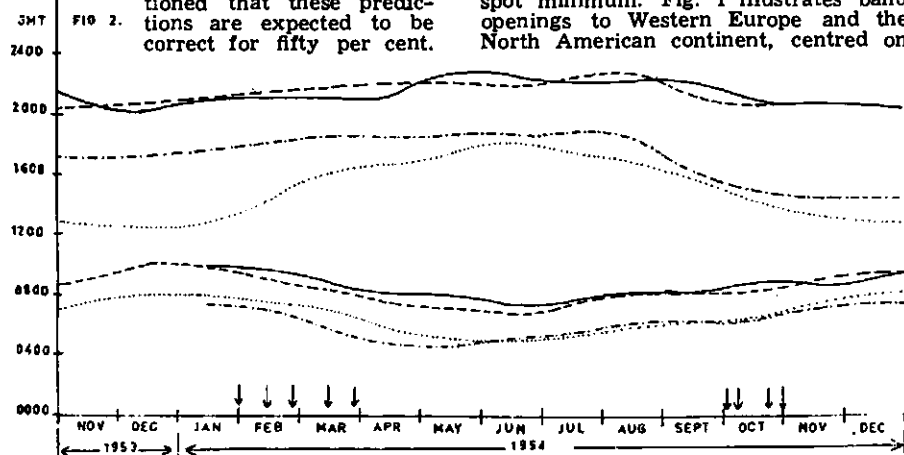


Fig. 2.—7 Mc. analysis for Western Europe, centred on Eastern Australia; short path (top) and long path (bottom). Arrows indicate contest dates.

of the days during a month. Small discrepancies can therefore be explained. The analysis charts show the annual variations of conditions towards certain continents, the axes representing the time in G.M.T. and the months, respectively. This is the usual type of presentation when long-term research work is involved. It allows an examination to be made of conditions during the entire period under discussion.

The openings shown are based on the propagation reports published by the author each month. This monthly report in fact results from the evaluation of reports received from Radio Amateurs, in addition to observations at VK3AHH, and covers the month in question. Different kinds of curves have been utilised to present the results, namely:

Commencement of opening, observed:

End of opening, observed:

Commencement of opening, predicted:

End of opening, predicted:

Ionospheric disturbances have not been taken into account as we are primarily concerned with an evaluation of overall propagation conditions. Likewise, sporadic E openings have not been considered, which is quite permissible as long-distance propagation within the range 3 to 30 Mc. is not supposed to be greatly affected by sporadic E.

With regard to the above-mentioned importance of DX contests, the dates of the following DX contests are indicated by arrows in the analysis charts: B.E.R.U., A.R.R.L., VK/ZL, and "CQ" World-Wide.

THE 3.5 Mc. BAND

Conditions on this band generally depend on ionospheric absorption and noise, and are thus controlled by the L.U.F. Openings can only be expected when the ionisation density has reached a sufficiently low value. It may be added that overseas conditions on this band are said to be affected by the sunspot activity insofar as the communication is more reliable during the sunspot minimum. Fig. 1 illustrates band openings to Western Europe and the North American continent, centred on

impossible, although New Zealand stations were capable of hearing and contacting European stations without difficulty. An Amateur station on Macquarie Island also reported hearing European stations over the long path. As 80 metre openings depend on the absorption in the ionosphere, these observations seem to confirm that, at the time concerned (around 0800-0900z), the ionospheric absorption was still too high in Eastern Australia.

THE 7 Mc. BAND

Due to the conditions prevailing during the sunspot minimum, this band was rightly regarded as the Amateur band with the most reliable and consistent conditions to all parts of the globe. Although analysis charts are conclusive for propagation conditions to all continents, the chart published in Fig. 2 refers to long-path and short-path openings to Western Europe only. The chart is again centred on Eastern Australia. As conditions generally were in agreement with predictions, other charts would only use up valuable space. The upper and lower sets of curves indicate openings on the short path and long path, respectively.

Discrepancies between predictions and observations may be explained as follows. As mentioned above, Amateurs cannot be expected to keep a constant watch on bands between 0000 and 0600 local time, which, for Eastern Australia, corresponds to 1400-2000z. This means that the commencement of the short-path opening as observed may not be entirely representative of the real time. The end of this opening shows a fair agreement between predictions and observations. Predictions and observations of the long-path opening follow the same pattern throughout. However, the months January to June 1954 indicate a period longer than predicted, this effect being pronounced during March, April, and May. It must be remembered that the predictions are supposed to be accurate for only fifty per cent. of the days in a month, and that L.U.F. forecasts are more complex and, to a certain extent, less reliable than other factors. Unless one likes to correlate this discrepancy with the actual sunspot minimum, which occurred in April, it may be explained by the fact that skilled DX operators are capable of hearing stations when normal communication has ceased because of weak signals.

THE 14 Mc. BAND

Throughout the period under review, the propagation conditions on this band were not as reliable as at other times of the sunspot cycle. However, each month contacts were possible with all continents. To illustrate the behaviour of world-wide propagation, analysis charts in Figs. 3 and 4 depict conditions to the North American continent, centred on Eastern Australia and Western Australia, respectively. No distinction was made between long and short path, or between North-East and North-West U.S.A. In other words, the curves result from combining the three prediction charts (or two for Western Australia) published each month for U.S.A. conditions.

Referring to Fig. 3, periods of openings observed are not indicated by two lines because this would undoubtedly

Eastern Australia. The upper curves depict the short-path opening to Western Europe, while the lower curves indicate the period of North American conditions. Openings to other parts of the world were found to be somewhat inconsistent and are therefore not conclusive enough for a useful analysis. A comparison between predictions and observations is possible because predictions were not available for this band.

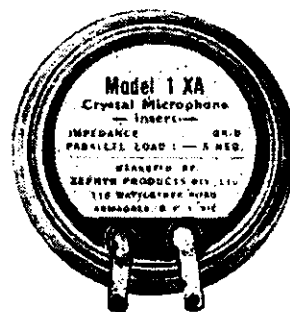
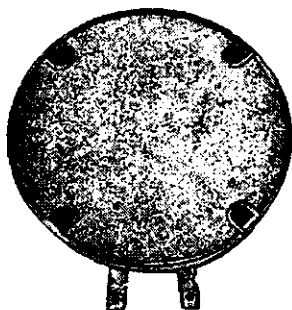
This analysis chart is largely based on the author's own observations and overseas contacts, which amounted, during the period November 1953 to December 1954, to more than ninety with stations in North America, on Eastern Pacific Islands, and in Western Europe.

It is of interest to note that long-path openings between Western Europe and Eastern Australia were found to be

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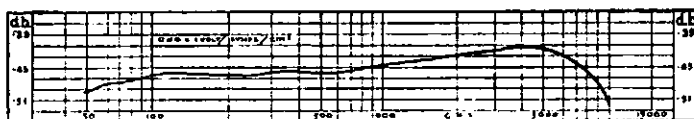
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confuse the charts. Where Amateur observations indicated conditions to the North American continent on any path, these times are marked by points. Again explaining minor deviations by the limitations of ionospheric predictions, the following discrepancies invite some comment:

- (1) The observations of conditions after the predicted closure of the band around 0500z, during the period December 1953 to March 1954.
- (2) Break-throughs around 1300-1500z and 2000-2200z in May 1954.
- (3) Break-throughs around 0800-1200z in October and November 1954.

(1) appears to indicate that the M.U.F. over the short path was actually higher than predicted during the period men-

Due to space being limited, the author intends to publish and discuss other 14 Mc. analysis charts at a later date. For the same reason, the 21 Mc. band will not be dealt with in this article.

THE 27/28 Mc. BAND

According to the predictions, openings should have been limited to the Far East during March/April and to North America in April.

Observations of Radio Amateurs indicated that break-throughs existed on these dates:

- 3rd January (Far East only)
- 22nd February
- 22nd to 31st March
- 5th to 13th April
- 20th October (to Europe, 1130z)

These results were to be expected for the period of minimum sunspot activity.

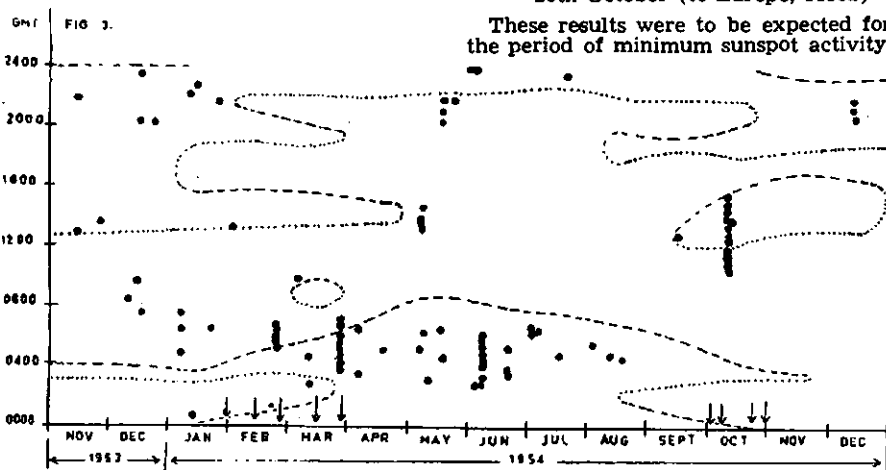


Fig. 3.—14 Mc. analysis for North America, centred on Eastern Australia; points show typical distribution of observations. Arrows indicate contest dates.

tioned, unless all observations refer to sporadic break-throughs above the M.U.F.

Referring to (2), the break-through observed around 1300-1500z probably means that the peak in the M.U.F. noticeable during the same period until April in fact extended to the beginning of May, which is within the accuracy of predictions. As to the other opening (2000-2200z), the actual reports suggest that this was a short-path opening, indicating that the L.U.F. was perhaps predicted to be slightly too high.

As (3) refers to signals from North-East U.S.A., it could be explained by the band opening much earlier than predicted for the short path (1200-1800z). However, the M.U.F. rises rather sharply at that time, as shown by the monthly prediction charts. Unless these signals were due to some sporadic opening, they may have come over the long path with the L.U.F. somewhat lower than predicted.

Fig. 4 shows the analysis chart centred on Western Australia. Throughout the period under review in this article, the number of reports from Western Australia has unfortunately been so small that any evaluation for this area does not appear to be conclusive. However, the few reports received did not indicate any break-throughs at extraordinary times. Thus propagation between Western Australia and the North-American continent can be assumed to have been within the times predicted.

GENERAL CONCLUSIONS

Apart from the few discrepancies observed by Amateurs and discussed in this article, conditions during the period under discussion were in reasonable agreement with the predictions made available by the Ionospheric Prediction Service.

In addition to serving as a general check for predictions, this evaluation of Amateur observations during the sun-

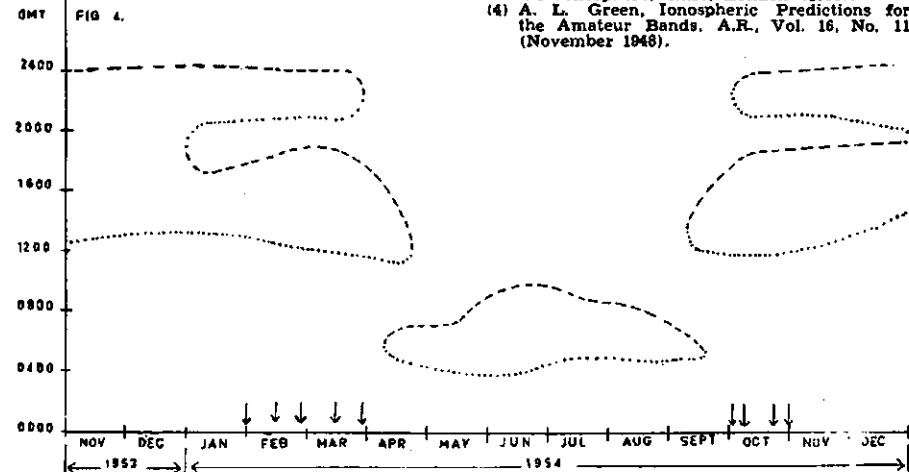


Fig. 4.—14 Mc. analysis for North America, centred on Western Australia. Arrows indicate contest dates.

spot minimum promises to be of use in the solution of other problems connected with ionospheric propagation research, as indicated in the Introduction. With reference to the ionospheric path between the control points of a circuit, for instance, the observations seem to confirm the opinion that the so popular and simple concept of multi-hop transmissions is no adequate explanation. It would, however, be beyond the scope of this article to discuss this aspect in detail.

Furthermore, this analysis has again confirmed that Amateur reports are sufficiently reliable for the type of research work mentioned. For the information of Amateurs interested, these are the data of particular importance: time, date (approximate date in the month is sufficient, unless short-term fluctuations or disturbances are the subject of investigation), call sign, signal strength (not essential), approximate beam direction (not essential, but desirable), and comments on anything unusual with regard to the signal observed (presence of fading, i.e. slow or flutter fading, echo, etc.). As shown in this analysis, observations of signals outside the openings predicted are of special interest. The predictions are published regularly in this journal, and instructions for their use were published some years ago⁽⁴⁾.

In view of the International Geophysical Year 1957-58, it would be advisable to hold a larger number of DX contests. In the opinion of the author, DX contests give a unique opportunity of investigating propagation problems, as mentioned earlier in this article.

ACKNOWLEDGMENTS

The author wishes to acknowledge the consistent co-operation of the Australian DX fraternity, particularly the Amateurs mentioned in the DX column in 1953 and 1954. Without their reliable reports, the compilation of monthly propagation reports and this analysis would not have been possible.

BIBLIOGRAPHY

- (1) H. Bremmer, *Terrestrial Radio Waves*, Elsevier Press, Inc., Houston, Texas (1948).
- (2) F. E. Terman, *Electronic and Radio Engineering*, McGraw-Hill, New York (1955).
- (3) T. W. Bennington, *Short-Wave Radio and the Ionosphere*, Iliffe, London (1950).
- (4) A. L. Green, *Ionospheric Predictions for the Amateur Bands*, A.R., Vol. 16, No. 11 (November 1948).

PULSE THEORY

PART TWO

BY I. F. BERWICK,* VK3ALZ

RE-ORIENTATION

When a train of square pulses is applied to a CR network, due to the exponential rate of charge and discharge, the output voltage E_r cannot follow the supply voltage E_b (see Fig. 6a). What happens is that on the make of the pulse, E_r rises to only a certain percentage of E_b , and on the break E_r goes $-ve$ by a certain percentage. With succeeding pulses this results in E_r settling down to a.c. voltage about the datum.

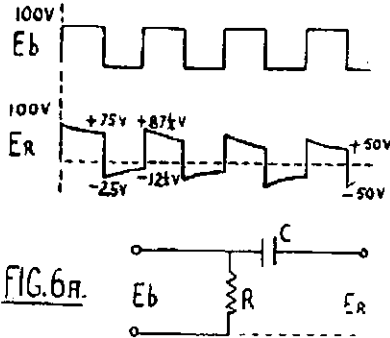


FIG. 6A.

This process is called **re-orientation** and is a nuisance in many circuits. The process of overcoming this is called **d.c. restoration**.

The circuit functions as follows: While the pulse is present C charges and voltage on the cathode of the diode rises. Current cannot flow in the diode.

However, when the pulse ends the cathode goes $-ve$ to earth due to differentiation and hence the diode conducts, and the cathode voltage tends to rise, counteracting the drop-down. The mean output is therefore the same as the input (see Fig. 6b).

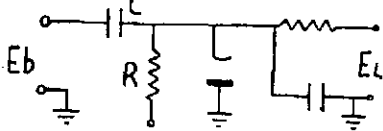
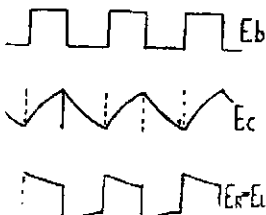


FIG. 6B.



It is now proposed to deal with circuits used for generating pulse waveforms of different shapes.

SQUARE PULSE GENERATORS

Diode Clippers, unbiased (Fig. 7a) and biased (Fig. 7b), give only a rough approximation to a square wave.

Double Clipping combines both the negative and the positive clipping to get a closer approximation to a square wave (Fig. 7c).

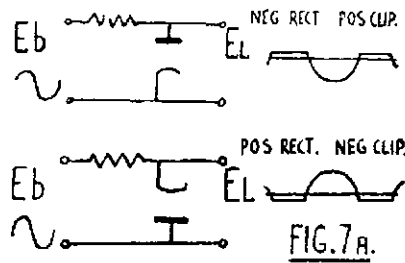


FIG. 7A.

MULTIVIBRATORS

Free-Running or Self Excited (Fig. 8a) plate coupled, called the Eccles-Jordan circuit. Oscillations are started by a minute voltage at the grid of one of the tubes, say a positive voltage on the grid of V1. This voltage is amplified by the two tubes and re-appears at the grid of the first tube, to be re-amplified. This process is rapidly repeated a number of times so that grid voltage of V1 rises almost instantly to a positive value, while the grid of V2 just as suddenly becomes more negative than cut-off. The immediate result is that amplification ceases and for the moment one tube is drawing a heavy plate current while the other tube draws no plate current.

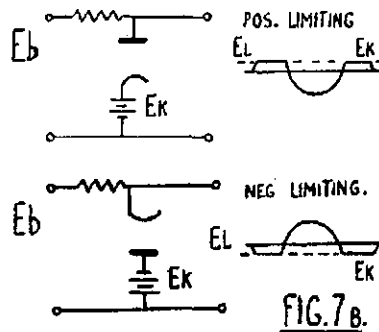


FIG. 7B.

At this stage the leakage through the grid resistance R_{g2} gradually brings the grid potential of V2 back to normal. Refer to (d) in Fig. 8a, the voltage rising exponentially with a time constant $R_{g2} C_2$. When the grid of V2 rises above cut-off this tube conducts and rapidly saturates whilst V1 is just as rapidly cut-off, due to the negative bias applied through C1.

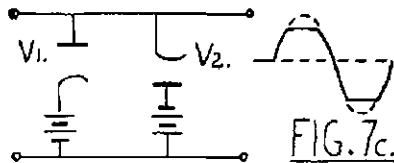


FIG. 7C.

When amplification ceases the grid of V1 charges exponentially with a time constant $R_{g1} C_1$ as in the case of V2. Refer to (b) in Fig. 8a. The process is therefore repetitive and continuous.

Cathode Coupled (Fig. 8b): The process is started by a random voltage on the grid of one of the tubes, causing V1 (say) to conduct and the negative going voltage on V1 plate is applied to

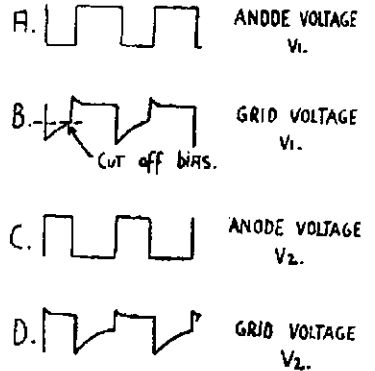
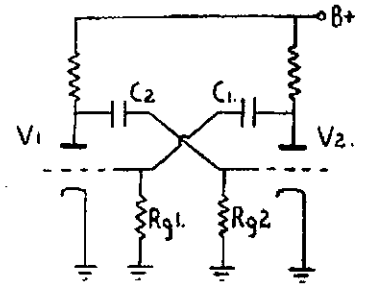


FIG. 8A.

V2 grid via C. The cathodes of V1 and V2 are strapped together so that this $-ve$ bias on V2 is applied as a $+ve$ bias to V1 which thus rapidly saturates and V2 just as rapidly cuts off. V2 being driven far beyond cut-off.

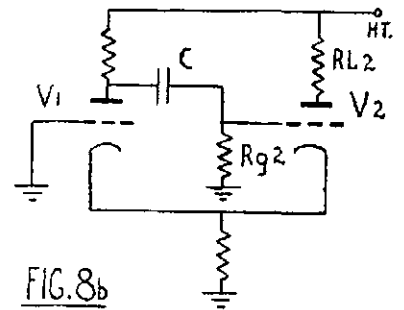
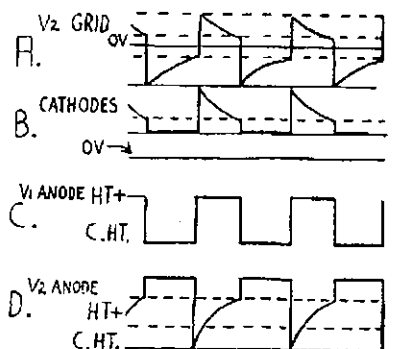


FIG. 8B.



*Lot 35, Loongana Avenue, Glenroy.

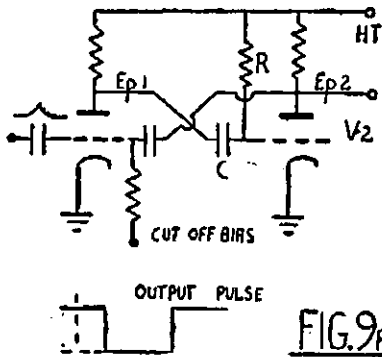
At this stage amplification ceases and C charges up through Rg2 with a time constant CRg2.

Note also that the cathodes of both tubes go slightly less +ve due to the counter action of the increasing plate current of V1 and the decreasing plate current of V2.

The cathodes remain at a constant potential until V2 grid rises above cut-off and the tube conducts. At this stage V1 cuts off and V2 conducts, but not as heavily as V1 did, so the result is a jump in cathode potential. The conductivity of V2 being limited by RL2. When amplification ceases and the condenser C discharges exponentially through Rg2 (but since the bias on V2 grid is also affected by the cathode potential) it will be seen that V2 grid potential falls in a linear fashion due the cathode potential falling exponentially with a time constant C Rg2 and an anode potential rising exponentially with the same time constant. When the cathode potential falls to such a level that V1 conducts, the process repeats.

It is of interest to note that the linear fall of voltage on V2 grid could be used as a linear time base in certain applications.

The cathode coupled m.v. is to be preferred to the plate coupled type, being more stable.



Triggered Multivibrators (Flip-Flops)

These are not free-running, i.e. not self-excited, but require a trigger pulse to initiate the pulse generating action.

Two definitions are in order at this stage. For purposes of application two important types of pulses are recognised.

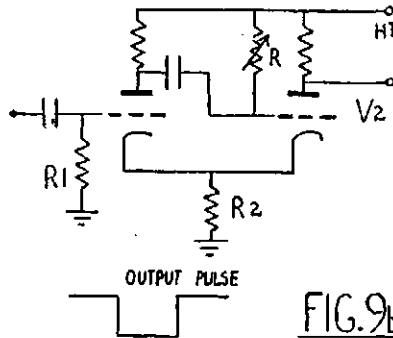
(a) **Trigger Pulses:** These cause a chain of events to occur but have no control of the cycle of events once this has been started. They are usually of short p.d.

(b) **Gating Pulses:** These cause a chain of events to occur but the cycle of events cease when the gating pulse ceases. They are usually square pulses of appreciable p.d.

Plate Coupled Flip-Flop (Fig. 9a): The grid of V2 is returned to h.t. through R. This holds V2 at saturation. V1 is at cut-off. A trigger pulse is applied to the grid of V1 and this overcomes the bias and plate current flows. The negative going voltage on V1 plate is applied to V2 grid through C and V2 plate current decreases and Ep2 rises, thus driving V1 grid more +ve. Thus V1 rapidly saturates and V2 cuts off. At this stage amplification ceases and C charges exponentially through R until V2 grid rises above cut-off and

V2 conducts, finally rising to saturation, whilst V1 cuts off and as there is no means whereby V1 grid can rise above cut-off, the cycle now ceases until a further trigger pulse is received.

Cathode Coupled Flip-Flop (Fig. 9b): Initial operating conditions—V2 is conducting and due to resultant bias across R2, V1 is cut-off. The positive trigger pulse applied to the grid of V1 should always find this tube in the cut-off state.



The +ve pulse applied to V1 raises the grid potential of V1 above cut-off. V1 therefore conducts and the V1 plate voltage decreases and this -ve going voltage is applied to V2 grid through C, the plate current of V2 falls. The cathode potential of V2 then falls and so does that of V1 and hence V1 bias falls below cut-off and V1 conducts. This continues until V1 saturates and V2 cuts off. C now charges exponentially through R, thus permitting V2 to conduct again.

The plate current of V2 through R2 raises the cathode potential of V1 and the grid of V1 becomes more -ve. V1 plate voltage is therefore +ve going and this being applied to V2 grid, causes this tube to saturate rapidly. The multivibrator remains in this condition until the next trigger pulse is received.

Note that R is made variable. This enables the p.d. of the output pulse to be varied as desired.

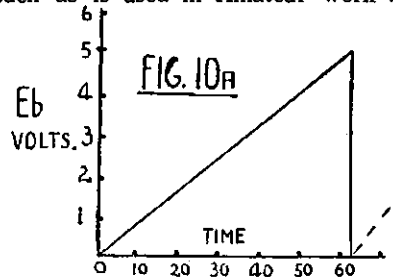
Flip-flops are largely used as gating pulse generators.

Note also that the circuit could be triggered at the grid of V2 by a -ve trigger.

Linear Sweep Generator, commonly known as linear time bases.

Introductory Note: In an oscilloscope the time base voltage is a sawtooth waveform. This t.b. voltage is a function of time, i.e. at any particular instant the t.b. voltage has a particular value and the horizontal position of the spot on the screen is related to the t.b. voltage and therefore to the time.

For a general purpose oscilloscope, such as is used in Amateur work for



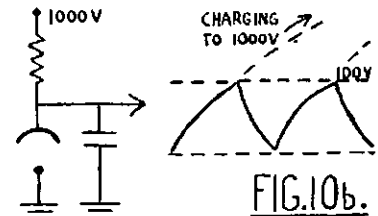
modulation checking, it is not important to know the relationship between time and t.b. voltage.

However in a radar scope it is very important to associate the horizontal position of the spot on the screen, i.e. the t.b. voltage with the time elapsed from zero time. To do this it is most valuable to have a linear relation between the time and time base voltage, i.e. $V = kt$, where k is a constant. Such a relationship is illustrated in the graph (Fig. 10a).

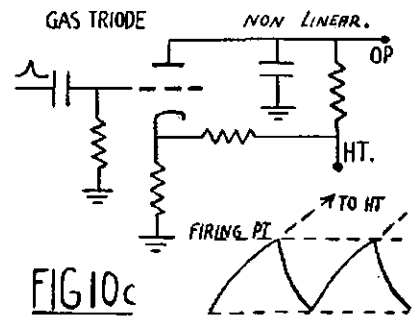
CIRCUIT OF TIME BASES

Neon Tube Time Base, non-linear (Fig. 10b). The neon flashes at 100v.

By using a high voltage source (1000v.) and a low voltage neon (100v.) only a short portion of the charging curve (exponential) is utilised and thus an approximation to linearity can be obtained.



Gas Triode, non-linear (Fig. 10c). When the h.t. is applied the condenser charges exponentially. At a certain voltage on the anode the gas ionises and the condenser discharges through the tube. The variable resistor of the point at which the voltage on the anode is sufficient to cause ionisation.



This type of sawtooth generator has a time base frequency limit of 20 Kc., whereas hard tubes can produce frequencies of 20 Mc. In practice, this type of circuit is generally locked to some other circuit by firing the tube by means of a pulse on the grid.

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TO Secretary, Department of Territories, Canberra. A.C.T., by 13th November, 1956

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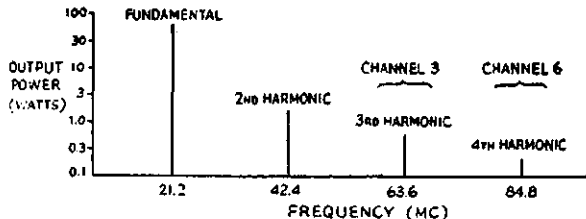
Understanding Television Interference*

BY LEWIS G. McCOY, WIICP

WHILE TVI (television interference) may not necessarily be a problem for every Amateur, the newcomer should have more than a nodding acquaintance with the subject. The purpose of this article is to discuss the various aspects of television interference and how they affect the Amateur.

So far as Amateur Radio is concerned, TVI falls into two categories. One of these is interference due to faults in the Amateur's equipment. In the other, the television receiver is to blame. Let's discuss the Amateur's equipment first, because in the event of a TVI complaint one should be certain his station is not at fault. The prime cause of interference from a transmitter is harmonics. There are a few others which we'll discuss later, but by far the most important is the radiation of undesired signals that fall in the TV channels.

★
Fig. 1.—Sketch showing the relationships of a 21 Mc. signal and its harmonics. In actual practice, the harmonics might not have the amplitudes shown. The important point to remember is that in addition to the fundamental, there are harmonics present.



HARMONIC INTERFERENCE

What is a harmonic? Let's say that you are operating your rig on 21.2 Mc. Depending on the design of the transmitter, it is quite possible that in addition to the fundamental signal, you'll be sending out signals that are multiples of your fundamental frequency. This is shown in Fig. 1. The strength of these harmonics will depend on many things, and it is a matter of considerable concern when one or more of them is strong enough to interfere with television reception.

Let's take the case where you are operating on 21,200 Kc. and your local TV service is Channel 3, which is 60 to 66 Mc. Because it's the nature of the beast, the TV receiver needs this entire frequency range of 6,000 Kc. just to see one channel. Any signal other than the TV signal appearing in this frequency range can cause TVI. The reason we say "can" is because it is entirely possible that the TV signal will be strong enough to over-ride the interfering signal completely. However, when the third harmonic of 21.2 Mc., which is 63.6 Mc., happens to meet up with a weak Channel 3 signal, the result is TVI. Your neighbour immediately yells, "That blankety-blank ham next door is ruining my TV!" And, in this case, he's right. You have no business putting out a signal in Channel 3.

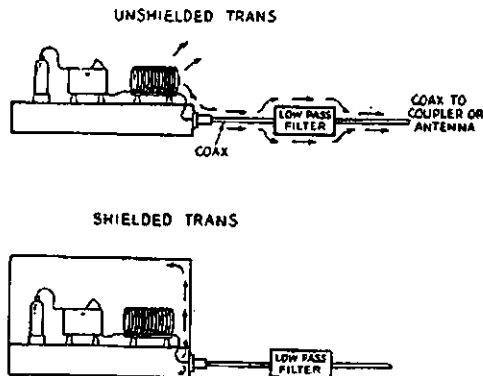
The first step in checking harmonic interference is to find out if the transmitter causes TVI without the antenna system connected. Remove the feedline from the transmitter output terminal and connect a dummy load, such as a

light bulb, to the rig. Now load up the transmitter and check to see if the interference has disappeared. If it has, you can then be reasonably certain that the harmonic is not being radiated from the transmitter. Obviously, it was fed up the feedline to the antenna and then radiated. It is entirely possible that by using an antenna coupler (assuming you don't have one at present) the harmonic will be attenuated to a point where it no longer interferes. If the reader is unfamiliar with the construction and use of antenna couplers, it is recommended that he read the section on couplers in "The Radio Amateur's Handbook." In addition to the Handbook, a description of an antenna coupler for the Novice is given in the April 1955 issue of "QST."

If the antenna coupler doesn't do the job, then more drastic action is needed.

The best method for preventing harmonic radiation is the use of a low-pass filter. A low-pass filter is simply a device that acts as a gate. It permits your fundamental signal to be fed to the antenna but shuts off the harmonics. The filter is an easy unit to build, and complete details are given in the BCI-TVI chapter of the Handbook.

★
Fig. 2.—In this drawing we see what can happen when the transmitter is not shielded. Without shielding, the harmonics flow over the chassis and on the outside of the coax and low-pass filter. With good shielding, the harmonics must flow inside the coax as there is no other means for them to escape.



★
For a low-pass filter to do its job properly, certain precautions should be observed. Most transmitters these days are designed for use with coaxial cable, the output terminal being a coax receptacle. The low-pass filter should be inserted in the coax line, close to the transmitter. If the harmonics are not being radiated directly from the transmitter but are fed up the feedline to the antenna, the installation of the filter may eliminate the interference. However, if it doesn't there are a few more steps needed to make sure the filter has a chance to do its job. In order for the

filter to be completely effective, all of the transmitter output must be routed to it.

In the sketch at Fig. 2, we see how the harmonics can reach the antenna without passing through the filter. By shielding the transmitter, the r.f. is forced to pass through the filter to reach the antenna. Other leads that enter the transmitter box, such as the 110-volt and key leads, must be filtered to prevent the harmonics from escaping the box. In obstinate cases of TVI, complete shielding and lead filtering of the transmitter are required. This is particularly true in areas that are quite far from the TV station and when the TV signal is weak. Naturally, the stronger the TV signal, the less one is apt to be bothered by TVI. Here is a summation of the steps to try when combating interference: Try the antenna coupler first; it may be enough. Next, add a low-pass filter. If these two steps don't do the job, then shielding and lead filtering are necessary. You can be reasonably sure that with a shielded transmitter and a low-pass filter, your signal will be clean. If you have a TV set in your own home and it doesn't show interference when your transmitter is running, then it is pretty good evidence that your rig is clean.

TV RECEIVER DEFICIENCIES

This leaves us with the other problem, that of faulty TV receivers. Let's make one point quite clear concerning TV receivers: interference due to poor receiver design is not your fault. You should co-operate as much as possible with the set owner but, once you know

your signal is clean, the obligation of fixing the receiver is not yours.

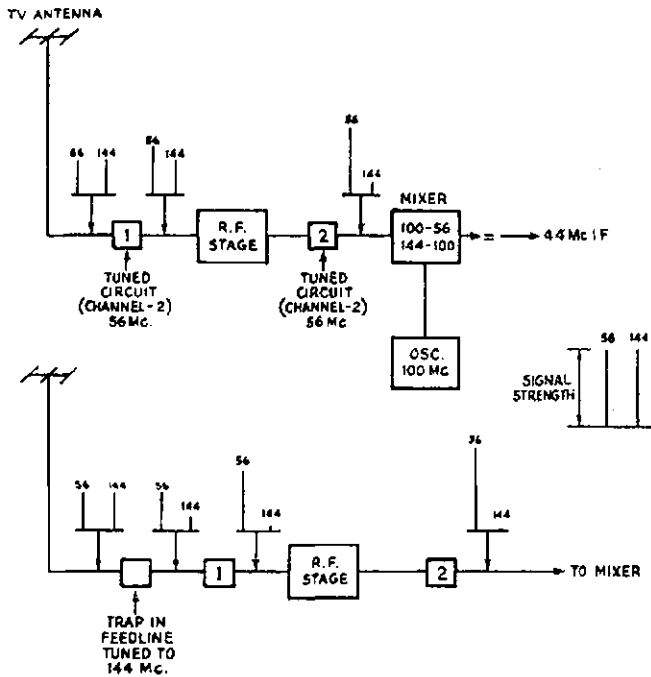
A TV receiver is designed to receive the bands of frequencies on which TV signals are transmitted. When the receiver picks up signals from frequencies other than the TV bands, then something is wrong with the set. Usually this something is lack of selectivity. When the TV receiver is tuned to Channel 3, it certainly shouldn't receive your 21.2 Mc. signal. If it does, then it is lacking in selectivity. When the 21.2 Mc. signal overloads the front end of the TV receiver (r.f. and mixer stages),

* Reprinted from "QST," April, 1956.

these stages generate harmonics of the 21.2 Mc. signal. This type of overloading and generation of harmonics gives the same final result as TVI caused by transmitter harmonics. However, in this case, the TV receiver is at fault. The answer to the problem is the installation of a high-pass filter at the receiver. As mentioned before, if your own TV set or one belonging to a neighbor is clean of TVI, then you can be fairly certain the affected set is at fault. Of course, for your own set to be clean, it must have sufficient selectivity to keep from overloading. This may mean the installation of a high-pass filter on the set.

Just like a low-pass filter, a high-pass filter acts as a gate. When installed on the TV receiver it permits the TV signals to enter but shuts out lower frequency signals. However, the installation of a high-pass filter on the neighbor's set is not your responsibility.

Fig. 3.—Block diagrams of the input stages of a TV receiver. (A) A receiver tuned to Channel 2 but with inadequate selectivity in the input stages will pass enough strong 144 Mc. signal to cause interference with reception. (B) Adding a 144 Mc. "trap" in the antenna feedline improves the selectivity of the TV receiver and prevents interference from 144 Mc. signals.



HANDLING TVI COMPLAINTS

The first thing to do on being informed that you are causing TVI is to contact the complainant and explain what is happening to his set. Assuming that your station is clean, you are in a position where you know his set is at fault. If your radio club has a TVI committee, and many cities have such organisations, give the complainant the name and phone number of the committee. By all means let the committee handle the complaint. It is not only equipped and trained for such work; it is authorised by the F.C.C. to take whatever action is necessary to settle the complaint.

Many TV manufacturers are aware of the need for additional selectivity when their receivers are used near a short-wave transmitting station. Upon recommendation by an authorised TVI committee, or the F.C.C., the manufacturer will furnish a high-pass filter at no charge to the set owner. If you are in an area not serviced by a TVI

committee, then the procedure would be to write the F.C.C. and explain the problem to them. They will take whatever action is necessary for the installation of filters.

It should be pointed out that in order for a high-pass filter to do its job properly, it should be mounted directly at the tuner of the TV set, not on the antenna terminals at the back of the set.

TWO METRE IMAGE INTERFERENCE

There is one type of interference that the 2 metre operator living in a Channel 2 area is likely to encounter. It is "image" interference in TV receivers having a 44 Mc. intermediate frequency. While this type of interference is a fault of the TV receiver, the Amateur should know what it is if and when he encounters the trouble. If you don't know anything about receivers you'll probably wonder how in the world a signal

Both signals, plus the oscillator signal, are then fed into the mixer stage. The action in a receiver mixer stage is to shift the frequency of the incoming signal to another frequency (the i.f., or "intermediate frequency") where it can more conveniently be amplified. This is done by introducing a "local oscillator" signal; the incoming signal will be shifted to frequencies corresponding to the sum and the difference of the two frequencies. In the case shown in Fig. 3A, the frequency relationships are such that the 100 Mc. oscillator signal shifts both the desired TV signal and the undesired Amateur signal to the 44 Mc. i.f. If the receiver does not have sufficient selectivity to reject the 144 Mc. signal, it is quite possible for

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in the 144 Mc. band could interfere with a TV receiver tuned to Channel 2 (54 to 60 Mc.). Without going into a long discussion on how a receiver works, we'll try and explain what happens. In Fig. 3, at A, the signal input circuit of a TV receiver is shown in block diagram. To keep the explanation as simple as possible, only two signals are shown in the diagram, at 56 and 144 Mc. Actually, there will be a multitude of signals from the antenna reaching the first tuned circuit in the receiver. The tuned circuit should accept signals at its resonant frequency and reject signals at other frequencies. The degree to which the undesired signals are rejected will depend upon the sharpness, or "selectivity," of the tuned circuit.

You will note in the diagram that the 144 Mc. signal is not as strong as the 56 Mc. one after they pass through Circuit 1. Both signals are amplified by the r.f. stage and then passed through Circuit 2. The 56 Mc. signal is now much stronger than the 144 Mc. one.

the signal to interfere with the 56 Mc. signal. However, the cure is simple.

At B, in Fig. 3, we see what happens when a trap (see Handbook chapter on TVI-BCI for constructional details) is installed in the feedline of the receiver, to improve the selectivity of the receiver. The trap is tuned to 144 Mc. to reject the interfering signal. After the two signals pass through the trap (the 56 Mc. signal is not attenuated by the trap), the difference in amplitude between the two signals is so great that the 144 Mc. signal no longer interferes.

As pointed out earlier, it is not your fault that the TV set picks up your signal. The cure for the problem is a 144 Mc. trap installed at the antenna terminals of the TV set. Explain the problem to the set owner and let him know that you'll be happy to tell the TV serviceman how to correct the interference. It is not recommended that the Amateur do any work on a neighbor's TV set. Installation of filters and traps should be left to a TV serviceman. The best procedure is to maintain a hands-off policy, because if something happens to the set after you have worked on it, you'll be blamed.

If you want to add a high-pass filter to your own TV receiver, details of its construction and installation are given in the TVI chapter of "The Radio Amateur's Handbook."

In summing up, the following points should be mentioned. It is much easier to clean up 80 and 40 metre harmonics than it is those from 15 metres. In most cases, the use of an antenna coupler will furnish adequate harmonic attenuation for 80 and 40 metres. Remember that when a TV set owner gets interference from you, he doesn't know that his set can be at fault. And, as a matter of fact, he'll probably take a dim view of your telling him his set is to blame. You can readily see that a great deal of diplomacy and tact on your part is required to keep relations on a friendly basis. It's nice to know you're right—but don't be smug about it!

Low-Pass Filter Home-Building Simplified

BY H. F. RUCKERT,* VK2AOU

A Low-Pass Filter was described in the November 1955 issue of "A.R." Further tests with this filter type, various coils and checking the tuning, resulted in the experience that correctly wound coils may be used without having to go through the alignment procedure described in "A.R."

The coil winding is simplified by using standard drills as the winding former. With transformer copper wire No. 14 s.w.g. the coils will have just the right diameter from wire centre to wire centre, or outside coil diameter minus one wire diameter. The length is the full length of the winding. Add half an inch to two-thirds of an inch of coil wire length for the wiring.

The capacitors (ceramic or silver mica) should be of plus or minus 10% tolerance. Small receiver types (500v. d.c. working) are safe if your s.w.r. ratio on the line is not much higher than 1:2. Co-axial cable of 50 to 70 ohms may be connected on both filter sides.

The filter must be very well bonded to the transmitter chassis.

The cut-off frequency is again 35 Mc. up to 41 Mc.

Coil Lk and the two L1 coils are wound on a 31/64 inch drill.

The coils L2 are wound on a 25/64 inch drill.

The coils will open up to the right diameter.

Lk—	11 turns,	0.57" diam.,	0.95" long.
L1—	8 "	0.57" "	0.71" "
L2—	8 "	0.47" "	0.75" "

The coils should be mounted at least the coil diameter away from other components and the shielding.

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

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P.S.—RIBBON. Did you forget your 300 ohm Twin Flat Feeder? Let me know your requirements.

THE ANSWER IS A HAM

BY R. S. FISHER,* VK3OM

In these enlightened times explanations are seldom necessary. Imagine my surprise, when quite recently I was flung into a whirlwind explanation through the failure of my circle of acquaintances to appreciate or even to understand the real and inner significance of the word "HAM".

Webster, with unusual inaccuracy, gives it as the name of a portion of the pig after decease. And this, no doubt, is responsible for the erroneous belief that it is of Semetic origin and goes with eggs, generally in the morning, but never on Friday.

I myself had thought that this ancient meaning had fallen into desuetude about the time John came out of the wilderness, and can only marvel at the way some words still cling to their derivations. Of course, even today one cannot help but recognise that some "hams" are pigs (like our friend 3OM, as related hereunder), but prefer to believe that this is merely a recent colloquial or metaphorical addition to the etymology of the word and in no way connected with its source.

Any attempt, however, to counteract this parlous state of public ignorance I find is an exhausting exercise in metaphysics. The briefest possible connotation is that the "Ham" is the product of a peculiar state of mind manifesting itself in the pursuit of the intangible. Fortunately for himself, the "Ham" is in his appearance no different from other members of the human species. Unless, of course, one is acute enough to observe a slight trembling of the right forefinger and thumb, although even this is not an invariable clue, since many prefer to use the left foot.

Like most wild animals (to which he is probably related), the "Ham" is harmless, and does not betray his natural tendencies until within his own domain. This is generally a mildewed shack, which does not leak, except on wet days, and for comfort and vague hints of mysterious sorcery resembles the anchorite's cave. In the dimmest corner of this place against a background of remarkable wallpaper and "Danger H.T." notices is a general junk pile marked variously "Xmitter" and "R'cer," which he indicates with casual indifference to the wondering uninitiate as being the "outfit with which he created the Finland-Australia low power phone record." To a fellow "Ham," however, who has thought up enough lies to make a visit worth while, he boasts proudly of having collected it less fifty through his personal influence with Mr. So-and-so of Such-and-such famous radio concern.

Here before this junk pile he sits far into the night. Tiny noises break the silence, and the demoniacal expression and subdued mutter of his lips in the faint light of his 807 is sufficient to frighten the ghost of Bluebeard. Should

one such dare to disturb him, even though it be only in the act of reaching down for another Sao biscuit, he would be met by a nicely-worded store of invective, educated by a life of seclusion, exceedingly varied, and well arranged without repetition.

Such is the "Ham" in his natural habitat. In summer these nightly vigils are prevented by what is known as QRN, with any given number of the abovementioned adjectives preceding it. In this weather he simply talks, and herein lies the great tragedy of the "Ham." None but his fellow "Ham" can understand him.

Perhaps in order to illustrate this sad condition I had better give that famous instance, when 3OM met 3AFJ (it is one of the peculiarities of the "Ham" that they have not names in the ordinary sense, but merely call signs) in front of the W.I.A. stand at the last "All Models Exhibition."

3OM was escorting a young lady, but at that moment had forgotten her existence in an absorbed study of the exhibits. 3AFJ, bouncing up at that moment, slapped him on the back and cried, "Hello, I see you brought her along OM."

"You bet—'m running 'er hevery night now—bit hexpensive on the juice

though." (3OM generally had trouble with his aspirates.)

"I heard her perking the other night. Rather raw note. Hi!"

"A bit noisy," admitted 3OM. "I'll 'ave to see what I can do to stop 'er hoscillating with the locals. She's rather loud, but I'll tone 'er down when hi get to know her better. She's a bit sluggish on long distances. Good speech, but with music she always seems a trifle flat, and I'm not keen on her speaker."

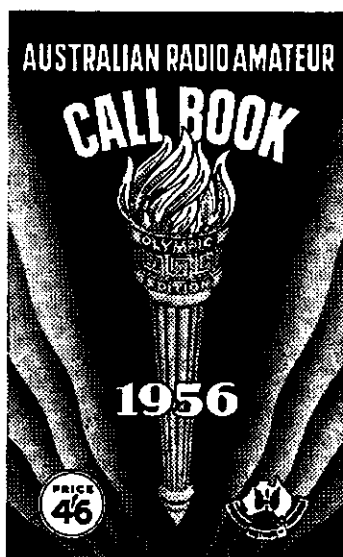
"Don't think much of that dial, OM. Bit wrinkly, and must take a lot of keeping clean. In fact, she could do with a clean all over."

"Oh! well, what can you hexpect, considering the way she's been knocked about here—that's the worst of bringing them to a radio exhibition. I s'pose she'll squeal when I get her 'ome again until I get her working again. I'll try your suggestion and see what choking will do."

3AFJ then bounded off with cheery 73 in his usual bright manner, and left 3OM facing an irate and red-faced young lady. Tears of rage sprung to her eyes, and she stamped her foot and glared at the amazed 3OM.

"You Pig! Pig!! Pig!!!"

"Why, why, hi'm not a pig, only a Hamateur Hexperimenter."



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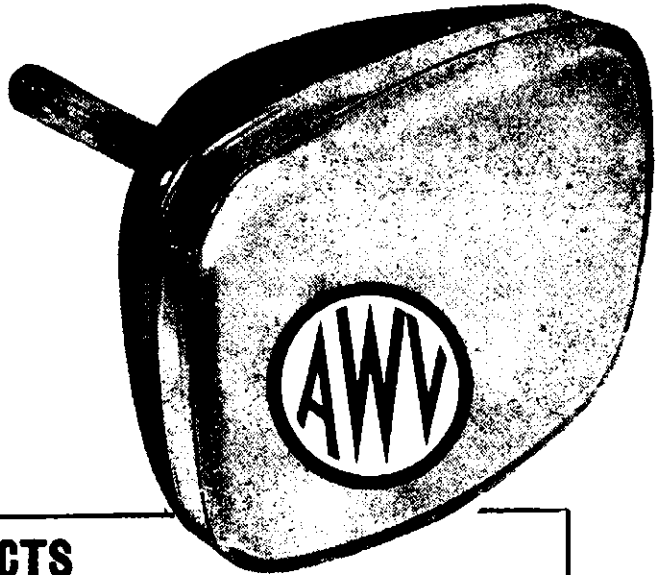
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R.S.G.B. TELEPHONY CONTEST

UNITED KINGDOM VERSUS THE REST ON 21 AND 28 Mc.

The first-ever R.S.G.B. contest exclusively for telephony operation and open to stations throughout the world is to be held on November 24-25, 1956. Its aim is to encourage stations to operate on the 21 and 28 Mc. bands during the years of high sunspot activity. Contacts between any station in the British Isles with any station in the rest of the world (including Europe) will count for points—the first time, incidentally, that any R.S.G.B. contest on these lines has been arranged.

The contest runs for a straight 36 hours but, since these bands will almost certainly close during the night, it is anticipated that activity will be confined mainly to the daylight hours of the Saturday and Sunday, and should thus prove particularly attractive to those who find most DX contests unduly arduous.

The availability of the two bands should enable Amateurs whose second harmonics fall in local TV channels to operate on at least one band at any time throughout the contest. High- and low-power sections will be run concurrently.

A simple scoring system has been adopted: 5 points for each completed contact, with an additional bonus each time a new country is worked. Countries will be defined in accordance with the official list (as used for DXCC) ruling at the time of the contest with the following exceptions: in VE, VK, W (K), ZL and ZS the call areas will each count as a separate country (e.g., it will be possible for a U.K. station to obtain a bonus of 200 points by working all the ten call districts of the United States).

It is suggested that participants should call "CQ RSGB." Overseas stations should note that the maximum possible number of British Isles zones providing a bonus of 50 points is 36 (six prefixes each with six numbers).

RULES

1. The contest is open to licensed Amateurs in any part of the world.

2. The contest is divided into two sections, namely (a) low power—maximum input 25 watts, (b) high power—maximum licensed power.

3. The contest (both sections) will start at 0700 GMT on Saturday, November 24, and end at 1900 GMT on Sunday, November 25, 1956.

4. Any type of telephony transmission for which the station is licensed may be used, e.g., AM, NBFM, SSB, etc.

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

6. 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 December 10, 1956, and must be addressed to R.S.G.B. Contests Committee, New Ruskin House, 28/30 Little Russell Street, London, W.C.1. The closing date for acceptance of entries is January 31, 1957.

7. Entrants must operate within the terms of their licences.

8. Only one contact per band with each station will count for points, but duplicate contacts should be logged. Cross-band contacts are not allowed.

9. Overseas stations may only claim points for contacts with British Isles stations (G, GC, GD, GI, GM, GW). British Isles stations may not work each other for points.



"I've worked 257 Stations—seven hours still to go . . ."

(Suggested by B. Robertson, N.Z.)

10. For each completed contact British Isles stations will score 5 points. In addition a bonus of 20 points may be claimed for the first contact with each new country on each band. For the purpose of this rule the official countries list will apply, with the exception that VE, VK, W, ZS and ZL call areas will each count as a separate country. Overseas stations will score 5 points for each completed contact with a British Isles station. In addition a bonus of 50 points may be claimed for the first contact with each British Isles country-numerical prefix, e.g., G2—, G3—, G5—, GW2—, GM3—, GI5—, etc.

11. Serial numbers must be exchanged and acknowledged before points may be claimed. The serial number of 5 figures consists of the RS reports plus 5 figures which may start with any

number between 001 and 100 for the first contact and will increase by one for each successive contact, e.g. 087 for the first and 088 for the second contact, etc.

12. The Metcalfe Trophy will be awarded to the leading British Isles station in the low power section and the Whitworth Trophy to the leading British Isles station in the high power section. In addition certificates will be awarded to the leading station in each section in each of the other five British Isles country-prefix zones, and also to the runners-up in the Trophy winners' zones.

Certificates will also be awarded to the leading stations in each overseas country, VE, VK, W, ZL and ZS call areas counting separately as in Rule 10.

R.S.G.B. 21-28 Mc. Telephony Contest November 24-25, 1956

Name..... Section..... Claimed score.....
Address..... Call Sign.....
Transmitter..... Input..... Watts
Modulation system(s) used..... Receiver.....
Aerial(s).....

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
24	21	0708	G3XXX	57001	57003	5	50	
24	21	0714	G3ZZZ	58002	55006	5	—	
24	21	0750	GM3YY	55003	57013	5	50	
24	28	0758	G3ZZZ	54004	55015	5	50	
Total (points claimed plus bonus points) 20 plus 150 equals 170								

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.....

CHECK LOGS FROM NON-COMPETING STATIONS WILL BE WELCOMED.

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

"CQ" DX CONTEST

The Phone Section of this Contest commences at 0200 G.M.T. on 20th October and runs through to 0200 G.M.T. on 22nd October.

Likewise the C.w. Section, 0200 G.M.T. on 27th October to 0200 G.M.T. on 29th October.

ERRATUM

In the article Phone and C.w. Monitor, August issue, p.6, the leads to the battery should be reversed.

AMATEUR CALL SIGNS

FOR MONTHS OF JUNE, JULY, 1956

NEW CALL SIGNS

VK— Canberra, A.C.T.
1AB—G. Chisholm, 18 Howe Crescent, Ainslie.

New South Wales

2EY—J. P. Meehan, 28 Verbena Av., Bankstown.
2GP—D. A. Page, 65 Hassans Walls Rd., Lithgow.
2HI—B. F. Darragh, 10 Fairmount St., Lakemba.
2LY—W. S. Lane, 15 Hyman St., Tamworth.
2MP—M. E. Pfeffer, R.A.A.F., Richmond.
2SU—C. B. Jones, Lot 5, Hutchinson St., Redhead, via Newcastle.
2VJ—J. R. McDonald, 160 Stoney Creek Rd., Bexley.

2AAK—E. A. J. Kyle, 64 Wentworth St., Randwick.
2ADZ—G. Harriman, Farm 1850, Griffith.
2AOW—W. N. Short, 58 Auburn Rd., Auburn.
2ZAL—A. R. Hennessy, 23a New Illawarra Rd., Bexley North.

2ZCB—L. R. Baber, 88 Main St., Scone.
2ZCC—L. J. Carpenter, Blackbutt's Rd., French's Forest.

2ZCG—J. W. H. Grace, 27 Davlew Ave., Watsons Bay.

2ZCM—S. B. McGregor, R.M.B. 21, North Korora via Coff's Harbour.

2ZCS—W. S. Steinfeld, 66 Anzac Pde., Maroubra Junction.

2ZCW—J. B. Webster, 25 Bayview Ave., Earlwood.

2ZDL—S. G. Lloyd, 104 Main Rd., Kahlbah.
2ZDM—J. E. Mackie, Molesworth St., Hillston.

Victoria

3EA—E. Anderson, 130 Osborne St., Williams-town.

3GB—G. P. Butler, 70 May St., Fitzroy.
3NP—D. Calwell, 87 Panoramic Rd., North Balwyn.

3KU—B. D. Clarke, Diamond Rd., Eltham.
3WC—P. J. Grigg, 3 Phillip St., Geelong West.

3AAQ—B. D. Greene, 210 Main St., Ballarat.
3AFB—R. J. Baty, 81 Neerim Rd., Caulfield.
3AGF—F. G. Annear (F/Sgt.), R.A.A.F., Laverton.

3AIK—J. B. Kelleher, 3 Paine St., Newport.
3AIT—G. C. Trall, Pearsondale, via Sale.

3AMT—A. M. Woolley, 5 Derwent St., Ringwood.
3ARR—R. W. Binks, 2 Orwill St., Frankston.
3ASK—J. W. Smith, 16 Lochinvar St., Pascoe Vale South.

3AVB—R. K. Burbridge, 9 Fushia St., Blackburn.

3AVJ—J. E. Lewis, 27 William St., Frankston.
3AVP—F. H. Lewis, 27 William St., Frankston.

3ZDF—J. B. Fraser, 36 Webster St., Ballarat.
3ZDE—A. J. McKean, 423 Buckley St., Essendon.

3ZDH—D. J. B. Hull, Lamach Rd., Baxter.
3ZDP—P. K. Bennie, 61 Stowell St., Sale.
3ZDT—P. G. Thorne, 51 Princes Highway, Moe.

Queensland

4AF—A. Guildford, 49 Clayton St., Sandgate.
4JJ—J. F. Edwards, 101 Hamilton Rd., Moorooka, Brisbane.

4NI—A. H. Nicholls, 209 Newmarket Rd., Willston, Brisbane.

4NI—N. H. Lawton, 50 High St., North Mackay.
4ZAK—K. T. Robertson, 40 Price St., Belgian Gardens, Townsville.

South Australia

5ZAQ—E. J. Whittington, 12 Ralph Ave., West Croydon.

5ZBJ—W. H. John, 14 Shirley Ave., Woodville West.

5ZCX—B. H. Wall, 89 Port Rd., Hindmarsh.
5EH—J. B. Hawke, 465 Payneham Rd., Felix-towe.

5IW—I. B. Wall, 34 Church Ter., Walkerville.
5ZAL—A. L. West, 16 Mahar St., Kensington Gardens.

5ZAM—D. A. Carthew, Penola.

Western Australia

6ZAH—L. E. Gooding, Darkan.

Tasmania

7SM—S. G. Moore, 8 Pearl St., Wivenhoe, Burnie.
7GC—G. H. Cranby, 6 Barrack St., George Town.

CHANGES OF ADDRESS

VK— Canberra, A.C.T.
1AVP—E. Penlks, 42 Kennedy St., Kingston.

New South Wales

2CF—J. D. Clark, Flat 3, 21 Martins Ave., Bondi.
2CU—A. Pearson, 20 Wollli Ave., Earlwood.
2HB—L. S. Porter, 133 Glipp St., Bega.
2II—J. N. Delaney, 4 Kiparra St., Pymble.
2IU—M. J. McDonald, 55 Bristol Rd., Hurstville.

2KL—H. A. Preston, 9 Forsyth St., Ryde.
2MA—A. N. Lansley, 18 Warandoo St., Waitara.
2ML—R. M. Ellison, 47 Park Rd., Bulli.
2NX—I. R. Cameron, C/o Carrs Creek Junction P.O., via Grafton.

2OT—M. D. Sobels, 7 Seaview St., Dulwich Hill.
2PB—M. T. Smith, 24 Redgrave Rd., Norman-hurst.

2SS—A. Skene-Smith, 300 Great Western Rd., Blackheath.

2ABP—R. G. Dunford, Dalgarno St., Coona-barabran.

2AGH—G. G. Hall, 79 Kyle Pde., Sth Hurstville.
2AGN—G. E. Nixon-Smith, "Banyandah," R.M.B. 288, Dunkeld, via Bathurst.

2AJF—B. L. Mills, 73 Cannons Rd., Carlingbah.
2ALC—C. Allen (Major), Eastern Command Sig-nals (N.S.W.) Regiment, Gormley St., Lidcombe.

2AMM—W. J. Plant, 54 Bonar St., Maitland.
2AOB—R. B. Digby, 12 Beach Rd., Collaroy.
2ARL—R. W. Clemens, 22 Alice St., Turramurra.
2AVC—E. C. Champion, 157 Livingstone Ave., Pymble.

2AVF—F. Fairleigh, 29 York St., Bondi Junction.
2AW—W. H. Field, 45 Charles St., Killara.
2AZG—J. R. Grouse, 17 Ivanhoe St., Marrick-ville.

Victoria

3DE—D. E. Hale, 1 Langford St., Morwell.
3DM—D. C. McDonald, 110 Francis St., Ascot Vale.

3FQ—A. C. Yeomans, 7 Beckle St., Bentleigh.
3HW—J. L. Lewis, Station: Walker St., Ballarat North.

3TY—W. H. Murden, Residence 3SH, Swan Hill.
3AEC—E. F. Caddy, 228 Main St., Bairnsdale.
3ABX—V. D. Bond, 28 Strzelecki Rd., Yallourn.

3AMJ—J. L. Arblaster, 8 Marshall Ave., Hignett.
3ARV—R. Henderson, Block 122, The Boule-varde, Thomastown.

3AYC—R. C. Chug, 2 Spencer Rd., Camberwell.
3WIA—Wireless Institute of Australia—22 Nor-folk Rd., Surrey Hills.

3ZAW—M. J. Williams, 116 Bruce St., W. Coburg.
3ZCT—D. R. Town, 15 Beaver St., Box Hill.
3ZDT—P. G. Thorne, 10 Dickenson St., Glenroy.

Queensland

4BM—W. J. Mead, Oak St., Gumdale.
4DG—K. D. M. Grice, now fixed station at 579 Lower Bowen Ter., New Farm, Brisbane.

4HN—W. E. Evans, Cordelia St., Gayndah.
4NR—C. Round, 28 Valence St., Sunnybank.
4SK—S. S. St. George, C/o 4MK, Mackay.
4ZAB—C. T. Amooze, Minimize St., Stafford.

South Australia

5BF—D. G. Goode, amend to read Yankallilla.
5BM—A. R. Matthews, 22 Robert St., North Unley.

5CW—W. F. Clifton, 63 Kingston Ave., Sea-combe Gardens.
5DA—S. R. Buckerfield, 5 Kathleen St., Brighton Gardens.

5DZ—J. A. Casey, 41 Tenth St., Port Pirie.
5EE—E. T. Walter, 64 Harcourt Ter., Salisbury North.

5IC—P. R. Crosthwaite, 79 Thomas St., Unley.
5MJ—J. H. Micklem, 5 Willaroo Ave., Beaumont.

5RB—R. B. Monfries, 74 Park Ter., Parkside.
5RQ—C. R. Sellick, 8 Machin St., Woodville S.
5US—P. R. O'Connor, 26 Benjamin St., Man-ningham.

5XA—H. K. Stacey, 24 Loader St., Glynde.
5XK—A. J. Hewitt, 24 Taylor Rd., Thebarton.
5YL—L. Lindley, amend to read Elizabeth.
5ZAN—M. J. Goodridge, 65 Farnham Rd., Ash-ford.

Western Australia

6BN—D. A. Else, 57 Cawston Rd., Attadale.
6PW—R. W. Peterson, 11 Clive St., Bicton Park.
6WZ—R. H. Atkinson, 91 Middleton Rd., Albany.
6ZAF—T. C. Berg, 16 Aberdare Rd., Shenton Park.

Tasmania

7ZAJ—P. J. Edwards, 28 Bain Ter., Launceston.
Territory of Papua and New Guinea

9HO—H. T. Overend, C/o R.T.C. Transmitter Station, Lae.
9KW—K. W. Turtle, Baniu Plantation, Buka Passage, via Sohano, Bougainville.

CANCELLED CALL SIGNS

VK— Canberra, A.C.T.
1EY—J. P. Meehan, Now VK2EY.

New South Wales

2AI—D. E. Hatton.
2BK—J. F. Edwards, Now VK4JJ.
2IY—T. H. Cahill.
2KJ—P. J. Grigg, Now VK3WC.

2NI—A. Nicholls, Now VK4NI.
2RZ—R. B. Duffy.
2WA—J. T. Dwyer.
2XS—W. H. Marshall.

2AAF—A. J. Fisher.
2ADI—D. E. Sidler.
2ZAZ—G. Harriman.
2ZBM—H. O. Mathews.

Victoria
3MO—A. M. Owst-Atkinson.
3PE—L. F. Hearnes.
3AGQ—G. P. Butler.
3ANW—F. K. McTaggart.
3ASS—S. St. George, Now VK4SK.
3AUT—W. R. Ross.
3AYV—H. G. Wohlers.
3ZAC—W. R. Rills.
3ZDC—D. Calwell.

Queensland

4YS—S. P. Sorenson.

South Australia

5FG—G. Chisholm, Now VK1AB.
5VG—D. P. Gooding.
5WZ—F. G. Annear (F/Sgt.), Now VK3AGF.
5ZAA—I. B. Wall.

Western Australia

6AS—A. A. Smith.
6BR—B. R. Field.
6KB—V. L. Dook.

Tasmania

7BC—B. D. Clark, Now VK3KU.

Territory of New Guinea

9CW—Wau Radio Club.
9VP—E. Penlks, Now VK1AVP.

PERMITS GRANTED FOR TELEVISION EXPERIMENTS

VK— New South Wales

2DF/T—L. W. S. Cocks.
2OT/T—M. D. Sobels.
2YY/T—Sydney Technical College.

2AFB/T—F. C. Barron.
2AJA/T—J. A. Mead.
2APX/T—J. K. Carter.

2APY/T—E. Piraner.
2AVF/T—F. G. Fairleigh.
2ZAB/T—W. T. Boon.

Victoria

3EV/T—F. W. Walker.
3LN/T—L. P. Moncur.
3QG/T—C. P. Smith.

3UR/T—R. R. Anderson.
3ABB/T—R. N. Abbott.
3AGI/T—D. W. Gove.

3AGW/T—A. G. Wilkey.
3ALU/T—L. E. Lloyd.

Queensland

4CG/T—C. H. Y. Gold.
4PT/T—C. R. J. Paton.

South Australia

5TG/T—F. H. Taylor.

Western Australia

6WJ/T—W. W. Jacobs.
6ZAQ/T—D. A. Meadowcroft.

Territory of Papua and New Guinea

9FN/T—F. M. Nolan.

WIRELESS INSTITUTE OF AUS. VICTORIAN DIVISION

OLYMPIC GAMES ACTIVITIES

★ OLYMPIC DINNER

A special Olympic Dinner is to be held on Nov. 16, 6 p.m. at the Prince of Wales Hotel at St. Kilda.

★ STATION VISITS

For the special benefit of Overseas Amateurs visits will be arranged to a number of VK3 Stations.

★ FIELD EVENTS

These events will be held in conjunction with Transmitter Hunts on one Sunday during the Olympic period.

Intending Amateur visitors are requested to get in touch with the W.I.A. office, 6th Floor, 191 Queen Street, Melbourne (Phone: MY 1087) after arrival in Melbourne.

S.W.L. SECTION*

Well folk, this month I'm afraid I haven't a full roll up of VK prefixes, but I still haven't given up hope. Nothing from VK6 this month, but hope to hear something soon. I'd be very interested to hear from someone in VK9 or doesn't anyone read the magazine up there? Surely there's someone in VK1 (A.C.T.) too.

NEW SOUTH WALES

Stan Abbey, Mimosa St., Coolamon, 6S, writes stating that he has heard very little on the bands lately. He's thinking of putting up a new antenna. Maybe that's the trouble Stan. He and Jack Ashley are still plugging along studying for the ticket whilst the Coolamon kilowatt (2AJ0) is, I am told, vigorously applying the cane. Kick at them Jim OB and you should soon have some more QRM to contend with.

Stan includes news of another VK2 s.w.l., Bill Davey, of Paddington. Bill has been an s.w.l. for about 10 years so no doubt must have quite a few stations logged. He has a line-up of four rx's, namely, 14 tube home brew for 14 Mc., an HRO-M covering from 1.7 to 30 Mc., a BC348Q from 200 Kc. to 18 Mc., and a 3BZ for use on the b.c. bands. His antenna is a ground plane for 14 Mc. Thanks for the information Bill and hope to hear more from you. Any other VK2s are asked to write to Stan Abbey for notes to be onforwarded to me.

VICTORIA

The August meeting of the VK3 Group was held at the rooms on Tuesday evening, 28th. Fred 3YS very kindly arranged a schedule with Doug 1IJ on Macquarie Island in the Antarctic. The evening proved very interesting as some 288 Mc. gear was also brought to the meeting. 1IJ was contacted on 40 mx phone and we had the pleasure of talking to quite a few of the members of the expedition way down there, including the cook. We were treated to a very good description of life in the frozen South and learned, believe it or not, that there are rabbits in the Antarctic. We extend our thanks to Fred and Doug for this very interesting time.

* Compiled by: Ian J. Hunt, WIA-L3007, 101 Robert Street, Northcote, Vic.

A contact was also made from the rooms with Gerry 3ZBN at Nunawading, a distance of about 10 miles on 1 mx. After all this activity officers for the next year were elected as follows: President, Len Poynter; Vice-Presidents, Michael Ide and David Tanner (3ZAT); Sec. and Mag. Correspondent, Ian Hunt; Council Rep., George Robertson.

Coming Events: Don't forget the following: October meeting, Tuesday, 30th, a talk by Len 3LN. This meeting will be held at the W.I.A. Rooms, 191 Queen St., Melbourne. Visitors are welcome.

Correspondence: Dave WIA-L3039, from Orbst, sends in details of his log and makes the suggestion that in an effort to keep your log tidy a rough log should be kept whilst listening and the details later written neatly into the official station log. A good idea, but I myself am far behind in re-writing my log. Thanks for the letter Dave.

S.w.l. 100 Certificate: As a few details were omitted from last month's notes, I will repeat all the information regarding this award. To qualify you must be resident in Victoria and produce evidence in the form of confirmations of having heard 100 Amateur Stations. The Certificate is free to W.I.A. members whilst a nominal fee of 2/8 is charged to non-members. Confirmations must have been made since 1/1/48. Your application must be accompanied by a list, in alphabetical order, of verifications submitted and the date of each verification. The verifications must be correctly addressed to you, i.e. they must be addressed to you by name, preferably both your christian and surname, or an official listener's station number. Such an indication as VK3-S.w.l. is not sufficient.

Dave Jenkin is still busy chasing cows and in his spare time building his new rx. Len Poynter has another vehicle. Thinking of going mobile Len? Frank Nolan is understood to be still busy listening. (Boy! His mother cooks steak beautifully.) Yours truly had some bad luck recently when the fence, to which his antenna pole was attached, caught on fire. Yes, the pole was burned and the antenna is lying across the roof. Seems to work better that way, too! A 2 el. rotary beam for 20 mx is almost complete and ready for erection.

David 3ZAT recently got a mention in one of our big city newspapers. Was that really a t.v. antenna on the little car, or a 2 mx beam, David, you optimist?

QUEENSLAND

In a letter from Tarlaga, Brisbane, Don Bryant says that he is busy building. He also hopes to have a BC348 and AR8 rx soon. Let's know more about your activities Don. Another VK4 listener, Bruce Hughes, has written telling of his activities. He has an S38 rx which appears to be functioning quite well, considering the list of stations he has logged, including VQ4RF on 21 Mc. Congrats., if the great occasion has come around David.

SOUTH AUSTRALIA

The VK5 boys must like our sunny Melbourne weather. John Campbell, from that Division, was present at our last VK3 meeting. Mac Hillard writes telling of the last VK5 meeting. Les 5LC was present and gave an interesting talk on the reporting of Amateur signals. This resulted in Les being bombarded with questions at the conclusion of his talk. Thanks for your efforts, Les. Three new members were welcomed to the Group, namely Dennis Greig, John Hilditch and Don Colebatch. Warwick 5PS will address the Group at its next meeting. (What subject? How to tune a rx! I thought he'd forgotten that.—Ed.)

The VK5 Group meets on the third Monday of each month at Central Methodist Mission, Franklin Street, Adelaide, at 8 p.m. Roll up to these meetings you VK5 lads.

TASMANIA

My correspondent from the land of mountains and apples still only gives his first name, which is Roger. Thanks for your letter. You're doing a good job keeping VK7 on the map. Roger has been hearing quite a bit of DX. Keep it up OB.

AMATEURS, ATTENTION!

Now to my current moan. 3550 Kc. is the frequency on which slow Morse transmissions are conducted by the W.I.A. Vic. Div. every Sunday evening from 8.30 p.m. to 9 p.m. E.A.S.T. So please give all those learning the code a chance and keep this session clear of interference. You could listen yourself and brush up on the code. Thanking you all in anticipation.

So again for another month I must say thanks to all those who have written and hope to hear from you again. Cheers and good listening to you.

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 VK3AHH†

PROPAGATION REPORT

3.5 Mc.: No reports—no comment.
 7 Mc.: Conditions on this band have been reported to be very poor, or is it lack of activity? Short-path openings to Europe were observed around 2000-2130z.
 14 Mc.: Fair to good conditions prevailed during the month. Openings seemed to take place at the usual times.
 21 Mc.: Beside the usual openings, long-path break-throughs to Europe were particularly noticeable (0400-0800z).
 27/28 Mc.: This band also followed the normal pattern: 2200-0500z for North America, 0500-0600z for Africa, and break-throughs to Europe after 0800z.

NEWS AND NOTES

It has been reported that all activity from Johnston Island will cease in about a month's time. Watch for KJ6, if you haven't got it in your bag yet! (info from 5AB).
VQ8CB is active as **VQ8AB** (from 5BY, 5RK).
 Askell **SM4AWC/MM** has been in Australian waters; will soon return to SM (from 5WO).
PK7ADM says he is active from Prince Frederik Island and requests QSL via R.S.G.B.—14 Mc. c.w. (from 7LZ, W6YY, Rod de Balfour).
ZD9AE is on each Saturday morning 14050, 1500 (G.M.T.) (from W6YY).
 An LU expects to operate from Thailand—**HS1**, beginning September 29 (from W6YY).
VP8RR is on 21210 Kc. at about 2000z (from 7LZ, Rod de Balfour).
 These are reported to be active from Mauritius: **VQ8AH** (c.w.) and **VQ8AR**, **VQ8AL** (phone) (from W6YY).
 Ray Baty, better known as **VR3A**, is now **VK3AFB**.
 Add **VK4LR** to the list of active s.s.b. stations (from 3WR).

QTHs OF INTEREST

(from W6YY, the N.C.D.X.C., and VKs 5AB; 5WO, 7LZ, BERS195, and Rod de Balfour)
AP2U—Moor Mohammed, 6 Roberts Market, Quetta, West Pakistan.
FR7ZC—Paul Ferrand, Trois Bassins, Es, Tol Borne, Reunion Island.
FG7XC—Pierre Antenor, Airport, Guadeloupe, F.W.I.
FS7RT/PJ2MC—Via W6ITH.
FL8AB—C/o Marine Nationale, Djibouti, French Somaliland.
ZS9G—Dave Baird, P.O. Box 106, Livingstone, N. Rhodesia.
ZS7C—W. van Rensburg, P.O. Goedegun, Swaziland.
HB1OP/HE—Ted Vogel, 51 Rue de Bourg, Lausanne, Switzerland.
VS4BO—C/o C. H. (John) Osborne, General Electric Representative, P.O. Box 300, Kuching, Sarawak.
ZP5CF—P.O. Box 512, Asuncion, Paraguay.
PY3XE—Nambycachy Y.C. Fayet, Rua Marcellino Dias 1249, Porto Alegre, Brazil.
SM8KV—Spitzbergen—Via SM5KV, H. Olle A. Eklom, Box 40, Sigtuna, Sweden.
CT2AH—Gamboa Pacheco, Airport de Santa Maria, Azores.
CR3SP—Aliclades Pekaia da Silva, Avlenda da Armada, Sao Thome.

ACTIVITIES

8.5 Mc.: Yes, it has happened, no reports!
 7 Mc.: Bram 8AB spoke to HP3FL. Eric BERS195 heard FB8ZZ, JA8AE, SM5AKH, UA1KAE, XW8AB, DL7EO, YU3FOP, UB5KAW, LZ1KRU. John WIA-L3019 adds PA0OI, DL, and UA. Rod de Balfour heard a number of Ws on phone. 8AHH heard OE.
 14 Mc. C.W.: 20W: PY1HQ, LZ1KPZ, CX-1BZ, VP4KL, UA1KAE, UR6UF, 9S4AZ, UBSUB, GC2FZC, UC2KAB, VK1GA, KV-4AA, CO2WD, U8KAA. Frank 2QL: PX-1EX, VR4AA, and AC3SQ, SM8KV, EA8BK, EA8BF, EA8BM, CPIAP, EA6AM, YK1, PZ1, VP-

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

8BS, ZS7C, FM7WD, CRAAG, UA1KAE, 9S4AZ, LZ1WD, Laurie 2AMB, OR2GY, LA3C, LU-2HC, SM7SM, G, HK3PC, T12PZ, EA8BF, PZ1AP, VP6PJ, UA1KAE, ZS6AD, and CO-2WD, ZD6BX, LU8BAJ, CR7BS, LU3HL, FM-7WP, CN8JH, 9S4DE, XE1MB, ZS6IX, OE. Neville 2APL: DL, VE8AP, KL7, G, CO-2MO, Bud 2AQJ, AP2RH, CN8AF, DJ, E18H, G, JA, KA, OH, UA9VB, VE, XE-1AX, YV5BJ, Frank 3FC: CN8AF, ZB21, DL, EA8BF, UA1KAE, I, EA, YV5BJ. Tim 8AZY: SP, DL, EA, G, ZS, PA, ON4, YU, FB8BZ, John 5HI: PA, UBSUB, UA5BN, E1SY, UA3KA, SM, YU, SP, UBSKAB, UA6KV, UA4CE, Y08CF, UA-6UF, UA1KAE, UA2KAW, DL9CI/LUX, UB-5UA, Austin 5WO: VR4AA, DU3DO, Col 7LZ: DL, EA, G, VP9/P, Y08CF, VE, and PK7ADM, BERS195: CESAG, DL8CI/LUX, FU-8AA, G, LU8ZW, VU2HF, VQ8AG, XE1MB, ZS5CZ, WIA-L3019: YU, OH, Y03RCC, CN2AE, OE, HB, SP, PK4WD, Dave WIA-L3039: UA0AG, VU2HW, CO2SW, KL7BD, ZC5SF, 457MR, UA0KCA, EA, G, XE1MB, DU3DO, UBSKAB, UB5AQ, 3AHH: VE8AW, G, SL/SMO, DL9CI/LUX, DJ, GM, CT, F, PA, and CR7CI, EA9DF.

14 Mo. Phone: 2AMB: CP2DJ, OA6M, and GW, CN8MM, ON, LU2WB, ZS6ABL, ZS6CY, ZS5RE, ZS1ER, ZS6ADB, ZS4AF, 2AQJ: G, I, KA, OA6M, VE, Neil 8HG: FB8ZZ, YU2CV, GDSUB, LX1DA, MIB, ITITAI, Bram 8AB: G, I, YV5BS, H8TJ, KP8AK, XE1CM, VP2GW, KA, CN2BK, DJ, CT, KL7, ON, HB, PA, CN8JV, SM8KV/Spitzbergen, OH, KTIEXO, K6GIG, ZB21, YU-2GD, FB8BC, BV1US, PA, CT2AH, YU, LX1DA, CN8MM, CO2BL, VP2DI, VP95M, CO8BE, HH7RO, OA1K, W5A0, VP5KJ, VP5DK, XE1CW, FB8ZZ, Y12AM, GDSUB, 5HI: VE, YV5GU, G, OA4CK, 5WO: VR4AA, F, G, YA2B (OK), 7LZ: BV1US, I, WIA-L3019: VQ8AR, VQ4ERR, VU2DU, YU, EA9BC, Y12AM, VP5AK, HH2Y, VP2KG, FA-91E, Bad de Balfour: HB, G, F, DL, OE, HP3FL, I, EA, GW, KL7, YNIRA, LU6AJ, KZ5MW.

14 Mo. S.S.B.: Jack 3WR forwarded reports from 3AEE and 4MW, and worked VE2GG, W2FGV, W1ACA, W2OQO, W3FH, W3LPP, W5VSP, W6ZV, W5RR, KL7DRA, W9XVG, W5VSA, W2OHP, W8UZZ, W5YTT, ZS5CZ, W3UKF, W2BDI, W3HN, W8FN, W1DHS, W4OOO, W2HS, W2CFT, W6ECP, Cyril 8AEE: VQ4EO, CN8GD, VP7NG, KP4ACZ, YV5FL, ZS6OY, KAZYA, OH2OJ, 5A2TP, KZ6WZ, COS1F, ZS6CY, HR2WC, AP2CR, 27/28 Mc.: 8HG worked ZD4CF, ZS4HF, Ws, G, 5WO reports ZS6ZK and Ws, 7LZ follows with Ws, Rod de Balfour adds ZM6AR and Ws. Charles Thorpe heard W5NLC on s.s.b. Rare QSLs were received by: 2AMB: PA0VB (7 Mc.), EA9DF, VQ5GC, 8JA: FS7RT, ZS9G, 5YI: YV5BJ, VP5BE, VP9BM, T12PZ, T12HP, YAIAM, 5WO: FS1RT, YV0AA, ZS9G, ZS7C, HB 1OP/HE, ZEGJ, 7LZ: BV1US, MP4BBE, BERS-195: CE0AD, FB8B, MP4QAL, PY3XE, YAIAM, HB9PS/MM, Rod de Balfour: VS4BO, FA3GZ. Thanks to W6YY, the Northern California DX Club, VKs 20W, 2QL, IQSP, 20W, 2AMB, 2APL, 2AQJ, 3FC, 3HG, 3JA, 3WR (QSP 3AEE, 4MW), 3AEE, 3ALD, 3AZY, 4MW, 5AB, 5BY, 5HI, 5RK (QSP 5BY, 5HI), 5WO, 7LZ, and s.w.l.s. BERS195, WIA-L3019, WIA-L3039, Rod de Balfour (QSP 7LZ), and Charles H. Thorpe (WIA-L4—?).

KCAUSA, 4MW: KL7BDK, CN8GD, VE6FI, VE4QI, XE2IK, VE2GQ, KV4AA, CP5EK, VEANI, VQ4EO, KCAUSA, KL7A1Z, KA-2MB, Charles H. Thorpe heard the following s.s.b. stations: KCAUSA, KCAUSV, KL7BDK, KL7A1Z, KA2FC, KAZYA, XE2JK, DLARM, G3MY, G2HQ, VQ4EO, 5A2TP, plus a long list of Ws and KHs.

21 Mc.: 2QL: YN1PM, ZD6BX, ITIAI, CN-8MI, CX2CF, 2APL: 4X4AO, YU, JA, VQ-4RE, KL7ALZ, 3HG: ZS9G, VP3G, ZE-1JUM, ZBIAJX, CR55P, CR7BS, VP3ES (Turks), YN1HF, Jack 3JA: OY7ML, Len 3ALD: HF8FL, SM, 8AZY: SL, KTIWX, 5AB: ZS5NO, VP2GW, ZS4GK, ZS5NZ, ZS2KA, ZD8RM, ZS3BB, VQ4ERR, CT, VQ5EK, ZEGJ, CN8IQ, OQ5PU, CR9AH, HB9, F, VQ2HH, ZE1JUM, VQ2SB, HP-1G, CR55P, EA, VQ2FJ, CR7BS, VR4AA, VP3YG, JA, KZ5JB, 5WO: CT, ZBIAJX, DL, VSNW, G, F, 7LZ: G, ZS6R, G13IVJ, FA8DA, and YU, Rod de Balfour: VS4BO, 4S7YL, HC1FS, CT, ZM6AR, G, VS-2DQ, Charles H. Thorpe reports these s.s.b. stations: W1KXM, W6SIN, W6DYA, KH6AQ, HR2WC.

27/28 Mc.: 8HG worked ZD4CF, ZS4HF, Ws, G, 5WO reports ZS6ZK and Ws, 7LZ follows with Ws, Rod de Balfour adds ZM6AR and Ws. Charles Thorpe heard W5NLC on s.s.b. Rare QSLs were received by: 2AMB: PA0VB (7 Mc.), EA9DF, VQ5GC, 8JA: FS7RT, ZS9G, 5YI: YV5BJ, VP5BE, VP9BM, T12PZ, T12HP, YAIAM, 5WO: FS1RT, YV0AA, ZS9G, ZS7C, HB 1OP/HE, ZEGJ, 7LZ: BV1US, MP4BBE, BERS-195: CE0AD, FB8B, MP4QAL, PY3XE, YAIAM, HB9PS/MM, Rod de Balfour: VS4BO, FA3GZ. Thanks to W6YY, the Northern California DX Club, VKs 20W, 2QL, IQSP, 20W, 2AMB, 2APL, 2AQJ, 3FC, 3HG, 3JA, 3WR (QSP 3AEE, 4MW), 3AEE, 3ALD, 3AZY, 4MW, 5AB, 5BY, 5HI, 5RK (QSP 5BY, 5HI), 5WO, 7LZ, and s.w.l.s. BERS195, WIA-L3019, WIA-L3039, Rod de Balfour (QSP 7LZ), and Charles H. Thorpe (WIA-L4—?).

STOP PRESS

VK9FN TO THE RESCUE

Frank VK9FN, at Port Moresby, picked up distress signals from Danny Weil when his yacht developed engine trouble in wild seas south of the New Guinea mainland. Frank contacted the Civil Aviation Department in Port Moresby, which sent a launch to Danny's aid.

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't- No. ries	Call	Cer. C't- No. ries
VK4FJ	21 188	VK3JD	1 155
VK4HR	12 182	VK4KS	9 152
VK8RU	2 178	VK3KW	4 150
VK3ATN	26 177	VK3LN	11 141
VK3BZ	3 178	VK4RW	23 141
VK3EE	10 163	VK3AWW	14 140

C.W.

Call	Cer. C't- No. ries	Call	Cer. C't- No. ries
VK3BZ	6 222	VK3CX	28 192
VK4FJ	29 216	VK2EO	2 183
VK3FH	15 215	VK5BY	45 181
VK4HR	8 212	VK4EL	9 175
VK3XU	48 201	VK5RX	23 169
VK3KB	10 200	VK3YL	39 168

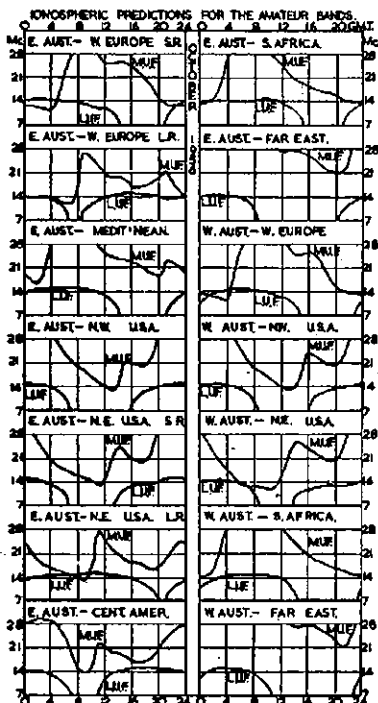
Amendments
 VK3BO ... 33 164

New Members
 VK4SD ... 52 109 VK4SS ... 53 103

OPEN

Call	Cer. C't- No. ries	Call	Cer. C't- No. ries
VK3BZ	4 231	VK3JE	12 198
VK2ACK	6 231	VK2NS	16 195
VK4HR	7 224	VK3HG	3 190
VK4FJ	32 224	VK4EL	10 175
VK8RU	8 211	VK6KW	13 171
VK3XU	61 209	VK2DI	2 170

PREDICTION CHART FOR OCT., 1956



YL CORNER

BY PHYL MONCUR

"TV FEVER"

It's on again, that same old glow in their eyes, that same old not-with-you deeply engrossed look. The sort of look that makes you realise that polite conversation is neither necessary or desirable. We saw it some thirty odd years ago when they first became interested in radio, but today it's something new. Television has come to us here in Australia and with it has opened up a wonderful new interest.

We called in on Snow SCW. Business as usual? Good heavens no! It was the day the first test programmes were scheduled to be televised. We weren't the only ones to call in on Snow, there was a steady stream of them all morning, all with the same enquiry—"Have you seen anything yet?" That same old glow; yes it was there in Snow's eyes.

Snow had had his TV set ready for months. He kept switching to the various channels to illustrate effects of interference, etc., for our benefit. Snow had also been kept busy that morning making cups of tea and was washing up his limited supply of cups ready for the next surge of friendly enquirers when the screen went black. "What the heck now," he ejaculated and rushed to turn the switch, when in the dim light there appeared to be smoke rising from his precious TV set. There was a frantic turning off of switches and turning on of lights, only to find that the "smoke" was steam rising from his hands from the hot washing up water. Snow gulped and grinned that great big grin of his—"Fancy me falling for that one," he said.

Eventually I saw TV, the test pattern; a series of odd shapes and lines. So this was TV. I was definitely not impressed. However it was enough to ignite that glow in my OM's eyes and send him straight off to order a TV receiver.

Now, I had my own ideas about this TV business. I wasn't the slightest bit interested. I certainly wasn't going to waste time sitting down and looking at TV all day. I, with all I had to do, I just couldn't possibly spare the time. The day we waited for the receiver to come home was a day of barely suppressed excitement on the part of my old man; for me—I was beginning to feel just a little irritated with the whole thing. In the middle of our evening meal he decided to ring up his cobbler, Laurie SALLY, and invite him and his family over for the evening to see the TV. This TV, it was just too much. All the shops were closed and here was I with not a thing in the house I could offer them for supper.

At five to seven there was an impatient "CQ" sent on the front door bell and I barely had time to turn the handle on the door when it was flung open in my face and sent me sprawling across the hall floor. SALLY had arrived; and with a hurried—"Sorry Auntie Phyl, am I in time to see the test pattern come on?" he bounded up the passage to the shack. I lifted my head to see what had hit me when I was flattened once again—this time by his harmonic, who bounded up the passage after him. Before risking lifting my head again, I peeped warily out of one eye to see his XYL Marj standing on the doorstep, gasping for breath and saying, "Oh this television, isn't it terrible; we didn't have time to eat half our tea." This remark caused my blood to run cold. They'll be hungry, I thought, and I've got nothing to give them for supper.

We stood chatting in the hall for a few minutes then a call came from the shack, "Aren't you coming up to see the test pattern?" I shuddered, but said, "I suppose we'd better." By a quarter past seven my irritability was getting to a high explosive state. This test pattern still had another three quarters of an hour to go before the programme would come on. Surely they weren't just going to sit there and look at the darn thing for the whole hour? But they were! There was only one thing for it. I went and got the bottle of sherry. We drank a toast to the TV. I failed to see any purpose in that but I needed the sherry. The effect of the sherry was wonderful, it wasn't long and Marj and I began to find even the test pattern amusing. Our OMs didn't.

Eventually the programme came on. To my surprise it was very interesting, in fact it has been ever since. Mostly educational and travel films, it's just like having a newsreel theatre in the comfort of your own home, sitting in your favourite armchair beside your own cosy fire. At the conclusion of the programme, Marj and I retired to the kitchen, me frantically

trying to think what I could run them up for supper. I settled for hot scones and when we returned to the shack armed with a plate of pretty doughy scones, we found the two OMs with our new commercial TV set in pieces all over the bench. Now that's what I call downright destructive, and just when I was beginning to take to the idea of this TV business.

Now I am finding myself hurrying up with the house work so that I can spare time to fit the TV in. Yes, I'm getting the TV fever and pretty fast, too. I even feel disappointed on the evenings when there is no TV programme scheduled. Of course it's a whole time occupation, it's rather difficult to do anything else and watch TV at the same time. The only thing that I've found that I can do while watching the TV is to shell the peas for tea. But then if you do this, it is advisable to buy only the best grade of peas, otherwise you are liable to dish up a grub or two with the evening meal. Of course there is a way over this too, just turn on the TV while the meal is in progress and nobody will notice the grubs anyway.

Must put you wise to some of the terms you are going to hear in connection with TV.

Crow is not the black bird that sits on top of the antenna, it's the screen where you see the pictures.

Ike is not the president of the United States, it's just another "toobe" (if you're American), "varive" (if you're English), and "bottle" (if you're dinkum Aussie). [So that's how the sherry got into this story.—Ed.]

Well girls, there is at least some consolation in this new craze of the OM. Unlike the reward for patient suffering during the construction and testing (especially the testing) of a radio rx or tx, which is nothing more than having to listen to that monotonous and incessant calling of "CQ, CQ." Having survived the building and testing stages of the TV you will then have an unlimited source of entertainment that doesn't even smell like Amateur Radio.

TV fever is becoming epidemic, but don't be distressed, it's a rather pleasant ailment.

QRX a minute YLs and XYLs before you get back to your chores—this is your column, what about a contribution for it?

They're all at U.R.D.

Here we show you just a FEW of the famous brand names available from our new Warehouse in the Hi-Fidelity, TV, Electronics and Electrical field.

Orders and enquiries will be given prompt, courteous attention.

GOODMANS
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National
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Ferrograph
QUAD II
HECLA
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NEW SOUTH WALES

It is interesting to note that the first three place getters in the surprise Scramble held on Sunday night, 26th Aug., were all Z calls, the full result of the contest being 2ZCF 18 points, 2ZAC 18, 2ZAG 17, 2HO 16, 2ZBB 15, 2AZN 14, 2APQ 13, 2JX and 2ZBD 12, 2ANF 11, 2ZCH 10, 2CE 9, 2HL 8, and 2ZBH 7.

The Hidden Tx Hunt on 144 Mc. was well attended on the night of 5th Sept. when Horrie 2HL, in company with Charlie 2NP, selected a spot in the bush of the Castle Hill-Rogand Hill area and came on the air at 8 p.m. The cars set out from a point at Top Ryde and results were as follows: 2OA/2ZAV/2APQ first to locate in 45 minutes, 2AWZ 50, 2AFM/harmonic/navigator 70, 2ANF/2ER/Ess Griffith 81, 2WJ 110, 2ZCF/2ZBB 140 minutes. Although Bob 2OA won the event, it was argued that "first in" should have been awarded to 2OG, a vintage Amateur whose home and shack was right at the location. When Horrie 2HL arrived at the location just before 8 p.m., he and Chas 2NP were greeted by a chap armed with a shot gun and a torch making enquiries as to what was going on and when told not to worry that a radio experiment was being carried out by the V.h.f. Group of the W.I.A. and that no harm would come to his property, 2OG introduced himself, much to the amazement of Horrie and Charlie. Dave 2AWZ, deserves a lot of credit for he did the job in 50 minutes single handed. Ragchews and refreshments completed at about midnight and all cars then made for home after a very enjoyable night.

The monthly general meeting of the V.h.f. Group was held on Friday, 7th Sept., and about 40 were in attendance. Visitors included 2ON from Gosford, 2ZAD from Tamworth, and 2JX from Wentworth Falls. Any business of the meeting was put aside to enable the Group to listen to a lecture from John 2ANF on "Noise Generators and their usefulness." He explained how easy it is to make and use one of these generators to enable converter and receiver noises to be reduced to a minimum. Practical tests were carried out by John for members who had brought along their converters for test, and as each member had his unit tested, the figures were chalked up on the blackboard along with his call sign. This added excitement to the evening as it was interesting to read from the board the actual noise level of each converter, which ranged from 3.8 db. to 12.0 db. Besides expressing the Group's appreciation of the opportunity given by Hugo 2WH and Trevor 2NS of Forbes and Bathurst respectively to view some colour slides projected by 2HL and commented on by 2ANF, Phil 2ER very suitably thanked John 2ANF for his most useful tests and helpful lecture.

The "Blackall's Do" to be held during the 29th and 30th Sept. is likely to be attended by about six or seven members of the Group who are looking forward to the event. From further North it has been learnt that Frank 2ZPF is still as keen as ever and has improved his signal between Tamworth and Muscle Creek now running 59w. to 6146. Bruce 2ZAD is working cross town with Frank. Reliable sources report that 2ATD, also of Tamworth, will be on 2 mx soon. It has come to our ears that Noel 2APE and Steve 2YR have been looking for good v.h.f. sites around Coonabarabran. Tas 2GV has put up his 3 over 3 to 80 ft and hopes to double that height soon. Geoff 2VU has once again "found the band" with the old combination VT501-832 set-up and putting out a good sig. Ken 2ANU has assembled material for a phased array and is now awaiting suitable ironwork for his windmill tower.—2AFM.

VICTORIA

Nine cars and thirty enthusiasts competed in the last Fox Hunt, a wonderful turn up for it was a very cold night. But nobody seems to notice the temperature, you just don't have time to on a Fox Hunt and most competitors turn up at the final location gasping for breath and quite red in the face after the excitement of the chase. This hunt traversed Clifton Hill, Studley Park, Hawthorn, Malvern and Burwood. At Studley Park, the fox 3LN found a gem of a spot on an embankment that rises some 30 ft. above the roadway just after it crosses the outer circle bridge. Here from his lofty hide-out, he was able to watch the roadway below while hound cars drove up and down. Roy 3ARY was the first to find him at this spot. Another good spot was at the rear of the police station near the Malvern Town Hall. Here the fox hid himself amongst a lot of parked cars where he had a good view across a football oval of a main road and could pick out hound cars as they passed by. The first

one to catch the fox here was Tom 3AOG, who made his catch on foot. The only hound who was game enough to bring his car in past the police station was Noel 3ANS, who had Bill 3AQB assisting him as navigator.

All hounds were right on the fox's tail all evening and made several catches. The winner was Tom 3AOG who made nine catches, this creates a record for a Fox Hunt. Second was Roy 3ARY and third was Noel 3ANS. Very excellent hunting on Noel's part as it was his first experience of a Fox Hunt. The final location was at the home of the control station, Bob 3OJ. Many thanks Bob and Dorrie for inviting the Group to your home.

The lecturer at the last v.h.f. meeting was Alan Elliott, 3ZBE, who gave a survey on 2 mx DX conditions. It was an extremely interesting lecture and was the product of years of collecting information and studying conditions. Alan discussed the various methods of DX propagation on the v.h.f. bands and then produced large weather maps for each of the nights when exceptional DX conditions prevailed on 2 mx. He had also obtained the radio sonde measurements of temperature and water vapour content for the same time and was able to show the many different conditions that produced the DX workings of the time. It was very evident that Alan had put a lot of work into preparing his lecture, but his efforts were very much appreciated by the Group members, all voted it a very interesting and enjoyable lecture.

Jock 3ZDG, Andy 3ZDF and Ian 3ZBF are experimenting on micro-wave. They intend starting at 1.215 Mc. and will perhaps later try up to 2.300 Mc. The tx they intend to use will be a 6J8 osc. on about 600 Mc. doubling with a pair of xtal diodes on 1.215 Mc., straight into a resonant cavity with a probe in the cavity connected directly to a vertical ground plane with a corner reflector. Projected rx will use a similar local osc. arrangement with a xtal diode mixer feeding into an i.f. on 144 Mc. They would be interested to hear from anyone who knows of any equipment that is suitable for use on this gear, particularly in regard to valves. They would also be interested to hear from anyone else who is working on these frequencies.

Interest in t.v. seems to be fast developing among the Amateur fraternity. Graham 3ZAA is getting very satisfactory results from his home-brew t.v. rx and reports that he has now got a picture. Associate Ray Price is also working on a t.v. rx. Several are known to be working on t.v.l. proofing their equipment.

Max 3ZAW with Roy 3ZAE and John 3ZAI spent a week-end recently in Bendigo carrying out tests on 144.51 Mc. Contact was made with 3YS and 3ALZ in Melbourne. They were later heard by 2RS, of Albury, but no contact resulted as signals were too weak. A further attempt to contact will be made at a later date. 2RS and 3PO have heard one another and it looks as though Albury to Ballarat will soon become another established 144 Mc. path. 3ZAM has contacted 3ATN and 3NN. 3ZAM, who is located at Penola, transmits in the Melbourne direction each night at 2130 E.S.T. for 10 minutes. His frequency is 144.02 Mc.

Remember the V.h.f. Group meets on the third Wednesday of each month at the W.I.A. rooms at 8 p.m. All are welcome. We were pleased to see a couple of new faces at the last v.h.f. meeting in Stan Beaton and Lou Stone. Stan and Lou passed through the last W.I.A. A.O.C.P. course and both were successful in gaining their A.O.L.C.P. at the last exam and are now awaiting the allocation of their Z calls. They are naturally very interested in v.h.f. gear and came along to the meeting to get some dope from the old hands.—Phyl Moncur.

WESTERN AUSTRALIA

The August meeting of the W.A. V.h.f. Group was held at the QTH of 6AW. It is very pleasing to see the very good attendance at these meetings is still maintained. After the business of the meeting was dispensed with, Dennis was the lecturer of the evening, his subject being "Radio Astronomy," and from what we heard he showed that a lot of study has been put into the subject. "Mac," Dennis' cohort, has passed his A.O.L.C.P. (congrats. "Mac"), so between them they hope to achieve something in Radio Astronomy. John Bartlett has also passed his A.O.L.C.P.; "nice work, John!" A Tx Hunt was held on Aug. 18, Frank 8CC doing the hiding. Frank said that the result would be either nobody got in or they would all arrive together. He was right as the latter was the case. The tx was hidden on the bank of the Swan River, right at the water and the beam was barely two feet high; nice job,

Frank. Rolo 6BO was the first of the bunch to arrive.

Activity on the bands is still in the doldrums, weather being still very chilly at nights.

Sept. 1 saw another V.h.f. Group meeting under way, this time at D.C.A. Training School where members were shown how the young technicians-to-be were trained. We were very impressed with the grounding given in all phases of radio communication, and I for one went away with a few ideas. Many thanks to D.C.A. officials for the facilities and time given to us. A very welcome visitor at the meeting was Merv. 3AFO. We hope you have a happy stay in the West; maybe we will work you on 2 mx someday Merv.

Relating to 6AW and Radio Astronomy at the Aug. meeting, Dennis reported that "Mac" and he had some measure of success in getting signals back from the sun, while perhaps not discernable to the ear over rx noise, they showed up on an output meter; the frequency was 578 Mc., using a 6AJ4 r.f. stage into a Tail-end Charlie (modified). "Mac's" workmanship on the r.f. stage was very much admired, most comment I think was on the "Two Bob" Condenser tuning the quarter wave line. The antenna was a 13 ft 6 in. parabola, also a master piece.—6ZAV.

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FEDERAL, QSL, and DIVISIONAL NOTES



FEDERAL

I.T.U. CONFERENCE

An overwhelming majority of member-nations of the International Telecommunications Union has voted in favor of holding the next administrative radio conference sometime in the year 1958. This is the conference which would meet to revise the general radio regulations including—of particular importance from our standpoint—the table of frequency allocations. The location is not yet decided upon.

It is vitally important to recognize that the very existence of Amateur Radio depends upon the successful outcome of international radio conferences. Frequencies must be provided for us in the basic allocation table; otherwise there would be no Amateur Radio service.

The International Telecommunication Union is an association of nations who wish to come to agreement on rules and regulations for the efficient use of radio communication facilities. Only nations may be members, and only governments may officially participate in conferences and have the right to vote.

Each member-nation is represented at the international radio conference by a delegation. Customarily one of the delegation acts as spokesman and casts the nation's vote. Many nations appoint only government personnel to their delegations; others appoint, in addition, expert representatives of individual radio services and private operating agencies. TO ACT AS ADVISORS IN SPECIAL PROBLEMS INVOLVING THOSE SERVICES AND AGENCIES.

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 10th July, '56.

New South Wales

- J. E. Hughes, McKay St., Macksville.
- S. D. Glyde, Private Bag, Bowraville, 2.C.
- B. K. Burton, The Manse, Wee Wea, Walgett.
- G. L. F. Collie, Boyce Ave., Wyoong.
- R. C. Prout, 9 Agnes St., Mayfield, Newcastle.
- G. L. C. Jenkins, No. 1 B.F.T.S., R.A.A.F., Uranquinty.
- W. N. Sagers, 12 Henrietta St., Waverley.
- J. D. Molle, Berings, Newline Rd., West Pennant Hills.
- J. L. Rath, 80/82 Flora St., Sutherland.
- G. B. McLeod, 44 Monro Ave., Kirrawee.
- Mrs. M. Eagles, 41 Cotswold Rd., Strathfield.
- J. K. Doherty, 27 Harbour St., Mosman.

Victoria

- *K. J. A. McLachlan, P.O. Box 37, Leongatha.
- *R. J. Beames, 502 Ligar St., Ballarat.
- *J. E. S. Day, Youle St., Boort.
- *J. Somerville, 6 Clark St., Casterton.
- *R. H. Chapman, 15 Corona St., Nth. Balwyn.
- *F. R. Williams, 62 Watlie Valley Rd., Canterbury.
- *I. B. Crisp, 69 Northcliffe Rd., Edithvale.
- *G. L. Monsborough, 6 Malvern Ed., Mont Albert.

Queensland

- B. Whitmee, 104 Cairns St., Cairns.
- D. M. McG. Portley, 36 Oxlade Drive, Newfarm, Brisbane.
- K. W. Beale, 2 Duncan St., Hill End.
- *A. B. Doran, 400 Zillmere Rd., Zillmere.
- *K. N. Long, 12 Rillatt St., Wavell Heights, Brisbane.
- *B. P. Ward, 11 Melville Ter., Wynnum.
- *K. D. Campbell, 34 Evadine St., Graceville.

South Australia

- T. P. Drake, 34 Balfour St., Nailsworth.
- G. P. Tuck, 57 Cowra St., Mile End, Adelaide.
- *W. H. John, 14 Shirley Ave., Woodville West.
- *E. Westerman, 15 Central Ave., Clearville.
- *G. J. Muirhead, 14 Adelaide St., Magill.

Western Australia

- *R. G. Smith, C/o. Broadcast Station 6TZ, Waterloo.
- A. J. McCarthy, 81 Napier St., Cottesloe.
- *J. R. Bartlett, 28 Windsor St., East Perth.

Tasmania

- *R. K. Wilson, 11 Cunningham St., Burnie.
- *C. R. Pearce, 39 Beach St., Bellerive.
- T. G. Barnes, Cotteswood, Main Rd., Tarooms.

* Qualified for Limited Certificate.

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.

FEDERAL QSL BUREAU

The League of Radio Amateurs of Mozambique (L.R.E.M.) have made available a new award to be known as "W-CR7-A" for any foreign Amateur Station submitting proof of having worked 15 licensed CR7 stations, either in phone or c.w., in any Amateur bands. Contacts must have been made after 12/1/49. QSL cards must be accompanied by a list, but if any QSO has not been confirmed, this may also be mentioned in the list, and the L.R.E.M. Secretary will do his best to obtain the missing confirmation(s). The cards, list and five L.R.C. must be sent by applicants to Liga dos Radio Emissores de Mozambique, Caixa Postal 812, Lourenço Marques, Mozambique.

Jim Pershous, VS2DQ, advises the present addresses of the following:—

- Ex VS4CT, VS5CT, ZC5CT—P. Green, 115 Moulsham Drive, Chelmsford, U.K.
- Ex VSIGN, VS4BD, VS5BS, ZC5GN—G. M. Stone, West View Cottage, Freshford, Nr. Bath, Somerset, U.K.
- Ex VS5KU, ZC5KU—R. M. Herbert, 17 Selcroft Road, Furley, Surrey, U.K.
- Ex ZC5CA—I. Harris, 24 Braid Hills Road, Edinburgh 10, Scotland.

Jim also states: Regarding VU5 Nicobar Island, a popular place for pirate calls to copy, I understand the Indian Government will definitely not issue Amateur licences to anyone on Nicobar Isles except Indian Nationals. R.A.F. chaps there from Singapore could not get a licence. The present situation is ZC2 (possibly ZC2F) otherwise nil; ZC3, ZC3AC on island but not active at present; VS4 has VS4BO (ex-VS1BO), VS4BA, VS4NW (ex-ST1NW); VS5, licenced VS5AT on leave in U.K., otherwise nil; ZC5 has only ZC5SS and ZC5VS. I believe station VS5NW is pirate.

George Delahoy, VK3ADZ, ex-VK1DY of Heard Island, has now despatched through the various Bureau cards for all contacts made at Heard Island. Any station not receiving his card by end of October should make further application direct.

Frank Hine, VK3QL, has worn his service cap for the last time and has joined the boxer hat brigade. Frank plans to make his presence felt in the commercial life of Sydney.

Any VK who still needs an Easter Island QSL card from CE0AD should be able to obtain same by writing the operator, Ignacio Valdes, care of CESAG, Box 761, Santiago, Chile.

Ray Jones, VK3RJ, QSL Manager.

FEDERAL AWARDS

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

Certificates have been awarded to M. Boatman, W3AWT, and D. A. G. Edwards, G5DO. Total certificates issued is 37.

NEW COUNTRY

The island of Nauru has been added to the list and credit will be given for creditable confirmations dated on or after 15/11/45.

APPLICATIONS FOR D.I.C.C.

Applicants are again requested to read the rules regarding the form in which the application should be made. Too many applications have had to be rejected of late because no attention has been paid to this matter.

G. Weynton, VK3XU, Awards Manager.

NEW SOUTH WALES

SOUTH WESTERN ZONE

News is very scarce this month, your scribe has not been at all active lately, owing to other commitments. Sgt. Les Jenkins, at R.A.A.F. School, Uranquinty, has been informed he has obtained his Limited; is now awaiting call sign. Congrats Les, you will certainly be a great asset to us on the v.h.f. Jim Z2BP should soon be on 144 Mc.; has that xtal turned up yet, Jim? Don ZRS, at Albany, still active on most bands. Don had the misfortune to lose a few elements of his 144 Mc. beam during the high winds lately. Lyn ZAQE at Wagga has broken the silence at long last. Lyn has been on 40 mx I hear. The chaps at Griffith have everything well in hand for this year's zone convention. Bookings are good, so the zone should once again have a successful convention. I hope the weather at your respective QTHs has been better than at Coolamon. We are hoping for warmer weather soon.

AUSTRALIAN CAPITAL TERRITORY

An interesting film night was held in the Film Theatre of the Canberra Radio Club on 10/8/56 and about 20 were present. These nights have proved quite popular with the XYLs and children.

From August 13 to 16 the Canberra Radio Club station 1ACA operated from the Albert Hall, Canberra, at the Hobbies Exhibition, attracting a great deal of interest from the visitors. About 200 contacts were made on 7, 14 and 21 Mc. and all stations contacted will receive an attractive QSL card printed especially for the occasion. The Canberra Radio Club wishes to thank all those Amateurs who helped to make this exhibition the success it was. We will be there again next August.

An interesting lecture on Australian TV Standards was presented by Mr. Ben Asman on 24/8/56. This lecture was most informative and thoroughly enjoyed by all. We are all looking forward to Mr. Asman's next talk on t.v.

John Z2BS is going on the next Antarctic Expedition and hopes to be active on v.h.f. He is anxious to borrow some reliable gear, so if any Amateur wishes to lend John some equipment for a year would he please write to Z2BS, C/o. Box 59, Kingston, A.C.T.

The VK1 (A.C.T.) QSL Bureau is now operating, the address being Box 59, Kingston, A.C.T. The Bureau is managed by ZAQJ, who missed out on a VK1 call by half a mile and still has to work the DX the hard way. The new VK1 prefix has greatly increased activity from the A.C.T. There are now eleven stations in the area on the DX bands, all busy explaining to the DX that they are not Antarctic stations.

V.h.f. activity is still going strong with lots of work being done on 522s. Point your beams this way for VK1, chaps! The Canberra Radio Club's building now has a very impressive foyer and we are justly proud of our efforts. The last few months have seen a great change in the appearance of the Club, largely due to the untiring work of our worthy president, 1A1L.

COALFIELDS AND LAKES

Bob ZKF doing some re-building, also active on 144, 28 and 21 Mc.; has a W3KJ doing good work on a couple of bands. Duncan ZMC expects to be active shortly, getting some chassis made up and collecting the necessary gear. Chris ZPZ mainly busy with t.v. during past couple of months. Doug ZASA can be found on 144 and 21 Mc. Major ZRU also playing with the t.v. set-up, but finds time to get on the air fairly regularly. Harry ZYL painting the shack, so my time on the air is limited.

VICTORIA

At the general meeting Alan Foxcroft, 3AE, gave a very interesting lecture on "Sunspot Cycles and DX Activity" to an audience of approx. 60. Alan dealt with the subject very thoroughly, giving very detailed information on the reading of prediction charts and he illustrated his lecture with many slides which he had prepared and also many blackboard dia-

W.I.A. VICTORIAN DIV. ANNUAL STATE CONVENTION

will be held at
LEONGATHA

3rd and 4th NOVEMBER, '56

★

Forward Agenda Items to the Hon. Sec., Vic. Div., 191 Queen Street, Melbourne, immediately.

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For accommodation contact Ron Jardine, VK3PR, at 8 Blackmore Avenue, Leongatha.

grams. At the conclusion of the lecture another half hour passed while members fired him with questions which he seemed only too happy to answer. Hans SAHJ passed a vote of thanks to Alan for his interesting lecture and members applauded warmly to show their appreciation.

The President welcomed a visitor in the person of John 4DD, ex-2ADD, ex-3DD, ex-6DD. Apparently John gets around a bit. Members were pleased to see him along at the meeting and to re-new acquaintance with him. Neil JANK, who is a fairly new member of the Institute, brought up an interesting point in regard to publishing the W.I.A. and what it has to offer with the idea of attracting greater membership and also to give the new members some idea of the activities of the W.I.A. that they may participate in. An almost general discussion took place on this subject and some good points were brought forth. The following were welcomed as new members of the Institute—as full members, Messrs. R. Baty, 3AFB (ex-VRSA and ex-2ANB); R. Skevington, 3ZCA; A. Jones, 3ARU; G. Trail, 3AIT; and as Associates, Messrs. L. McClusky, N. Harris, D. Ruby and W. Kent.

For the next general meeting to be held on 3rd October at the Radio School of the Royal Melbourne Technical College tentative arrangements have been made with Commander Batterham, R.A.N., to give an illustrated talk on the Navy's Frogman work.

That event of "good cheer," the Annual W.I.A. Dinner, which this year will be known as the Olympic Dinner, will be held on 16th Nov. at the Prince of Wales Hotel, St. Kilda. Tickets are expected to be approx. 25/-.

The State Convention is scheduled to be held at Leongatha on the week-end 3rd and 4th Nov. Items to be included on the agenda paper should be forwarded to the Victorian Division office without delay. Those requiring accommodation should contact Ron Jardine, 3PR, Blackmore Ave., Leongatha, as soon as possible. Arranging accommodation for a State Convention usually proves a very awkward job for the organiser as it is very difficult to estimate how many are likely to turn up to a convention and you would be assisting Ron greatly if you let him know as early as possible.

Keep in mind the Bi-Monthly All-Band Scramble, the next round of which is scheduled for Monday, 1st Oct., between 2000 to 2200 hours E.A.S.T.

Donald Gibb, of Morgan St., Mount Morgan, Queensland, who is a member of the transport section of the Mt. Morgan mine, has written offering to show any VE3 chaps around the works should they be visiting that district at any time. Inspection times are approx. 9.30 a.m. and 1 p.m. Monday to Friday. Saturdays and Sundays are limited. He would like to have advance notice of approx. arrival time of any who would care to take up his offer. Congratulations and best wishes are extended to two members of the Institute who have recently acquired for themselves a QSL secretary, Ron Fisher, 3OM, was married on 8th Sept., and Bert Smith, 3AAF, on 15th Sept. Best of luck Ron and Bert.

VICTORIAN DIVISION ACTIVITIES

General Meeting: First Wednesday in each month, held at the Radio School of the Royal Melbourne Technical College at 8 p.m.

Fox Hunt on 144 Mc.: Second Wednesday in each month, commencing from the plantation in College Crescent at the rear of the University at 8 p.m. Receiving gear for 144 Mc. only is necessary. Bring your own supper.

Bi-Monthly All-Band Scramble: Next round to be held on Monday, 1st October, between 2000 and 2200 hours E.A.S.T. An attractive certificate is awarded to the winner of each section.

V.h.f. Field Days are held during the summer months. Dates are advertised over 3WI Sunday morning broadcasts. Attractive certificates are also awarded to the winner of these events.

V.h.f. Meeting: Third Wednesday in each month at the W.I.A. rooms, 181 Queen St., Melbourne, at 8 p.m.

80 Metre Transmitter Hunt is held approx. once a month, dates are advertised in the 3WI Sunday broadcasts. Commences from the plantation in College Crescent at the rear of the University at 2.30 p.m.

S.w.l. Group meet on the last Tuesday in each month at the W.I.A. rooms at 8 p.m.

Slow Morse Practice Transmissions: 8.30 till 9 p.m. each Sunday evening on 3550 Kc. and 146 Mc. at speeds of 8, 10 and 14 words per minute.

Book and Instrument Libraries are available to financial members and are open for use when the Administrative Secretary, Mrs. May, is in attendance at the rooms on Tuesdays, Thursdays and Fridays between 10 and 4.30 p.m. Telephone number at the rooms is MY 1087.

State Convention at Leongatha, 3rd and 4th November.

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We all inherently have the capacity to enjoy music to some degree or another. It is therefore natural that the Amateur—a qualified technician in his own right—would apply his knowledge of Radio and Electronics to constructing his own High Fidelity Equipment for the home music installation when time permits. But even if his time is preciously applied in other directions he can still purchase ready-built equipment to provide for the family requirements in musical reproduction from gramophone records, tape recorders and wide-range tuners for enjoying the ultimate from the high class transmissions which are radiated from the modern broadcasting station.

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by G. A. BRIGGS, assisted by R. E. COOKE, B.Sc. (Eng.), as Technical Editor

★

As the title implies, this non-technical book is intended for amateurs, but it should also interest those who have not yet joined the ranks of amateurs and are merely contemplating a step in the direction of better sound reproduction in the home.

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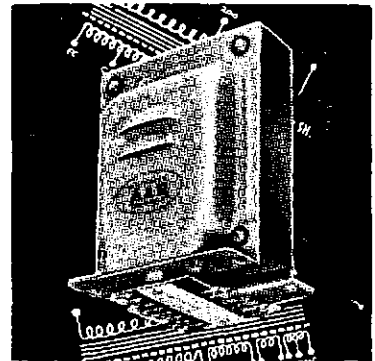
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Central Western Zone Convention at Stawell, Sunday, 30th September.

South Western Zone Convention at Ballarat on 13th and 14th October. Contact R. G. Rowland, 3GR, 19 Inkerman St., Ballarat, if you desire to book accommodation for the week-end. Olympic Dinner: 16th November.

SOUTH WESTERN ZONE

The zone is still keeping fairly active, there were quite a lot on for the R.D. Contest and the Sunday morning hook-ups are being well attended by the majority, but we would be very pleased if someone from Ballarat could come on each Sunday morning at 1000 hours.

Ian 3BV has another new vehicle, pearl colour with a red top, and aerial mounted to the front. We are very sorry to hear that Brian's (3ADV) mother and 3A's XYL have not been well and wish them a speedy recovery. Norm 3EQ is now back on the air working remote control from the lounge room. Wal 3HT is back on the air, heard him on 80 mx. Harry 3XI is still cleaning up the DX on 14 Mc., he has almost got 200 countries up now. Kev 3AKR is on quite a lot, especially on 80 mx. Sorry to hear Kev's father has not been the best. John 3AGD still seems to have his usual flow of visitors. 3AWZ has been heard on the bands lately, what about coming in on the hook-up one Sunday, Willie? Ted 3AEH, our Secretary, has announced that he has received the money for our allowance for this zone which has been coming for two years and which we are grateful to have to our credit. Bob 3GR and Brian 3ZBS are attending to arrangements for the zone Convention in Ballarat. Bill 3AMH is busy packing up to leave for the U.S.A. Bill Wines' XYL has also been on the sick list for quite a while, but is improving.

NORTH EASTERN ZONE

Bruce 3AGG has a cubicle quad in operation and has been enjoying a flutter at DX on 20 mx. Ken 3KR has been suffering from a nervous complaint and is at present somewhere in VK2 land. Keith 3DW is carrying on in Ken's place on the rural bushfire nets. It is reported that DX has been heard calling Jim 3JK. Hugh 3AHF was contacted for a short QSO. Ray 3FI has been spending considerable time building his new shack, but so far the date of his first transmission is a secret. Brian 3ASF has been suffering from ear troubles, but this has now been rectified. Murray 3HZ is spending all his spare time on the new home and Ted 3AOB is thinking in terms of good rx's.

Wonders never cease, Jack 3AKC has been contacted and says it may be some time before he is on the air. Vern 3AXW, Andy 3FD and Sid 3CI were contacted on a recent zone hook-up. Alan 3UI is now back on deck after his recent hospitalisation. Peter 3AFF is still active on the higher frequencies. Associate Earl Scoones is only active with his studies, while Nat, our new Associate in Shepparton, is playing around with rx's. Yours truly spent a short time in VK4 land and managed to soak up lots of sunshine, but only met one Amateur, 4TN, where an interesting personal ragchew was held.—3ALE.

CENTRAL WESTERN ZONE

Our Convention will be held in Stawell on Sunday, 30th Sept. Meeting place will be at the corner of Main and Patrick Sts. at 11 a.m. After the midday meal the programme will consist of a tx hunt on 80 mx, also a scramble on 40 mx and 2 mx. These activities will commence at 2 p.m.

Our annual meeting will take place after the evening meal with perhaps a short film to follow, a general ragchew and supper; expecting to finish up early so as to give those who have travelled a long distance to get to respective homes before it is too late. Everybody will be welcome, so chaps get your mobile gear together with YLs and XYLs and harmonics and proceed to Stawell on 30th Sept. Also please let me (3AKW, W. J. Kinsella, Magdala, Lubeck) know as to what meals and accommodation will be required as soon as possible.

Merv. 3AFO, of Horsham, is at present holidaying in VK6 land so we wish you, Nora and family an enjoyable holiday and a good trip.

EASTERN ZONE

Ron 3PR still keeping Leongatha on the map on 80 and 40 mx, while Jim 3DI is doing likewise on 10 and 2 mx. David 3DY is back on now after having an operation and we all wish you a speedy recovery David. Keith 3SS has not been heard on the zone for a long time as he is more or less a city identity now; hi Bodgie. Cliff 3AIT is doing well on 20 mx at the moment, running 25w, on a 807 and working plenty of DX. Graham 3QZ is back on again after his trip into the interior of Australia and we are all hoping to see some fine colour slides as a result of that trip. A visitor in the

district was 2IN, portable, from a caravan. Bob and XYL Daphne have met quite a few Amateurs in the district and have been well received wherever they went. Bob runs 18w, to a 6146 and gets out very well.

Jack 3AJK had a visit from Peter 3ZDT, who is building up his 2 mx gear and is going to have a 16 el. array for his antenna. Ian 3AAV broke his mobile whip off and it is still laying at 3AJK's QTH. George 3ZCG still working Melbourne on 2 mx, also 1 mx gear in operation; if anyone would like to make a sked with George, please get in touch with him and he would be only too happy. Reg 3AWV has a new rig on the air, 50w, to 807, mod. 807's AB1, and really putting out a fine sig. Stan 3ZAB had the misfortune to loose his 5/5 beam during the gales, but we hope you are soon on deck again Stan.

Don't forget, anyone who is going to the State Convention, please contact Ron 3PR, 8 Blackmore Ave., Leongatha.

GEELONG AMATEUR RADIO CLUB

The first field day for this year was held in the Barwon Heads area; tx was taken out by Ted 3AEH. The winner was Vic. Clarke, closely followed by W. Zimmer, R. Wookey and M. Stock. In the afternoon further short hunts were conducted with good results.

This year club members co-operated with the Motor Cycle Club in their reliability trial. The course, a particularly rugged one, commenced from Fresh Water Creek to Alfreys Inlet and back over a distance of 90 miles. The check points were manned by Bill 3AWZ, Fred 3ALG, Bill 3WT, Alf 3AJF, Ted 3AEH and Jim 3ABT. Contact with Geelong was kept with the home station, 3BU, in case of accident. Our thanks go to Max 3BQ for the loan of equipment for the occasion. The boys were pleased with the communication trial and messages were handled excellently.

The club has had visitors in Neil 3HG and Cliff 3CJ; the latter gave us an interesting yarn on various angles of interference and how to overcome them. Neil 3HG was here on vacation. Members are preparing for the Convention at Ballarat. It is certain a strong representation will be present for both days.

QUEENSLAND

BRISBANE AND DISTRICT

Tibby 4HR, who is convening our T.v.i. Committee, brought up a point that will bear watching if a channel 2 station comes on near to you. Channel 2 is 63 to 70 Mc., which is the third harmonic of the 21 Mc. band. If we appear to be stressing the point of t.v.i. when t.v. is not yet in our backyards, we can only ask "how much does your hobby mean to you?" It means a lot to us and don't want to have to give it up prematurely.

A note of sadness comes to jar things. Bert 4AO had a bad car accident and, though the injuries suffered by Bert, his XYL and daughter were superficial, he lost his two-year-old son, Bruce. Speaking for Council and all members of this Division, we wish to express our deepest sympathy to Bert and his XYL.

We have obtained some really good disposals gear at a nice low price and you will receive all the details in "QTC." Now that the "4c" has been broken," there will, possibly, be a lot more to follow. When you see the details in "QTC," don't waste time in getting your name in.

A new Associate member of this Division is "Sandy" Suceveanu, who was pre-war YO555 in Roumania. When "Sandy" becomes an Australian citizen in a couple of months he hopes to be able to get a VK call. Unfortunately, his old homeland is behind the "Iron Curtain" and the possibility of getting a copy of his Roumanian "ticket" is very remote, so unless something can be arranged he will have to sit for a VK ticket.

There were some really good scores in the R.D. Contest logs received, but not enough of our VK4 boys entered the contest. If every member of the VK4 Division had worked the six contacts required to enter the contest, Queensland could have taken the E.D. Trophy, which is apparently a "permanent" holding of either VK5 or VK6. With a bit of planning next year we could shock those "characters."

Conditions appear to be good on the h.f. bands with the main activity on 14 Mc. being centred around that world traveller, Danny Well, who is active on Guadalcanal, in the Solomon Is. Danny has been writing some really first class articles for "CQ" magazine. He will be giving the DX men some nice juicy countries before he arrives home in England. Some of these countries include Portuguese Timor, Cocos Is., some of those "rare uns" in the Bay of Bengal, and juicy ones around Africa. Conditions are getting better on 21 Mc. and 28 Mc. with the approach of summer, with the 21 Mc. band remaining open later in the evening.

TOWNSVILLE

The meeting for August was poorly attended, boys must still be hibernating because the seasons this year are not running true to form; at the present time, spring has not yet appeared and it is very cold for this time of the year. A welcome sight to the meeting was our Secretary, Eddie 4WH, who was allowed out of hospital for the week-end as his daughter was being married. Well boys, how about visiting Eddie in hospital? He will be glad to see you.

Conditions on the band since last report have not been encouraging, although Ted 4EJ is getting out with new G4ZU beam, which is to be erected shortly at this QTH. Joe 4JH is left Regional Board and joined the local B class station and has set about building a new rig for s.s.b. Rex 4LR trying same out, but so far not heard here. Arthur 4FA on transfer to Sydney main office; you will be missed, as nothing was a trouble to you in helping out the boys. John 4DD was welcomed to the club and hope John you can spare the time to come along each month. Vern 4LK and Col 4CE still trying to iron out bugs in 144 Mc. gear. John 4DK tries hard to keep local skeds on 7 Mc. Norm 4NT and Andy 4BW still keeping Maruba in forefront with the DX stations. Coldest DX worked for month at writer's shack was CR5P on 21 Mc.

MARYBOROUGH

The local sky-line looks like being improved by the addition of two steel towers before long. 4CB's 50 ft. is almost ready and 4BG has a 40 ft. ready. 4BG is the only local active at the moment on 14 Mc. phone and c.w. Newcomer, Grahame Pooley, is for his A.O.C.F. again in October. Plans to work on 2 mx. 4AI, who has two daughters, recently became the proud father of a son.

SOUTH AUSTRALIA

The August general meeting was members' display night, that is a display of members' own gear, not the members themselves; a bumper house including visitors G3HC, G3GNI, Tom 5GD, and Messrs. Fisher, Cann, Watts, Evans and Barker, and lastly but not least our old pal Bob 5RI and Peter 5RM who has come to live in these climes.

Amongst the gear shown was a converter from Tom 5GD, whilst Warwick 5PS (that stout type) displayed an R9er, of course they had to describe them and Warwick not being either shy or retiring made quite a job of it. Lend it to me sometime and I may then hear that b.h.s.s. a bit better.

Bob 5EU brought along a yard and a half of 1 mx tx, a masterpiece of workmanship and capable of equal performance; his description was interesting and instructive to us less informed. Bob's xtal converter, which finishes up for a 2-4 Mc. i.f., was equally as impressive. John Gazzard had a g.d.o. fitted with a magic eye instead of a meter, a nice piece of gear; whilst Bill 5ZAB showed us his xtal locked converter on 2 mx.

Peter 5RM made us all envious of his 80 through 2 (yes 2) tx by Harvey Wells; hope to hear it on the air soon. Norm (the public relations bloke) gave us a look at his 1 mx rx, well made too, congrats. Norm. Les 5AX took down an antenascop from here and asked those interested to enquire from the maker!! OK chaps, queue up on the right.

Rob 5RG concluded the proceedings with a talk on the G4ZU tri-bander that was featured in last month's "A.R." There is a certain fellow making one now, in fact it is finished and being tested and when all the dope is collated will do an article on it for you. It has turned out quite a job too and answers all the questions.

QSL card distribution concluded the night's fun. By the way, chaps, keep your addresses up to QSL Manager and a small cash balance to enable quick despatch of cards.

An interesting item this month follows confirmation of a 1 mx contact from Reg 5QR to Ern 5EN on 28th July last. This follows much patient work by both parties; congrats to you both. Ern used his 144 Mc. gear doubling to a 15E and fed into an 18 el. Yagi on a 22 ft. boom! Reg used an 832, with 15w. input, into a 16 el. vertical polarised. All xtal controlled gear, both tx and rx.

Amongst those heard on the air recently was Les 5AX expounding an idea for a vertical cubical quad a-la-clothes line type, and I would not be surprised if he made it work. Tom 5TL recently went to Darwin, something to do with a car trial and found the water supply frozen. Joe 5JO alternating his hobby with building shacks and clubs and then making wooden animals as patterns for the boys' club projects. Athol 5LQ commenting on which end of the drain Gawler is situated. Luke 5LL broke the

ice through to Gawler recently; Rex 5KY, Ern 5KN, Austin 5WO and Bob 5WI keep in touch also.

Paid a visit to Reg 5QR recently and was met there by Dougal 5BY and 5CX; the conversation got around to stamps, QSL cards, methods of getting rare DX, etc., and the purpose of my visit, v.h.f. information, was overlooked in the interest created by the alternate subjects. In fact there were so many DX C.C. Certificates cluttering up the floor that it was inappropriate to mention local ragchews on 2 mx.

Frank 5MZ is off to VK3, leaving here on 13th October, by car with 34 senior girls passing through Ballarat (3VA please note) and intends staying at Victoria Coffee Palace where he would be pleased to meet any VK3 boys. He will be back at Ballarat on the 18th for the competitions and can be found at the South Street Hall. Look for the egg shell blonde, chaos, and don't let the Preston boys have it all their way.

NORTH WESTERN ZONE

The third annual general meeting of the Woomera Club elected Bernie 5QW as President, Ron 5FY Secretary, and David 5ZDR Treasurer for the ensuing year. Congrats fellows, hope you have a good year and at least keep those rhombics hot! Pleased to see the number of logs you people put up for R.D., very good. Sorry to learn Ray (Mark I.) and family have been on the sick list, hope all well by the time you read this.

A little bird tells me Bernie 5QW may be living in Central District soon, you will have to watch your famous "expression" when down here, or even take out a patent on it as Les 5AX did with his whistle.

My Port Lincoln spy reports Jack 5VJ is quite well, but finds pressure of work keeps him off the air. George 5GA is interested to get back on v.h.f. soon. Pat 5LT has returned from hospital and we hope OK by now. Wall 5DF still active on 40 mx Sunday mornings, he is making preparations for re-building (has a new hi-fi modulator going), but 50 cycles will keep him quiet for a while yet.

SOUTH EASTERN ZONE

At "Gambler's" meeting (before last) Claude 5CH gave those present an interesting talk on the new power station equipment, and followed it up with an official "look-see" at the turbines working, etc., at last meeting. Stewart 5MS not heard yet, his re-build prevented his repeating last year's total, but he logged via Col 5CJ as also did Tom 5TW via 5CH. Erg 5KU pounded the brass for 71 contacts so got into the swim. There is a new Z call at Penola, Dave 5ZAM I think, poke a sig. up this way, Dave, and see if you can make it, you never know your luck. Tom 5TW at present on leave in the Fair City, apparently resting his voice from R.D. work.

Bram 5AB reported a hectic day on R.D., know why? He uses a first class DX set up with vee beams goodness knows how many wavelengths per leg, that gives about 8 degrees take-off. His first CQ RD brought back HP3FL and he could copy through the contest QRM. In spite of that disability he put up 202 contacts. Bram reckons to get toolled up for high angle radiation before next contest, in the meantime he is content to work SM8, CR5, VP3, etc.; half his luck.

WESTERN AUSTRALIA

The Divisional meeting for August was better attended than usual. Tom 6MK gave a talk on his recent air trip to G land. Members had been asked to bring along any unusual or interesting gear, and some time was spent in examining and discussing the resulting exhibition. 6EC brought an oscillograph, 6AW v.h.f. gear for one and two metres, 6BB 4-500 Mc. gear, 6ZZ an a.c. grid dip meter, and 6AG various "museum pieces" including an early 40w. 800 cycle alternator.

A vote of thanks was passed to 6LU for the fine job he has done as traffic manager.

A motion put by 6MK "that Federal Council be required to put the case for an increase in power to 150w. maximum, so that Australia falls in line with other Commonwealth countries" was passed with only three dissentients.

We are glad to welcome a new Associate member, Russell Crowell, of the U.S.A., and hope he has a good time in VK6.

As we have not had the final results of the R.D. Contest (at the time of writing these notes) I am not saying much about it, excepting to congratulate the top scorers for an excellent performance, which appears to be a record for this Contest.

Due to seasonal business QRM I have not been able to devote much time to Radio in the past month, hence these notes are somewhat short, but will try to do better next month.

TASMANIA

NORTH WESTERN ZONE

The annual general meeting of the North Western Zone was held at Ulverstone on 21st August, a goodly number being in attendance. I did count them at one stage, but they appeared to me to double towards the end of the evening, so now I'm not sure.

There was the usual rush of members to fill the various offices. Jim 7JO was elected to the Presidential chair, being the only nomination for that position. Good luck, Jim, for a successful year of office. Ted 7EJ and Roy 7RN were elected to the posts of Vice-Presidents, representing the Devonport and Burnie ends of our vast zone. They were the only nominees and were declared elected by our new President. Sid 7SF was appointed Sec.-Treas. Anyone owing 5/- zone fees should hand them to Sid, he's been financing us for too long. In any case, the meeting instructed Sid to put a reminder on meeting notices. Dennis 7DR is Asst. Sec. Yours truly, Len 7LS, was elected as zone correspondent.

A lively interest was exhibited by the Associates throughout the evening. Keep it up chaps. In fact, by the end of the evening, if I remember, everyone was lively. A warm welcome back to the fold to Niel 7NB and Athol 7LR. Let's see and hear more of you in the future. Special thanks to those XYLs of Jim 7JO and Dennis 7DR, who opened their homes and gave of their supper and put up with our chatter at meetings during the 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.

WOOMERA AMATEUR RADIO CLUB

Editor "A.R." Dear Sir,

I have read with interest the article in your September issue giving the history of the Woomera Amateur Radio Club, and I feel that I should add something to it in the interests of "credit where credit is due."

The problem of overcoming rules and regulations so that Amateurs could operate at Woomera was quite a difficult one and it was only the willing co-operation of all concerned that eventually allowed the club to be authorised and established. Chief among the Club's supporters from the earliest days was Mr. W. A. S. Buteament, the Chief Scientist of the Department of Supply. An Amateur of long standing himself—in fact, since long before the days of the first U.K. contacts with New Zealand in 1925, in which he played a leading part as G6TM—he was one of the originators of the idea of a ham radio club at Woomera.

It was always his wish to be present at the inaugural opening of the station, and he was able to spend an evening with the Club in its earliest days during which he established contact with several overseas Amateurs, demonstrating that he had not lost any of his old skill or enthusiasm. The Club has a great deal to thank him for, and I would like this to be placed on record in your journal.

—A. G. PITHER.

[We thank Group Captain A. G. Pither for this additional information. Mr. W. A. S. Buteament's call sign is now VK3AD.—Ed.]

NATIONAL FIELD DAY CONTEST

Editor "A.R." Dear Sir,

I would like to take advantage of the invitation to offer suggestions to readers of "Amateur Radio" to improve and to further interest in the National Field Day Contest. I have myself taken part several times in the very successful Radio Society of Great Britain N.F.D. Contests, and I am sure that perusal of the copy of these latter rules, which I have made available to the Contest Committee, will be of considerable help to them in their efforts to increase interest in the next Australian Contest.

May I make a few suggestions, and give a few facts, extracted from the 1955 N.F.D. results, to illustrate the interest shown in Great Britain in connection with their Contest, and the results obtained with the portable gear used and with the maximum permitted input power of 5 watts (c.w. only).

Entries must be from properly constituted town or area groups within the British Isles, whereas in Australia, entries would obviously have to be individual efforts, and the Contest Rules framed accordingly. Each competing group is permitted to place two stations in operation, awards being made for the highest combined score, to best score on the band, etc. Stations operate on the 1.8, 3.5, 7 and 14 Mc.

bands scoring 1 point for fixed stations in the British Isles, 2 for Europe, 3 outside Europe, and 6 points for fixed stations in the British Empire. 3, 4, 8 and 12 points respectively are awarded if the contact is with a portable station. By arrangement, the Radio Society of Switzerland hold their Contest on the same day, which fact helps enormously to stimulate interest, and provides additional portable contacts for contestants. The Contest period of 24 hours is satisfactory for group contestants, but would be far too long for an individual effort. The Contest is held in June, giving long hours of daylight, and good prospects of fair weather and fair communication conditions.

There were 105 entries in the 1955 Contest, and sixty of these operated on the four bands available and the majority of them operated two stations, so that there were in all nearly 200 portable stations on the air. Equipment used was various, one station compiling a respectable score with the aid of dry batteries only, and a 0-V-1 rx. The most successful contestant was the Gravesend Group with a total score of 1188 points. They scored 308 points on 7 Mc. and 207 points on 14 Mc. The top score on 14 Mc. was 242 points, 7 Mc. and 14 Mc. producing DX contacts with stations in ZL, LU, VE, VO, Ws and KP4, all on 5 watts!

Empire portable contacts providing 12 points to the lucky ones, were with ZB1, ZC4, YP9, and VSIGL. What a wonderful performance!

In view of the difficulties in securing suitable equipment here in Australia, I would like "A.R." to introduce a series of articles on the construction of suitable simple portable gear for N.F.D. use. Home-built and/or converted disposal gear, or including any available commercial units. The simpler the better! I am sure that if "A.R." shows interest in this respect, interest from the members themselves will ultimately follow.

—Frank E. Atkins, VK3AFE.

[The Technical Editor would be pleased to receive articles dealing with the construction of any equipment of this type.—Ed.]

STOP PRESS

MISSING DIVISIONAL NOTES

Publication date was put back this month owing to the postal delay, but unfortunately some Divisional Notes had not arrived prior to going to press.

HAMADS

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3382.5 Kc.	5744.444 Kc.	7028 Kc.	7106.7 Kc.	8161.538 Kc.
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3535 Kc.	5892.5 Kc.	7032.6 Kc.	7120 Kc.	8176.923 Kc.
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5360 Kc.	7012 Kc.	7064 Kc.	7156 Kc.	10.5465 Mc.
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EDITORIAL



PIRACY

We are told that in the bad old days pirates advertised their presence by using a flag embossed with the skull and crossed bones.

Today in the field of Amateur Radio we have pirates who advertise their presence by using bad language, poor operating procedure and discussing questionable subjects.

Unfortunately, some of these traits are not restricted to "pirates," but apply to some licenced Amateurs who think that h.f. and v.h.f. phone is audible only to the person with whom they are in contact.

Stupid practices such as these do a lot of harm to Amateur Radio and all sane thinking Amateurs should co-operate to stamp out such behaviour by pouncing on all transgressors.

Thanks to our higher standards of education we have senior schoolboys with sufficient technical knowledge to construct and operate illicit transmitters for over-the-fence communications in more ways than one. These lads do not appreciate the range of even the smallest transmitter and would be no doubt surprised to hear recordings made of the questionable story they told some schoolmate over their illicit Radio link.

To overcome this menace it appears essential to include in today's school-

ing curriculum some form of instruction which will impress lads with the dangers and repercussions of such behaviour.

The Institute desires to encourage every intelligent youth to take an active interest in Amateur Radio. For two reasons: One—a very selfish one—that of increasing membership of the Institute. The other—the most important reason—that of ensuring a continuity in supply of trained communications operators and technicians to meet any national emergency.

It behoves every member of the Institute to not only take under his wing and encourage the young enthusiast, but also to inculcate in his protegee a respect for the Radio Regulations and the rules of society, as well as good sound technical training and operating procedure.

The Institute, like Nelson, expects every man to do his duty by obtaining the necessary licence and observing good operating procedure, thus preserving the prestige of the Amateur Fraternity.

The behaviour of operators of Official Institute Stations must, at all times, be beyond reproach. Upon them rests the prestige of the Institute.

—FEDERAL EXECUTIVE.

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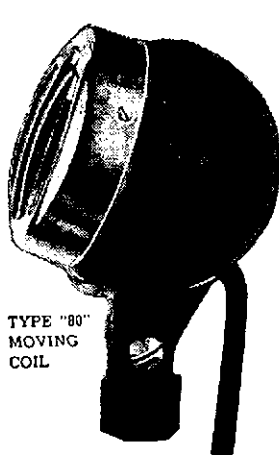


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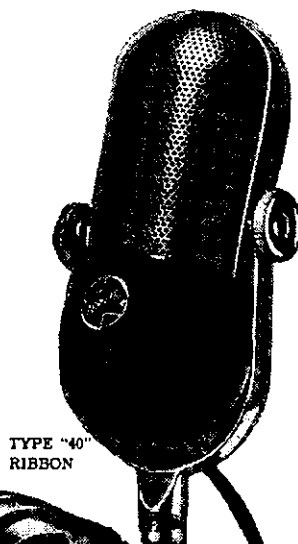
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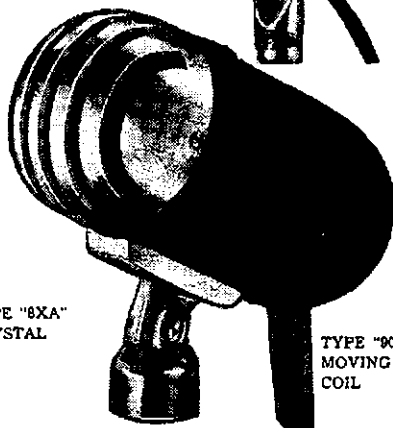


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AVAILABLE FROM ALL LEADING TRADE HOUSES

V.H.F. Field Strength Indicator Receiver

FOR T.V. AND T.V.I. FIELD WORK OR V.H.F. TESTS

BY H. F. RUCKERT,* VK2AOU

THE here described v.h.f. receiver was built for the field work of the Sydney W.I.A. T.V.I. Committee. The fundamental idea of the r.f. part of the circuit was adopted from a paper in DL-"QTC," but DL6EG used a v.h.f. twin triode and did not mention the values of the components. Therefore a bit of developmental work had to be carried out around the components the writer could find in his junk box until satisfactory results were achieved.

Any modern v.h.f. twin triode or single triodes of the high mu type may be used. A 6AG5 was not as good an oscillator at 200 Mc. as the 6AK5. The tubes of the r.f. part must not be identical because they operate under different conditions anyhow. The first stage is a grounded grid preamplifier which has little gain, but the main purpose is to make the receiver calibration independent from the aerial and to prevent any radiation by the oscillator. The tuning of the oscillator is quite sharp and a t.v. turret without an air capacitor would only give a spot frequency of 100 Kc. bandwidth per channel, which is not satisfactory for our tests, because we would like to cover the band 30 to 220 Mc., or at least all or most t.v. channels and the harmonics of Amateur band frequencies between these channels. If we cannot get a Mallory spiral inductive tuner, we have to find a small (capacity and dimensions) air capacitor of 2-10 pF. or so. A ceramic Oak switch can be used.

The wiring of the tuned circuit should be started with the highest frequency around 220 Mc. to see if the components have been placed close enough together so that the wiring is short enough to get up to 220 Mc. Remember that the contacts and springs of the switch and the contact spring and solder connection of the air capacitor are alone about 50 per cent. of the length of the leads which form the 220 Mc. inductor. We may reduce the effective inductance of leads by using $\frac{1}{2}$ " copper strips cut from foil.

The oscillator uses a Colpitts type of e.c.o. dividing the r.f. for the feed back with the grid to cathode and cathode to ground valve capacitance. The plates (and screen grids) are free of r.f. The chokes are wound with fine insulated wire of 5 feet length on a 2w. type of resistor (carbon) of any high value, to have a convenient former with leads. The 2,000 ohms cathode resistor may have any value from 300-10,000 ohms to regulate the feed back amount with the highest B+ value at the highest frequency, to get maximum sensitivity.

If the oscillator has too much feed back at lower channels, a lower B+ voltage can be used, with the oscillation variable resistor. The other important point is the superregeneration frequency which is determined by the oscillator grid leak resistor and the

grid coupling capacitor. In the interest of high sensitivity the coupling capacitor may not be chosen much smaller than 100 pF. but the grid leak resistor had to be below 1 megohm to get the superregenerative tone up in the supersonic range (above 20 Kc.).

This part of the receiver is in a shielded box and with the exception of the antenna terminal, only filtered leads come out with ceramic button-type feed-through capacitors soldered in the holes of the chassis.

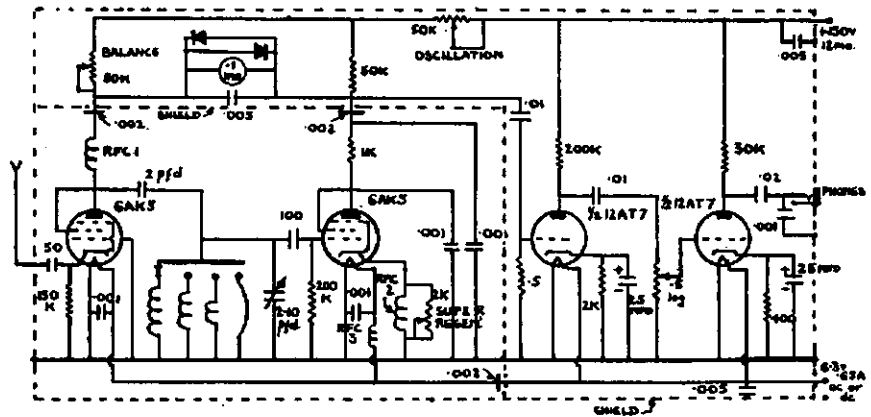
The 0.1 Ma. meter is connected in a bridge circuit between the plates of the two r.f. stages. An instrument rectifier may be connected across the meter as shown, if one is afraid that occasional overloading of the meter may damage it. A 50,000 ohm balancing resistor is used to bring the meter to zero when the oscillator plate current is changing when we tune the receiver over a wide range or change the band.

from the Sydney 92.1 Mc. f.m. station without a line of direct sight, this station gives a 0.01 Ma. deflection on the meter and clear reception is gained when tuning to the side of the carrier (f.m. with a.m. receiver). The t.v. transmitter will be much stronger.

The taxi stations are as well received (that is their harmonics too, hi!).

IS your Transmitter OK for TV?

Set this receiver up where you may later have the t.v. set. Try your transmitter on all bands you are using. Look for harmonics near or within the t.v. channels. Note the meter deflection these harmonics are causing. Compare these signals with the field strength of your f.m. v.h.f. station in the 90 Mc. range (see W.I.A. Call Book for frequencies and power). If your transmitter has no stronger harmonics running full power and 100 per cent. modulation, using a clock as audio source, on the operating aerial, than the signal of the



V.h.f. Field Strength Indicator Receiver

RFC1, 2, and 3—See text.

Inductances selected to cover 45-220 Mc. in six ranges.

A further twin triode is very helpful as audio amplifier to identify the received signal (station or interference, or t.v.i.-causing Ham call). This method is much easier than learning to interpret the cross hatching or the scrambled t.v. pictures caused by various sources of interference. There is not much to say about the audio amplifier. No transformer was used to reduce weight. With the exception of the two small electrolytics, all capacitors are Australian made ceramic capacitors (discs).

V.h.f. Amateurs will not have any trouble to get this modern version of a superregenerative receiver going. There is no doubt that the type described in the A.R.R.L. Handbook is just as good, but the band switching is extremely simple in this Colpitts e.c.o. way.

The sensitivity is good enough for our job. With a 3 ft. aluminium rod standing on the ground floor, 11 miles away

f.m. station puts a field strength in at the same location, assuming the t.v. station will be located at the same place or received over a similar distance, you have a good chance not to get t.v.i. due to a fault in your transmitter.

There is little doubt that you will overload the front stages of your own and your neighbour's t.v. sets with the fundamental (your licensed transmission). You should co-operate to identify the trouble with this v.h.f. receiver, but don't touch the neighbour's t.v. set. It is the responsibility of the service contractor to report to the manufacturer that the t.v. set in question does not have the required selectivity to be able to sort the t.v. signal from other licensed signals out (your harmonics would not be licensed and are often not on Amateur bands).

Use the instructions published in the Phil Rand T.V.I. Book, the A.R.R.L. (Continued on Page 7)

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BRIGHT STAR RADIO

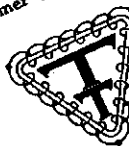
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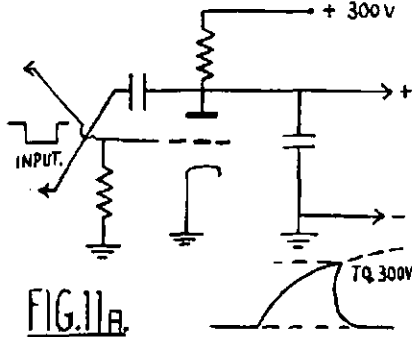
PULSE THEORY

BY L. F. BERWICK,* VK3ALZ

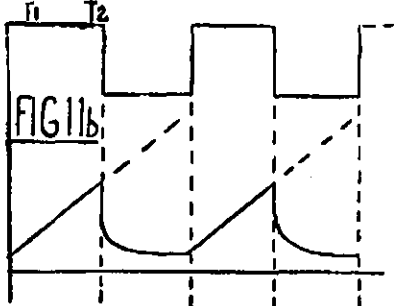
PART THREE

MULTIVIBRATORS FOR PRODUCTION OF SAWTOOTH WAVES

Sawtooth waves can be produced by connecting a condenser from one plate of a multivibrator to ground (Fig. 11a).



At time t_1 (Fig. 11b) tube is at cut off and condenser C charges through the load resistor R towards 300 volts. At time t_2 tube again conducts and quickly discharges the condenser to its original low value. The value of R and C determine the slope of the sawtooth. By making C small and R larger than the resistance of the tube, and also if only the lower portion of the exponential curve is used, a nearly linear sawtooth wave results (Fig. 11b).



If the time interval between t_1 and t_2 is short enough to allow the charge on the condenser to rise to only a small fraction of the supply voltage, then only a small portion of the exponential curve is used and is therefore approximately linear.

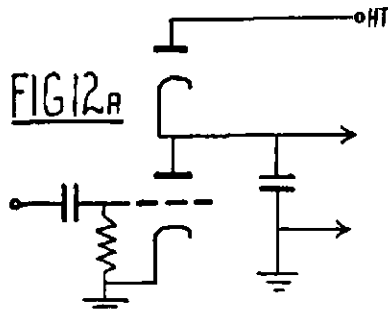
TO OVERCOME FIRST ORDER CURVATURE

It was explained earlier that the exponential charging curve has first order curvature. To obtain a linear voltage rise from condenser charging it is necessary to eliminate first order curvature.

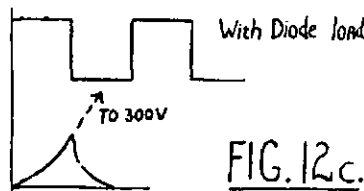
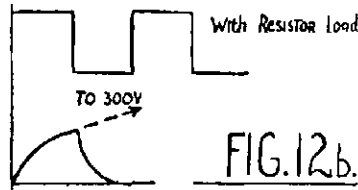
Use of Saturated Valves to Overcome First Order Curvature

Saturated Diode (Fig. 12a): With low voltage applied to it a diode has high resistance, this resistance decreasing towards the point of saturation. When the charge on C is low, current through the diode is maximum and the diode will be saturated and consequently its resistance will be low and the condenser will charge.

*Lot 35, Loongana Avenue, Glenroy.

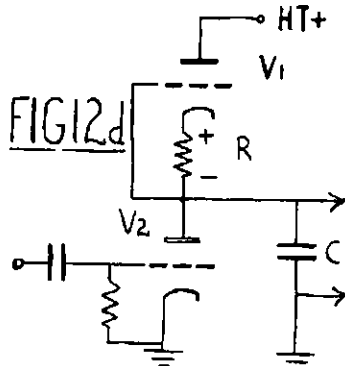


The diode replaces the plate load resistor.



It will therefore be seen that the diode acts as a variable voltage source, causing the voltage to increase as the point of operation moves up the sawtooth, thus reducing first order curvature.

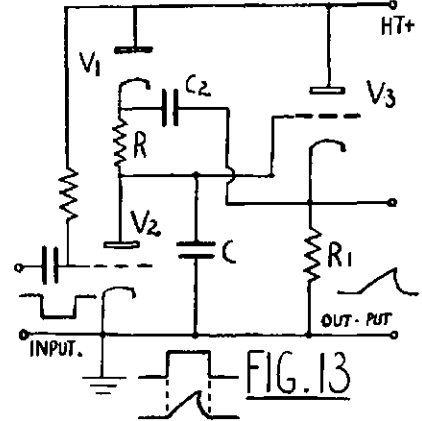
Saturated Triode (Fig. 12d): When the charge on C is low, more current is drawn through V_1 . This current flows through R increasing the bias on V_1 . As the current decreases the bias on V_1 is reduced. Thus the tube acts as a high resistance when charging is first commencing and thus slows down the initial charging rate, whilst as the condenser charges up the tube becomes a lower resistance and tends to increase the charging rate, thus counteracting first order curvature.



To produce a perfectly linear charging curve V_1 must have infinite gain. The use of a pentode would improve linearity.

THE BOOT-STRAP OSCILLATOR (Cathode Feedback)

This circuit (Fig. 13) is used to produce a moderately linear sawtooth wave.



R is the charging resistor for C and also the grid resistor of the cathode follower V_3 . The grid of V_2 is generally held at a potential slightly above earth, therefore there is no voltage across C. A negative gate pulse applied to the grid of V_2 cuts this tube off and the voltage across C begins to rise exponentially to the h.t. voltage. When C begins its charge the current flows into it through the diode and R will tend to be heavier than when C is nearly fully charged. The sawtooth wave applied to the cathode follower grid is transferred to the cathode load resistor R_1 which is coupled to the +ve side of R so that the voltage across R is kept nearly constant. Therefore the current flowing into C is nearly constant and the voltage rise across C nearly linear. When the gate closes, C is shorted by the low resistance of V_2 and thus C discharges ready for the next cycle.

THE MILLER SWEEP GENERATOR

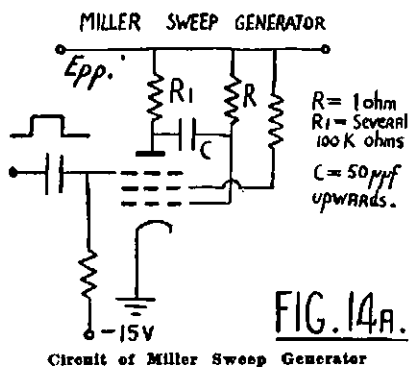
Introductory note. The formula for Miller Effect of a valve is—

Input capacitance $C_{in} = C_{pg} (1 + A)$ where C_{pg} is the plate to grid capacitance of the tube, and A is the amplification factor. Since A is dependent on the operating conditions, C_{in} is also dependent on these conditions.

This fact is utilised in the Miller sweep tube.

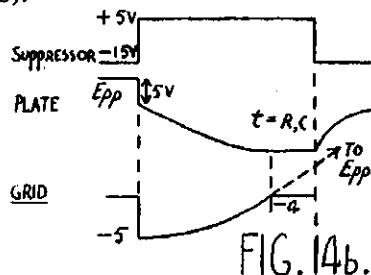
Referring to the circuit (Fig. 14a) it will be seen that C_{pg} is in parallel with C, the grid coupling condenser. But C_{pg} is multiplied by a factor $1 + A$, i.e. C is paralleled by a condenser $C_{pg} (1 + A)$. Now during the course of operation of the sweep cycle, C is charged exponentially through R, therefore $C_{pg} (1 + A)$ is also charged exponentially through R. This causes E_g (the grid bias) to vary and thus the value of A to change and hence the condenser $C_{pg} (1 + A)$ to change.

The effect of this is to counteract first order curvature so that E_g rises linearly instead of exponentially.



The drop in grid voltage would tend to make the anode volts rise, but the negative voltage on the grid (i.e. the charge on C) is reduced by exponential charging through R. This rise in grid voltage makes the anode voltage fall still further, thus opposing the discharge of C through R. The effect is to cause the plate voltage to fall linearly until a state of equilibrium is reached. At this point the plate current bottoms against the "knee" of the plate curve. At this point the space current is transferred from the plate to the screen.

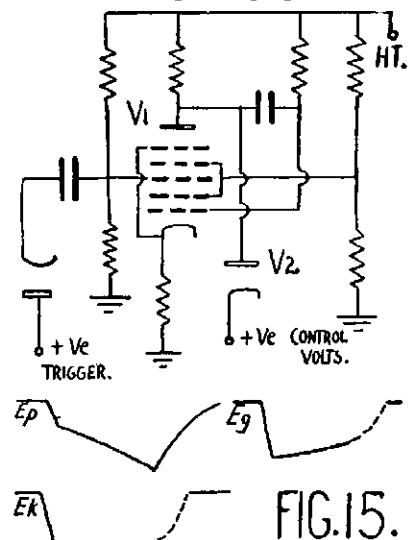
This state of equilibrium is stable for the duration of the +ve gate on the suppressor grid. When this is removed the plate rises towards Epp with a speed limited mainly by R C. The departure from linearity in the run-down of the plate during the Miller portion of the operation is less than 0.1% (Fig. 14b).



This type of circuit can also be arranged as a flip-flop, giving in addition to the linear sawtooth a gate of very precise and accurately controlled length

which is often used for ranging purposes for producing jitter free delay circuits in which form it is known as the phantastron.

The Phantastron (Fig. 15) is a triggered self-gating sweep generator.



Before the trigger pulse is applied the control grid allows a reasonably heavy screen current to flow, but plate current is limited to cut off due to the voltage drop across Rk producing a negative bias on the injector grid which is returned to ground. The circuit is at this stage in a state of equilibrium.

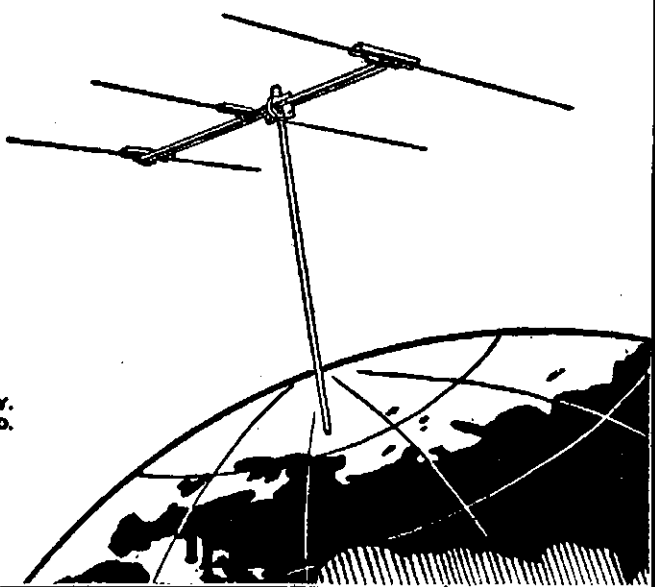
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The application of a +ve trigger pulse to the injector grid immediately causes plate current to flow, resulting in a voltage drop at the plate which is coupled as a negative voltage through C to the control grid, thus limiting screen current and hence reducing the voltage drop across Rk with resultant reduction in the bias on the injector grid.

The tube is now open and tends to settle down in a new stable state. The drop in voltage at the plate, coupled to the grid, would also tend to limit plate current so that it is a small drop equal to the drop on the grid and is stabilised by it.

The control grid will now commence to go less negative as condenser C charges through Rg. Note that the control grid has only to go a few volts +ve in order to return the circuit to the original stable state and the condenser is charging towards a comparatively high voltage. This in itself provides good linearity.

As the control grid goes positive so more plate current will flow, resulting in a lowering plate voltage which tends to cause more linear charging of the condenser C. This transferred to the grid results in a more linear fall of the voltage at the plate. Linearity is thus self-adjusting and of a very high order.

Eventually plate voltage falls to a point where amplification of the valve approaches unity. The grid voltage has risen to a point where increasing screen current is possible. The flop action then occurs. Voltage drop across Rk starts to increase which biases the injector grid, thus limiting plate current. The consequent increase in plate volts is coupled to the grid, increasing screen current and injector bias. The action is cumulative and the circuit quickly returns to the original stable state. The plate current being cut off, the plate volts rise exponentially as C charges through RL.

It can be shown that the duration of the unstable condition, say the length of the gate at the cathode, is directly proportional to the plate voltage at the start. The slope of plate voltage decrease is purely a function of C and Rg.

The voltage to which Ep falls will be the same for any starting voltage, therefore from the diagram it will be seen that the pulse duration will be directly proportional to plate control voltage. Therefore by clamping the plate voltage, diode clamp V2, to some predetermined voltage a gate of a precise length can be produced across the cathode load Rk.

The circuit may be triggered by a -ve trigger pulse to the control grid or a similar pulse to the plate.

In order to obtain better linearity the amplification is frequently increased by increasing the value of the cathode resistor R1 and returning it to a negative voltage. This circuit is an example of a gated sweep generator. Note that the duration of the cycle is dependent on the duration of the gating pulse.

PULSE CIRCUITS USING INDUCTANCES

Ringling Circuit (Fig. 16a): The valve is normally conducting and a steady plate current flows through the valve and inductance. If a large negative gate pulse is applied to the grid sufficient to cut off plate current, the resonant tank

is shocked into oscillation. At the end of the gate pulse the tube again conducts and a second oscillation is started. However, the conducting tube is equivalent to a damping resistance across the tank and oscillations die away quickly.

The number of oscillations in each train depends on the Q of the tank circuit.

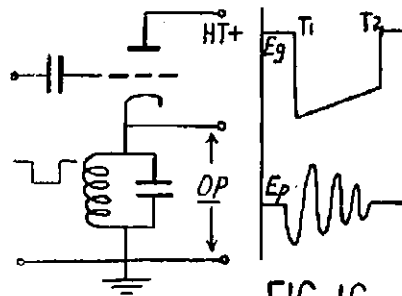


FIG. 16a

The RLC Peaker (Fig. 16b): This circuit is very similar to the ringing circuit, the main differences are: (1) C is restricted to stray capacity; (2) A resistance is connected across L to provide nearly critical damping so that a single sharp peak is developed across L at the beginning of the gate and another at the end of the gate. The negative peak developed at the end is smaller due to the additional damping of the tube.

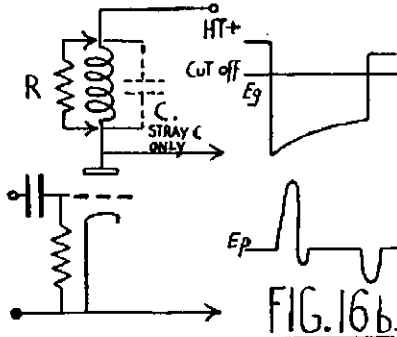


FIG. 16b.

The amplitude of the input pulse must be considerably greater than the cut-off because the voltage needed for cut-off is increased during the time the positive pulse is at the plate of the tube.

It will be seen that the pulses developed in the plate circuit are of high peak amplitude. These voltages may be rectified to provide a source of e.h.t. This is common practice in t.v. receivers.

It is also common practice to apply a sawtooth voltage to a ringing circuit and utilise the high peak voltage developed during flyback for a source of e.h.t.

V.H.F. INDICATOR RECEIVER

(Continued from Page 3)

T.V.I. Committee Guide (available from the A.R.R.L. free), read "A.R." Oct. '56, "Understanding Television Interference." The manufacturer should complete the t.v. set by supplying the high-pass filter or wave trap free of charge to the serviceman.

The calibration is done before the h.f. part is shielded with a calibrated ab-

sorption type wavemeter ("A.R." Mar. '56, p. 11 and p. 12) to get, at this stage, the coils near enough to right. The correct calibration is carried out after the receiver is shielded and the antenna is connected.

Use a calibrated grid dip meter which may be corrected with the beat notes heard from the g.d.m. in the BC221 frequency meter. Start with the g.d. meter at 50 Mc. or 30 Mc., checked with the Bendix 221 at 2.5 and 3 Mc. respectively. Follow then with 10 Mc. points in the same way and with 2.5 Mc. points finally. Make curves for each range and from these a calibration table in 1 Mc. steps. Mark t.v. channels and 14 and 21 Mc. harmonics.

The v.h.f. receiver is small enough to be used portable or mobile. With a small power supply, the receiver may be used at a t.v.i. complainant's place.

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THE TESLA OSCILLATOR*

A HIGH STABILITY CIRCUIT WITH LOW HARMONIC OUTPUT

BY DAVID DEACON, G3BCM

AS the origin and theory of the Tesla oscillator circuit, now gaining popularity in Amateur as well as commercial circles, is not widely known, a few details together with typical values for Amateur operation may be of general interest.

The oscillator was developed by Tesla, a Czechoslovakian State organisation, from a circuit and a theoretical treatise attributed to J. Vackar. Its overriding features are its stability and low harmonic content, coupled with the fact that its output is claimed to be inherently more constant over a wider band than is practicable with comparable oscillators.

Long-term stability in a production unit achieves a figure of ± 0.002 per cent., whilst in home-made equipment a figure of ± 0.01 per cent. is readily attainable without extra precautions; a higher short-term stability of ± 0.001 per cent. is considered feasible.

FACTORS AFFECTING STABILITY

The methods of achieving this stability are summarised by Tesla as follows:—

- (1) The tuned circuit must be mechanically and electrically stable and have the highest possible Q factor.
- (2) The impedance to earth between the grid and anode of the valve and either end of the tuned circuit should be as low as possible, but sufficient to permit sustained oscillations.
- (3) The valve should have the highest possible ratio of mutual conductance to the possible changes in its own capacity.
- (4) The oscillator power level should be kept as low as practicable.

The Tesla combines the more desirable elements and properties of several circuits, including the Clapp and the Sailor, from which it has been possible to achieve maximum stability together with constant oscillation amplitude over a broad tuning range of 1:1.5 or more.

It is perhaps worth noting here that in the Clapp oscillator the mutual conductance of the valve should change proportionally to the third power of the frequency tuned, hence this type of oscillator is inclined to stop oscillating at the high frequency end of its tuning range and be over-driven at the low frequency end, for a tuning range of 1:1.3. At the same time, stability is much reduced at the extreme ends of the band covered.

The effects of harmonics in a tunable oscillator have been analysed by Tesla. This analysis shows that there appears in the anode current an abnormal fundamental frequency component, shifted in phase by 90 degrees to the normal anode current and grid driving voltage.

● The Tesla Oscillator has aroused considerable interest in recent years, but so far very little authentic information on its performance and construction has been published. The author of this article has had access to a technical paper submitted by the Tesla organisation to the C.C.I.R. (International Radio Consultative Committee). In addition, he has had considerable experience of the practical use of the circuit which is a feature of the transmitter section of the miniature Amateur station with which he won the 1955 Amateur Constructors' Award at the R.S.G.B. Amateur Radio Exhibition.

This is caused by the monolinear behaviour of the valve, aided by its complex internal resistance and mutual conductance. Elimination of these effects can be achieved by the use of feedback circuits derived from the original Colpitts oscillator, thereby forming an effective low pass filter which attenuates the higher harmonics. The LC ratio is not a contributory factor to the attenuation of the higher harmonics in the Tesla circuit.

Stability can be improved by the use of voltage regulation to keep the amplitude of the oscillations constant so that the changes in the working conditions of the valve can be minimised, and the influence of non-linearity held to a fixed value. Commercially produced oscillators use dust cores, which are moved by a micrometric screw for tuning purposes.

On a typical production model covering 2.5 to 27.0 Mc., in six bands, figures for stability are quoted as follows:—

- (1) A 10 per cent. change in all feed voltages causes a frequency change of 0.0005 per cent.
- (2) A 20 degree change of ambient temperature causes a frequency change of 0.0014 per cent.
- (3) A change of valve (mean square of 20 samples) causes a frequency change of 0.0015 per cent.

The oscillator may be equipped with a reactance modulator for narrow band f.m. (telegraphy or telephony).

THE CIRCUIT

The basic circuit is shown in Fig. 1 together with that adapted by the writer for use in Amateur transmitters. For Amateur purposes the oscillator can be constructed to operate on the fundamental frequency of all the h.f. bands. The greatest ratio of minimum to maximum tunable frequency occurs on the Top Band, where it is 1:1.11 (28 to 30 Mc., for comparison, is 1:1.07). This is well inside the ratio which assures maximum stability together with constant oscillation amplitude. Because of this it is convenient to use a small variable condenser (Ct) for band spread purposes in lieu of the variable inductance used in the basic Tesla. A split stator with one half connected as for Ct and the other half shunted across C1 is infinitely superior, but its use may be conditioned by practical as well as other considerations.

As a guide for constructors, a self-explanatory table of typical values and parameters for Amateur use is given. "C effective" in the Table of Values gives the total value of the shunt capacity (maximum:minimum) across L, from which the frequency coverage is determined.

The bands given in the table are those agreed at the Atlantic City Conference, 1947, for Region 1 with the exception of 72-73 Mc. which is for doubling to 144 Mc.

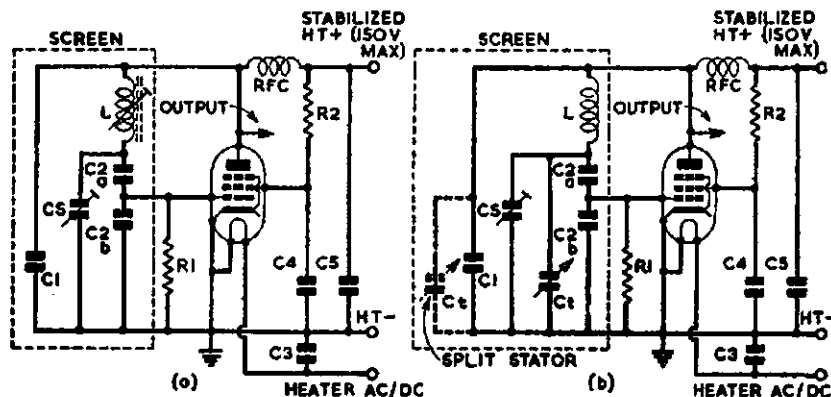


Fig. 1. (a) The basic Tesla oscillator circuit. (b) Tesla oscillator for amateur use. C1, C2, b, Ct (tuning), Cs (bandsetting), L, see table of values; C3, 4, 5, 0.001 to 0.01 μ F; R1, 1000 to 10,000 ohms; R2, 27,000 to 75,000 ohms; RFC, 2.5mH. The most suitable valves are the 6AK5, EF54, 6BW7, EF50, 6AM6 and EF50. Other possibilities include the 2A5, 3Q4, 3V4, 6AB7, 6AM6, 6AK6, 6AK7, 6AH5, 6G6, 7AC7, 7AD7, 7Y7, 1851, 5654, DL94, EF42, EL91, N77, N144, RK17, SP181, UF42 and Z62. It might also be possible to use a 12AT7 or 6BQ7A, one half as oscillator, the other half as cathode follower.

* Reprinted from R.S.G.B. "Bulletin", March, 1956.

CONSTRUCTION

Good quality components should be used. Silver ceramics must be tropicalised or protected against oxidation. The LC circuit should be shielded by a non-magnetic screen, but it is desirable to ensure a separation of at least two diameters between any part of the coil and the screen. The grid resistor R1 should be selected carefully as its value will affect, to some degree, the level of the harmonic content present in the output. The value of the coupling condenser from the anode to the following stage should not exceed 100 pF.

Cathode keying for the purposes of break-in operation is practicable, but the writer prefers a back contact key or relay, which shorts the screen to earth on "space".

A crystal may be substituted for L, and with C1 removed the circuit can then be operated as a Pierce circuit.

Low heater-cathode insulation may cause a poor note, in which case it is necessary to select a good valve from several of the same type and basing by substitution.

DO NOT FORGET!

The closing date for copy for the January issue is 3rd December.

AUSTRALIAN V.H.F. RECORDS

Band Mc.	Stations	Date	Miles	World Rec'd
50	VK5KL-W7ACS/KH6	26/8/47	5355	10500
	VK6HK-VR2CG	3/1/55	3928	
	VK6WG-VR2CG	3/1/55	3816	
	VK9DB-ZL3GS	28/12/53	2804	
	VK3IM-VR2CB	30/12/53	2405	
	VK7BQ-VK9DB	—	2211	
	VK7LZ-VK9DB	—	2211	
	VK6GL-VK6BO	31/12/51	1328	1400
	VK5QR-VK6BO	9/2/52	1328	
	VK3GM/3-VK7LZ/PF	9/3/52	317	
289	VK5MT/5-VK6RO/6	13/4/52	106	
	VK3AFJ/3-VK3AAF/3	21/3/54	83.8	
576	VK6BO-VK6DW/6	1949	25	
	VK3ANW-VK3AKE	11/12/49	81.8	
2300	VK3ANW-VK3XA	18/2/50	9.1	150

The above contacts are best known to date, but what of VKs 2, 4, and 7 contacts? Please send FULL details of your best contacts through your Division to F.E., giving particulars of both stations' locations at the time of contact so that your record may be listed above.

Typical Values for Amateur Use

Band	L μH.	Turns 0.4" dia.	Wire (enam.) S.W.G.	C effective μF.	Single ended (grid) tuning Ct.						Splice Stator tuning Ct.					
					C1 μF.	C2a μF.	C2b μF.	C2c μF.	Cc Max. μF.	Ca Max. μF.	C1 μF.	C2a μF.	C2b μF.	C2c μF.	Cc Max. μF.	Ca Max. μF.
1.8-2.8 Mc/s	25.0	44.0	30	254 — 312	565	4800	470	435	230	30	500	5000	480	464	115 — 115	25
3.5-3.8 Mc/s	13.0	33.0	28	130 — 159	285	2600	250	215	125	20	245	2350	235	213	70 — 70	12
7.0-7.18 Mc/s	7.0	24.5	24	70.4 — 73.4	140	1470	130	132.5	11.0	10	134	1250	125	114	7 — 7	7
14.0-14.25 Mc/s	3.5	17.0	22	34.9 — 36.8	68	700	68	62.3	11.0	5	62	600	58	545	7 — 7	3
21.0-21.45 Mc/s	2.3	14.0	20	23.8 — 26.0	44	475	37	43.2	5.5	3	41	350	33	316	5 — 5	2
28.0-29.7 Mc/s	1.7	12.0	18	16.4 — 19.0	31	300	20	27.5	11.5	2	26	210	21	19	7 — 7	2
72.0-73.0 Mc/s	0.7	7.7	14	6.71 — 6.96	8.5	100	*	12.4	1.5	—	7	150	*	14	2 — 2	—

* C2b will be critical at 72 Mc/s and should be made variable 2-8 μF. Cc assumed to be 10 μF and allowed for in value of C2b. Cc assumed to be 5 μF and allowed for in value of C1.

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EMERGENCY!

Amateurs in Ocean Yacht Rescue

It has again been proved that the Radio Amateur is capable of providing a valuable emergency Radio Service.

The rescue of the yacht "Yasme" and the part played by widely scattered Amateurs is not only of interest to radio men but to the public as well.

This is the full report of the events leading up to, and the emergency net which was established between VK9TW/MM on the yacht "Yasme" and VK9FN between 10/9/56 and 17/9/56.

At 2330 on 10/9/56, VS6AE broke in on a three-way QSO between VK9SP, VK9OQ, and VK9FN and passed to the latter the QSP that the yacht "Yasme" (VK9TW/MM) en route from Guadalcanal to Port Moresby had not reported since 1100z on Saturday 9/9/56, and on last sked with KV4AA at 1145z he had reported he was in very bad weather, had lost a mainsail and jib, and was shipping a lot of water. VS6AE requested that as VK9TW was now three hours overdue on sked and had not been heard for 27 hours, that an alert be made, as fears were held for his safety. This message was passed to the Officer in Charge Marine Branch, Captain Foster, at 0045 Eastern Standard on 11/9/56.

VS6AE was again contacted by VK9FN on sked at 1315z on 11/9/56; VS6AE reported that VK9WT/MM was safe and that he had overslept the sked time owing to exhaustion. VK9FN arranged with VS6AE to make a sked for VK9TW/MM and VK9FN at 1130z each day until VK9TW arrived in Port Moresby.

On 15/9/56, VK9FN was not able to keep sked, so arranged with VK9SP to take sked, and to have sked with him at 2200 Eastern on 14110 Kc. Later VK9SP passed the following message to VK9FN from VK9TW: "Have run into heavy seas and gale force winds, position at 1000G, approx. 150 E. longitude 11 10 south latitude, waves 40 ft. high and 'Yasme' taking water, but position satisfactory; ETA Moresby Monday PM."

On 16th, VK9FN was again unable to keep sked with VK9TW, so arranged with VK9SP to again keep sked with yacht and pass message to him at 2200 Eastern. At 2200 Eastern, VK9FN called VK9SP on 14110, but did not contact. VK2AFA broke in to say VK9TW was working VK9SP on 14130 and was in trouble. VS6AE also called and requested VK9FN take over contact with VK9TW, as VK9SP was not in direct communication with Harbour Master, VK9SP being some 350 miles west of Port Moresby.

VK9FN QSY'd to 14130 and copied the following message from VK9TW: "'Yasme' has been unable to take bearings for four days. Could a d.f. bearing be made so as to obtain a fix?" VK4TT offered to assist by enlisting assistance of D.C.A. and Navy in Brisbane. VK4VJ also offered assistance along with VK4NT. VK9FN contacted Captain Hawley, the Harbour Master for Port

Moresby, and passed the message to him. He decided to go to VK9FN's shack and discuss the position with VK9TW. This was done and at 0049 the circuit closed until 0730 Eastern, the date being 17/9/56.

At 0725 VK4TT gave VK9FN a wx report for VK9TW. VK9FN also had obtained a weather report at 0715 from local meteorological office. At 0752, VK9TW called VK9FN and was given the following message re weather: "Special wx report for yacht 'Yasme' issued by Jacobson's Met. Office, Port Moresby, at 0715. S.E. winds approx. 15-25 knots and gusty. Probably heavy S.E. swell, scattered showers, visibility 15 miles reduced to 1 mile during rain. Breaks in cloud $\frac{1}{2}$ to $\frac{3}{4}$. 'Yasme' should be able to take sight for bearings during morning." Skeds were arranged with VK9TW at two hourly intervals, and he reported that he had spent a very bad night with very heavy seas running. At 1000 VK9TW reported he had taken two sights on the sun and gave his position at 338°, and in heavy weather. This information was passed to Captain Hawley.

At 12 noon VK9TW reported his present position was longitude 146° 49' latitude 9° 46.6" approx. 25 miles from Port Moresby in S.W. direction. This was also passed to the Harbour Master, who arranged to be present at VK9FN's shack and speak to VK9TW at 1400 Eastern. At this sked Captain Hawley pointed out that from his present position "Yasme" should steer a course 075° magnetic. The circuit closed at 1425, with another sked at 1600.

At 1600 VK9TW did not reply to call, and after 10 minutes' calling, Captain Hawley was advised. However, VK9TW came up at 1615, and reported he was in distress, heavy seas were breaking over yacht and had stopped his power unit engine, also yacht was leaking and if main engine, which drove pumps, was

to stop, he would sink. This information was passed to Captain Hawley at 1638, who replied he would arrange rescue. At 1715 VK9TW was called, and a message from Captain Hawley passed, saying: "Air-sea rescue operations were in hand."

At 1755 O.I.C. air-sea rescue advised VK9FN by telephone that CA61 would depart Moresby at 1800 and head for rendezvous at last known position of "Yasme." VK9TW was called and message passed. At 1800 Eastern, ZL2GX asked for information re VK9TW for QSP to KV4AA. He was informed of the position and asked to keep VK9TW's sked at 1100z with KV4AA. At 1815 Moresby Air Radio rang VK9FN and asked if VK9TW could contact them on 3.4 Mc. Message was passed to VK9TW. However, he replied he could not transmit on 3 Mc., and requested Aeradio pass the message through VK9FN, who put a receiver up on 3.4 Mc., to copy both D.C.A. and CA61.

At 1940 VK9DB suggested that Aeradio contact VK9TW direct, VK9TW listening on 3 Mc. for D.C.A. and transmitting on 14130 Kc. This was passed to VK9TW, who listened for D.C.A., but did not hear them. D.C.A. also listened for VK9TW on 14130, but could not hear him. VK9DB also called VK9TW, but VK9TW reported to VK9FN he could not copy VK9DB, and again requested that traffic be handled by VK9FN.

At 1945 CA61 called Aeradio and requested that "Yasme" be asked to fire a flare at 2000. This message was passed to VK9FN, who relayed it to VK9TW. VK9TW requested that D.C.A. be asked that CA61 fire first flare, to give "Yasme" a chance to sight it, as "Yasme" only carried three flare cartridges. This was agreed to, and at 1958 CA61 called advising flares going up. At 2002 VK9TW called advising flare sighted 5° N.W. of him. This message was passed to D.C.A. and CA61.

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2005, CA61 reported that mast head light of "Yasme" sighted.

2010, VK9FN reported all details to Captain Hawley, who passed congratulations on good navigation.

2018, VK9TW reported he could see lights on horizon, distance about 1 mile.

2030, CA61 called asking for instructions as to what was to be done about "Yasme" as they had no tow facilities. CA61 was advised that "Yasme" had 60 fathoms of rope ready for tow.

2038, CA61 reported he was in position.

2043, VK9TW reported tow rope passed to CA61.

2051, VK9TW reported tow commenced and he was closing, as he could not operate and handle tiller. VK9FN passed this to D.C.A.

During the time mentioned above, i.e. from 1615 hours, the following stations were asked to act as guardians of the frequency 14130 Kc., keeping it clear of all QRM: VKs 3KV, 4NT, 4VJ, 4TT, 3JK, 9SP, 2PG, 4PR, 3FH, ZL2GX. These chaps did a splendid job, and en-

listed the aid of DX stations to assist, which they did. VK9FN advised position each half hour, as SA61 reported on the hour and at half past.

Finally at 0030, VK9FN closed on 14 Mc., after arranging skeds for 0730 with several stations to report the position. However, an all-night watch was kept by VK9FN on 3.4 Mc. and reports from CA61 logged until 0330, when no report came through. VK9FN phoned D.C.A. at 0340, to learn that as CA61 was within v.h.f. range, they had called on 121 Mc. D.C.A. gave VK9FN the 0330 report, and arranged for them to phone should any difficulties arise. VK9FN then slept until 0530, at which time he called D.C.A. per telephone and was advised that CA61, with "Yasme" in tow, was just entering the passage into Moresby.

At 0558 D.C.A. reported yacht tow had broken just inside the harbour, and that "Yasme" was just entering the town reach of the bay under own power. VK9FN then drove into Port Moresby and was present when VK9TW anchored off customs wharf. After exchanging

greetings and congratulations across the water with Danny, VK9FN returned home and called VKs 4TT, 4VJ and 4NT and gave them a detailed report of rescue operations.

At 0830 VK9FN reported per telephone to the local Radio Inspector, details of operations during the evening.

Danny VK9TW was invited by Frank VK9FN home for kai (dinner to you), after which a very enjoyable evening was had listening to a description of his travels from England to Port Moresby, DX worked, and other experiences.

Frank VK9FN expresses his thanks to all those Amateurs who kept the channel clear of QRM and assisted by obtaining information from Met. and Air Radio in Brisbane, especially VKs 4TT, 4VJ and 4PR. Without the help of all these, the success of the operation would have been very hard. "I consider the W.I.A. members have again proved we can handle an emergency operation with true professional dignity, and are ever willing to do so when the need arises," concluded Frank VK9FN.

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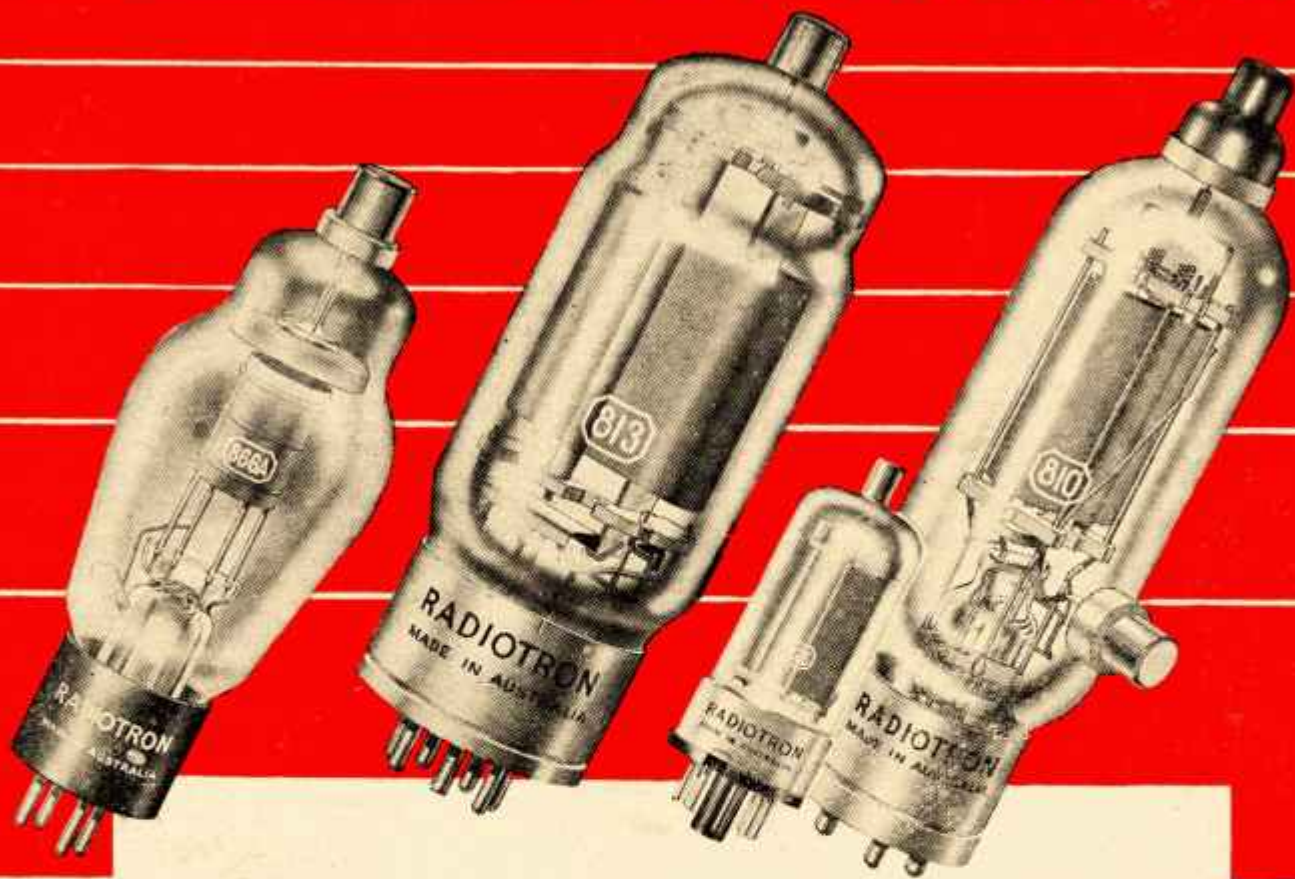
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ELECTRIC DEPOSITED COPPER FOIL

The Royal Mint Refinery is pleased to announce that supplies of electric deposited copper foil are now available in a combination of thicknesses and widths hitherto unobtainable in this country. The range of widths quoted below makes the foil suitable for the production of copper clad laminate which is required for the manufacture of etched foil printed circuits.

During the research period considerable attention has been given to provide foil which is bright and polished on one side and which has a matt surface on the other. The matt surface ensures a good bond between the copper and the laminate, and from this should arise new opportunities in the use of copper clad materials in the fields of radio, telecommunications and switchgear.

The physical properties of the foil are in most respects similar to that of hard rolled copper sheet and one of its great advantages lies in the fact that it is supplied in continuous length coils. The bulk of the foil at present being supplied is for the printed circuit industry, and the following is a general specification for this type of foil:—

Purity: Minimum 99.9%.
Conductivity: Minimum 95% (I.A.C.S.)
Width: Up to 42½" = 1079.5 mm.
51" = 1295 mm. foil became available as from July, 1956.
Thickness: Generally any thickness between 0.001" and 0.004" measured by weight.

For example:
Thickness:
nominal inch 0.001" 0.00135"
nominal mm. 0.025 mm. 0.035 mm.
Ounces per sq. foot 0.735 oz. 1 oz.
Grams per sq. metre 224 gr. 305 gr.
Thickness:
nominal inch 0.0027" 0.004"
nominal mm. 0.070 mm. 0.100 mm.
Ounces per sq. foot 2 oz. 2.94 oz.
Grams per sq. metre 610 gr. 896 gr.

Accuracy of gauge to close limits is maintained across the width of the foil.

Despatch: Coiled on stiff compressed paper mandrels 3" (76.2 mm.) inside diameter, the maximum coil weight for the widest material being 100 lbs. (45.4 kg.).

Electro deposited copper foil could, however, be made in narrower widths and in even thinner gauges than those specified above, the minimum thickness being 0.00012" = 0.003 mm.

The foil has been successfully bonded on plastic laminate both rigid and flexible; this suggests that it is equally suitable for bonding on paper, fabric or timber either as a surface cladding or a sandwich layer.

The Sole Australian Agents are Mica and Insulating Supplies Co. Pty. Ltd.

EL34—Output Pentode

Physical Specifications—
Cathode: Coated unipotential.
Base: Dwarf shell Octal 8-pin with metal retaining ring.
Bulb: T10.
Mounting Position: Any.

Basing Connections—
Pin 1—Grid No. 3.
Pin 2—Heater.
Pin 3—Plate.
Pin 4—Grid No. 2.
Pin 5—Grid No. 1.
Pin 6—No connection.
Pin 7—Heater.
Pin 8—Cathode.

General Electrical Data—
Heater voltage: 6.3 volts.
Heater current: 1.5 amp.

Direct Interelectrode Capacitances—
Grid 1 to all other electrodes, 15.5 pF.
Plate to all other electrodes, 10.2 pF.
Between Grid 1 and Plate, 1.0 pF.
Between Grid 1 and Heater, 1.0 pF.
Between Heater and Cathode, 10 pF.

MAXIMUM RATINGS

Plate volt. (without current)	2000 V.
Plate voltage	800 V.
Plate dissipation (without signal)	25 W.
Plate dissipation (with signal)	27.5 W.
Screen grid voltage (without current)	800 V.
Screen grid voltage	425 V.
Screen grid dissipation (without input signal)	6 W.
Screen grid dissipation (at max. power output)	12 W.
Cathode current	135 Ma.
Control grid voltage at control grid current = + 0.3 amp.	-1.3 V.
Maximum control grid circuit resistance for Class A and AB conditions	700 K.
Maximum control grid circuit resistance for Class B condition	500 K.
External resistance between heater and cathode	20 K.
Voltage between heater and cathode	50 V.

CLASS A AMPLIFIER

Plate/Screen grid supply voltage	265	265 V.
Plate voltage	250	250 V.
Screen grid resistor	2000	0 O.
Suppressor grid volt.	0	0 V.
Control grid voltage	-14.5	-13.5 V.
Plate current	67	100 Ma.
Screen grid current	9.3	14 Ma.
Mutual conductance (micromhos)	9000	11000
Amplification factor of screen grid with respect to control grid	11	11
Plate resistance	18000	15000 O.
Load resistance	3250	2000 O.
Input voltage (r.m.s.)	10	9.3 V.
Power output	8	12 W.
Distortion	10%	10%
Required input volts for 50 milliwatts output (r.m.s.)	0.65	0.5 V.

CLASS AB AMPLIFIER

Plate and screen grid supply voltage*	375 V.
Screen grid resistor†	500 O.
Suppressor grid voltage	0 V.
Cathode resistor	132 O.
Load resistance plate to plate	4000 O.

Plate current (zero sig.)	2 x 75 Ma.
Plate current (max. sig.)	2 x 90 Ma.
Screen grid current (zero signal)	2 x 10 Ma.
Screen grid current (max. signal)	2 x 22 Ma.
Input voltage, grid to grid (r.m.s.)	2 x 20.5 V.
Power output	37 W.
Distortion	3.5%

* Under maximum signal conditions, voltage drop across each section of output transformer, approximately 25 volts.
† Common to both valves.

CLASS B AMPLIFIER

Plate supply voltage*	350	375 V.
Screen grid sup. volt.	350	375 V.
Screen grid resistor†	500	500 O.
Control grid voltage	-36	-36 V.
Suppressor grid volt.	0	0 V.
Load resistance pl.-pl.	5000	4000 O.
Plate cur. (zero sig.)	2x20	2x20 Ma.
Plate cur. (max. sig.)	2x79	2x99 Ma.
Screen cur. (zero sig.)	2x2.4	2x2.4 Ma.
Screen cur. (max. sig.)	2x26	2x26 Ma.
Input signal, grid to grid (r.m.s.)	2x25	2x25 V.
Power output	37	46 W.
Distortion	5%	4.5%

Plate supply voltage*	400	425 V.
Screen grid sup. volt.	400	425 V.
Screen grid resistor†	800	800 O.
Control grid voltage	-42	-42 V.
Suppressor grid volt.	0	0 V.
Load resistance pl.-pl.	5000	4400 O.
Plate cur. (zero sig.)	2x20	2x20 Ma.
Plate cur. (max. sig.)	2x91	2x106 Ma.
Screen cur. (zero sig.)	2x2.4	2x2.4 Ma.
Screen cur. (max. sig.)	2x27½	2x28 Ma.
Input signal, grid to grid (r.m.s.)	2x29½	2x29½ V.
Power output	48	58 W.
Distortion	5.0%	4.5%

Plate supply voltage*	750	800 V.
Screen grid sup. volt.	375	400 V.
Screen grid resistor†	800	750 O.
Control grid voltage	-41	-41 V.
Suppressor grid volt.	0	0 V.
Load resistance pl.-pl.	11000	11000 O.
Plate cur. (zero sig.)	2x20	2x20 Ma.
Plate cur. (max. sig.)	2x86	2x98 Ma.
Screen cur. (zero sig.)	2x2.0	2x2.0 Ma.
Screen cur. (max. sig.)	2x26	2x27½ Ma.
Input signal, grid to grid (r.m.s.)	2x28½	2x28½ V.
Power output	90	108 W.
Distortion	7%	6%

* Under maximum signal conditions, voltage drop across each section of output transformer, approximately 25 volts.
† Common to both valves.

TRIODE CONNECTED

(Screen grid connected to plate)

Class A	
Plate supply voltage	375 V.
Suppressor grid voltage	0 V.
Cathode resistor	370 O.
Plate current	70 Ma.
Load resistance	3000 O.
Input voltage (r.m.s.)	19.2 V.
Power output	6 W.
Distortion	9%
Class AB	
Plate supply voltage	400 V.
Suppressor grid voltage	0 V.
Cathode resistor	220 O.
Plate current (zero signal)	2x65 Ma.
Plate current (max. signal)	2x71 Ma.
Load resistance plate to plate	5000 O.
Input signal grid to grid (r.m.s.)	2x22 V.
Power output	16.5 W.
Distortion	3%

Ross Hull Memorial V.H.F. Contest, 1956-57

RULES

1. The Contest will take place in the 56-60 Mc., 144-148 Mc., and 288-296 Mc. bands, and will commence at 0001 hours E.A.S.T. on 1st December, 1956, and will continue until 2359 hours E.A.S.T., 31st January, 1957. Interstate, Intrastate and Overseas contacts are allowed. Cross-band working is not allowed. L.A.O.C.P. licensees are encouraged to work on the 144 Mc. and 288 Mc. bands.

2. Only one contact on each band with any one station, per twenty-four hours, commencing midnight E.A.S.T., to count for scoring purposes.

3. Exchange of a serial number will constitute a contact.

4. The serial number of five or six figures will be made up of the RS (telephony) or RST (telegraphy) report plus three figures which may commence with any number between 001 and 100 for the first contact and which must increase in value by one for each successive contact, e.g. if the number chosen for the first contact is 050, then the number for the second contact must be 051, for the third 052, and so on. If any contestant reaches 999, then he must start again 001, and continue as above.

5. Scoring.—Points allotted, apply to each band worked.

Interstate and Oversea Contacts: 5 points for the first contact with any particular station, 4 points for the second, and so on to the fifth contact for 1 point, after which no more scoring

contacts with that particular station can be made on that band, for the duration of the Contest; e.g. VK5ABC may work VK2XYZ five times on each of the four bands, for a total of 20 contacts.

Intrastate Contacts (for VK Call Areas only).

(i) Five points for the first contact with any particular station, four points for the second and so on to the fifth contact for one point, after which no more scoring contacts with that particular station can be made on that band for the duration of the Contest.

(ii) Stations located beyond a radius of 100 miles of any Capital City (Federal Capital excepted) will double their score for ALL contacts; e.g. VK3ABC (Mildura) works VK3XYZ (Melbourne) for the first contact: VK3ABC scores 10 points, while VK3XYZ scores 5 points. If VK3ABC works VK3PQI at Red Cliffs, both score 10 points for the first contact.

6. Logs shall contain the following information: Date, time (E.A.S.T.), band, call of station contacted, serial number sent, serial number received, points claimed for the contact, and at the foot of each page the total points claimed; and at the end, the grand total.

Logs shall be signed by the competitor, together with a declaration to the effect that the station was operated strictly in accordance with the rules, and spirit of the Contest. The decision of the Federal Contest Committee shall be final and binding.

Logs must be received by the Federal Contest Committee, Box 1234K, G.P.O., Adelaide, South Australia, not later than 1st March, 1957.

7. Entries will be accepted from all States of the Commonwealth and Districts of New Zealand. Check logs from other countries would be appreciated by the Contest Committee.

8. The regulations governing the control of Amateur Radio in each contestant's country must be observed.

9. Awards: (a) For the purpose of Awards, Northern Territory will count as a separate call area.

(b) The outright winner of the Contest within the Commonwealth of Australia will receive an appropriately inscribed Certificate.

The top financial member of the W.I.A. will hold the Ross A. Hull Memorial Trophy for a period, and in addition will receive an appropriately inscribed photograph of the Trophy.

(c) The highest scorer in each call area in Australia and New Zealand will be awarded a Certificate. The Federal Contest Committee reserves the right to make any additional Awards.

(d) A Certificate will be awarded to the L.A.O.C.P. licensee who gains the highest score in each call area. (Operation must be confined to the 144 Mc. and 288 Mc. bands with A3 emission, to conform with the Departmental Regulations.)

10. The decision of the Federal Contest Committee will be final and binding upon all matters pertaining to this Contest.

AMATEUR CALL SIGNS

FOR MONTH OF AUGUST, 1956

NEW CALL SIGNS

VK— New South Wales
 2AQ—N. MacLeod, 41 Kangaroo St., Manly.
 2CC—C. M. Carter, C/o. 2KM, Kempsey.
 2CN—R. C. Prout, 9 Agnes St., Mayfield, Newcastle.
 2FF—G. V. McLeod, 44 Monro Avenue, Kirrawe.
 2GC—S. D. Glyde, Private Bag, Bowraville.
 2HY—J. L. Rath, 80/82 Flora St., Sutherland.
 2KK—B. K. Burton (Rev.), The Manse, Wee Waa St., Walgett.
 2OZ—W. E. Dixon, 20 Thyra Rd., Palm Beach.
 2AAF—A. J. Fisher, 38 Carters Lane, Fairy Meadow, Wollongong.
 2AIA—M. Eagles (Mrs.), 41 Cotswold Rd., Strathfield.
 2AKH—C. F. E. Knox, 18 Brentwood Ave., Turramurra.
 2ZAO—R. F. Ruff, 68 Toowoona Bay Rd., Long Jetty.
 2ZBF—J. K. Doherty, 27 Harbour St., Mosman.
 2ZBJ—G. L. C. Jenkins, Sgts. Mess, No. B.F. T.S., R.A.A.F., Uranquinty.
 2ZDR—D. Barter, 28 Tirrill St., Blacksmiths.

Queensland

4ER—R. E. Lees, Box 18, P.O. Theodore.
 4GW—H. H. Varnes, 3 Leeson St., West Bundaberg.
 4JT—J. L. Taylor, 8 Heathwhite St., Tarragindi.
 4MR—M. E. Russell, 45 Apollo Rd., Bulimba.

South Australia

5ZAU—J. G. Rodger, 38 Lynnington St., Tusmore.

Tasmania

7AD—C. R. Pearce, 39 Beach St., Bellerive.
 7SK—M. D. L. Sidesbottom, Tramere Rd., Howrah.

Territory of Papua and New Guinea

9KC—W. Bock, Pandora Cres., Port Moresby.

CHANGES OF ADDRESS

VK— New South Wales
 2HO—H. J. Hart, 8 Killeaton St., East St. Ives.
 2JW—N. W. Skulander, 25 Franklin Rd., Orange.
 2MJ—A. J. T. Crisp, 51a Washington St., Bexley.
 2MV—C. Welsh, Flat 410K, Housing Settlement, Herne Bay.
 2OF—J. W. Francis, Post Office, Euchareena.
 2SW—S. Ward, 67 Marco Ave., Revesby.
 2TS—T. G. McEwan, S.S. "Iron Wyndham," C/o. Broken Hill Pty. Co. Ltd., Newcastle.
 2XU—W. L. Nye, 10 La Perouse St., Fairlight.
 2WX—R. M. P. Wray, 60 West Cres., Hurstville.
 2ABX—R. C. Gibson, 128 Russell St., New Lambton.
 2ACB—A. C. Bell, 338 Oxford St., Paddington.
 2AJH—J. E. Hills, 18 Coleridge Rd., Pymble.
 2AJF—J. Weaver, 24 Coromandel St., Goulburn.
 Victoria
 3EL—S. D. Smith, 36 Essex St., Pascoe Vale.
 3HZ—E. M. Clyne, 20 Princes St., Shepparton.
 3IQ—K. J. Duff, 10 Palmerston St., Camberwell.
 3SU—S. G. Edwards, 270 Beaconsfield Pde., Middle Park.
 3VE—V. W. Harrison, Roseville Ave., Sorrento.
 3ADD—H. L. Daniell, 64 Park St., Hamilton.
 3AEC—E. W. Caddy, 22 Marony St., Balmnsdale.
 3AGV—G. S. Vincent, Queen St., Sth. Elliminyt.
 3AIV—L. H. Weller, 48 Pepperell Ave., Syndal.
 3AJV—K. G. Avery, "Froggall," 54 Mont Albert Rd., Canterbury.
 3AKC—C. J. Griffiths, 16 Newton St., Shepparton.
 3ALT—L. E. Wright, Lot 28 Vannon Drive, Ashwood.
 3AVN—T. F. Webb, 54 Forster St., Norlane.
 3ZBZ—A. W. Buesst, 239 Domain Rd., South Yarra.
 3ZCA—R. J. Skevington, 44 Northcote Ave., Caulfield.
 3ZCG—W. G. Francis, 13 Mirboo St., East Newborough.
 Queensland
 4CX—J. E. D. McDowell, 44 Fisher St., Gladstone.
 4KJ—W. E. C. Sawyer, 66 Brae St., Rockhampton.

4NI—A. H. Nicholls, 206 Newmarket Rd., Wilston, Brisbane.

South Australia

5RZ—O. L. Nestroom, 11 Haigh St., Broadview.
 5XK—A. J. Hewitt, Main St., Lucindale.
 5ZX—A. H. Heath, 3 Rutland Ave., Brighton.

Western Australia

6RH—R. A. Hallamore, 70 Stirling Highway, Nedlands.
 6ZAJ—B. W. A. Jacobs, 8 St. Albans Ave., Highgate.

Tasmania

7SD—D. M. Smith, 87 Bass St., Warrane.
 7WT—R. A. Milledge, 60 Derwentwater Ave., Sandy Bay.

Territory of Papua and New Guinea

9AH—A. J. Humphries, District Office, Port Moresby.
 9AS—J. A. Whittaker, C/o. R.T.C., Wewak.

CANCELLED CALL SIGNS

VK— New South Wales
 2AFO—T. T. Toakley, Victoria
 3ABQ—M. Howden, Queensland
 4KC—W. Bock, Now VK9KC, Tasmania
 7LX—K. J. Briggs, Transferred to Brisbane.

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 2AHQ/T—H. E. Gully,
 2ALK/T—A. H. Wignell,
 2AVL/T—C. F. Luck,
 2ZAL/T—A. R. Hennessy, Victoria
 3IE/T—L. A. Seedsman, Queensland
 4MX/T—J. R. Martin, Queensland
 South Australia
 5EN/T—A. R. E. Nitschke
 5MO/T—E. P. McGrath.

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687*	Vibrator Power Unit (6 volt)	30 18 8
688	Loudspeaker, Diecast (Black)	7 0 4
689*	Morse Key (Semi-Automatic)	9 0 8
697	Loudspeaker, Diecast (Brown)	7 0 4
774	Receiver Mounting Blocks (Black)	Pair 1 5 6
811	Loudspeaker, Diecast (Polychromatic Grey)	7 0 4
812	Receiver Mounting Blocks (Polychromatic Grey)	Pair 1 5 6

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831	Split Stator 25 x 25 pF., two end plates, 2 1/2 in. square	3 1 6
832	Split Stator 50 x 50 pF., two end plates, 2 1/2 in. square	3 14 2
833	Split Stator 100 x 100 pF., two end plates, 2 1/2 in. square	5 11 3
834	Differential 100 x 100 pF., two end plates, 2 1/2 in. square	5 9 1
835	Single Section 230 pF., two end plates, 2 1/2 in. square	3 14 2
836	Single Section 100 pF., two end plates, 2 1/2 in. square	3 3 7

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476	Split Stator 15 x 15 pF.	17 7
580	Single Section 12.5 pF.	15 8
581	Single Section 60 pF. (screw-driver adjustment)	1 0 0
582	Single Section 60 pF.	1 0 0
583	Split Stator 25 x 25 pF.	18 4
584	Butterfly 34 x 34 pF.	19 5
585	Single Section 100 pF.	1 5 6
586	Single Section 140 pF.	1 6 8
587	Butterfly 15 x 15 pF.	1 2 2
588	Single Section 27.5 pF.	17 9
589	Single Section 54 pF.	1 0 0
719	Differential 25 x 25 pF.	18 4
738	Single Section 100 pF.	1 16 7
739	Butterfly 8 x 8 pF.	1 2 2

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551	Butterfly 25 x 25 pF., 80° rotation	1 10 0
552	Split Stator 25 x 25 pF., 180° rotation	1 10 6
553	Single Section 50 pF., 180° rotation	1 7 8

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62*	Pointer Knob and Dial	4 1
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583	Instrument Knob, 3/4 in. dia.	2 0
738*	Full Vision Dial	2 14 5
738*	Skirt Knob, 3/4 in. dia.	6 1
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785*	Skirt Knob, 1/2 in. dia.	2 11
841	Pointer Knob, 1 1/4 in. long	1 10
842*	Knob (841) and Dial (0-10 over 265°)	3 1
843	Slow Motion Dial, 4 in. dia.	1 18 2
844*	Knob and Dial, 2 in. dia.	6 1
846*	Bar Knob, 1 3/4 long	7 2

* The lines thus marked are to become obsolete, but are available as long as stocks last.

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872*	Miniature Slow Motion Dial, 1 1/4 in. dia.	1 13 8
875*	Knob with skirt, 1 1/4 in. over-all dia.	10 6
877	Wing Knob, 1 1/4 in. across rib	5 1
878	Miniature Skirt Knob, 5/32 in. hole	2 9
1027	Pointer Knob, 2-7/32 in. long	2 0
1076*	Instrument Knob, 2 1/4 in. dia.	7 3
1089*	Instrument Knob, 1 1/4 in. dia.	3 7
2416*	Skirt Knob, overall dia. 1 1/4 in.	3 10

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537*	Coil Former, plain (6-pin)	5 3
538*	Coil Former, threaded (6-pin)	6 7
646*	Former (ribbed, 1 in.)	3 1
647*	Small Coil Former, plain	2 3
648*	Small Coil Former, threaded	2 3
775*	Coil Stand (4-pin)	6 2
783*	Coil Stand (2-pin)	6 2
707*	4-pin Base (for 706 Coils)	5 6
783*	4-pin Former, plain (as used on 706 Coils)	4 1
765*	4-pin Former, threaded (as used on 706 Coils)	4 7
781*	2-pin Coil Former	4 1
782*	2-pin Coil Base	4 1
847	Polystyrene Former	5 1
964*	6-pin Base	4 1
1080*	Frequentite Former	18 0
1081*	Frequentite Sub-Base	1 0 2
1092*	Frequentite Base	16 11

E.F. CHOKES		
737	Choke, 2.5 millihenries induct.	6 11
776	Choke, " "	9 0
1010	Choke, 1.25 " "	4 9
1011	Choke, 5.6 microhenries " "	3 8
1022	Choke, 1.5 millihenries " "	7 5
1066	Choke, 13 " "	9 0

INSULATORS		
564*	Red Moulded Insulator	3 8
565*	Black Moulded Insulator	3 6
695	Lead-Through Insulator	2 1
794	Lead-Through Insulator	13 9
918	Stand-Off Insulator	3 2
948*	Aerial Lead-In Insulator	7 11
968	Pyrex Insulator	3 2
1018*	Ceramic Lead-Through Insul.	5 10
1019	Miniature Stand-Off Insulator	1 3

I.F. AND B.F.O. TRANSFORMERS		
728*	I.F. Transformer, 10 Mc.	1 1
851	I.F. Transformer, 455 Kc.	16 8
852	B.F.O. Unit, 455 Kc.	14 5
853	I.F. Transformer, 5.2 Mc.	16 8
854	Discriminator Transformer, 5.2 Mc.	18 10
855	B.F.O. Unit, 5.2 Mc.	14 5
856	I.F. Transformer, 10.7 Mc.	16 8
857	Discriminator Transformer, 10.7 Mc.	18 11

COUPLERS, SHAFTS AND BRACKETS		
50	Flexible Coupler, large	5 8
529	Flexible Coupler, medium	5 1
550	Flexible Coupler, small	5 1
530*	Flexible Driving Shaft	15 11
708*	Metal Bracket	2 11
1007*	Adjustable Insulated Bracket	5 7
1008*	Extension Control Outfit	7 2

MISCELLANEOUS		
562	Small Valve Cap (9 mm.)	2 9
563	Large Valve Cap (9/16 in.)	2 9

YL CORNER

BY PHYL MONCUE

Would you like to meet Lesley Fullagar, our XYL for this month? Then allow me to introduce her to you.

Lesley is the XYL of Dr. J. Fullagar (2AJY) and lives in a small town north of Sydney. She has four young children, manages to carry on a part-time professional career and on top of that does the QSLs. Here is her own story as she told it to me. She writes:

"Sometimes I begin to wonder if I haven't been just a little bit badly done by with this Amateur Radio business. At the time I married my husband he was not interested in Amateur Radio except for occasionally listening in on the band, although he had been interested in Radio and had built his own receivers since he was a young chap of about 11. At the time we married, he loved playing records on his home-built amplifier, of noble performance but hair-raising appearance.

"In the first few years of our marriage constant amplifier-modification went on, so that I was lucky if I could play myself records for three weeks at a stretch. Then for many weeks (the length of time being due to the small doses of spare time that could be allotted to the hobby after the regular hours of occupation—'It's hard when work gets to interfere with your hobbies' being his cry) the machine was dismembered, being usually spread over the dining-room table and needing to be pushed back to clear a sufficient corner to eat breakfast. Anyway, knowing of his hi-fi interests in advance, I did at least feel that I had walked into that lot with my eyes open.

"Amateur Radio got a toe-hold after a chance meeting with an Amateur in Rockhampton (4EC). Acquaintance quickly ripened to friendship and led, of course, first to invitations to the 'Easy Charlie' shack, and later to insidious propaganda about the advantages and interest in having one's own licence and transmitter. Cunningly, the XYL's side of the picture was not painted, and all unsuspecting I raised no objections, I even went so far as to study the pre-requisite Morse code with my OM, but his bitter complaints about my inability to receive his efforts (which I, of course, averred was due to his inferior sending) and my demands for repeats, which he said were holding him back in his advance, finally made the game seem not worth the candle, so I left him to it.

"The licence finally came through almost simultaneously with the birth of third child—who also happened to be first son. The day I was to come home I was left languishing until the afternoon, for the morning (it was Saturday) just had to be spent hoisting one ultra-heavy 40 ft. hardwood antenna mast, with the aid of numerous able-bodied Amateurs. I admit that I found it as fascinating as the OM at first, spending longer hours than I should listening in at night. I was a little put out at finding wee son proudly referred to, over the air, as the 'harmonic,' whereas his sisters (beautiful children to their proud mother's eye) were dubbed 'sub-harmonics'!!

"After about 100 contacts had been made I could see the advantages to an Amateur of a card index of QSOs and of course was still sufficiently green an XYL to suggest that I should compile one for him and keep it up to date. I also used to make out the QSLs—except for the last line with its personal comments and 'Very 73' of course. I kept this up nobly and used to choose the shack for sewing and such activities so that I could listen in and sometimes also have my little say until entering hospital for fourth child—second son. The index was up-to-date when I went in, two years ago now, but I fear has not been touched and the QSLs have been left to the OM since, though I still haven't learnt my lesson and am hoping to get enough time in the future for the mammoth task of catching up.

"We had three temporary abodes until we at last moved into our own home, when of course settling-in kept us busy (not too busy though, for the OM to set up a shack and an antenna pretty well first thing and to maintain contact with Rockhampton and start off again collecting countries for his DX C.C.) On the big move south the first things installed in the car were portable rig and receiver, AFTER them, space for family and luggage was considered. At each of our temporary dwellings, said portable gear was set up almost before anything else was done.

"When a new Auxiliary for the local hospital started up I went along (my OM is a medico and uses the hospital of course for his patients)

(Continued on Page 17)

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FIFTY-SIX MEGACYCLES AND ABOVE

Five metre enthusiasts should watch for VKIJJ on Macquarie Island, his frequency is 56.640 Mc. Further information regarding skeds will be advertised over VK3WI from time to time.

VICTORIA

We had another wonderful turn-up to the last Fox Hunt with twelve cars competing and over thirty enthusiasts counting Amateurs, navigators, second ops. and XYLS. The hunt traversed Richmond, Studley Park, around the Boulevard and then over to Ascot Vale and Maribyrnong. The fox found some really horrible spots to hide in, but the hounds ferreted him out every time. Everyone had a lot of fun as usual and we were very pleased to have some new starters. One was John 3ZCJ, who did very well in spite of a broken feed line, and another new one was Associate Bert Stebbing who was second op. for 3ANS. Bert enjoyed the hunt so much he went home full of ideas to build up some gear of his own for the next hunt. The winner for the evening was Laurie 3ALY and there was a dead heat for second place between the two Rays (3KD and Ray Price) and the two Davids (3ZAQ and 3ZAT). The final location was held at the home of Eric 3ADU and Ruth Manson, in Essendon, where the group finished off the evening having supper together and the usual final rag-chew. Thanks for opening your home to us Eric and Ruth.

We all missed our control station, Bob 3OJ, who was not able to be there to help straying hounds back on the track as he has had to undergo two operations within a couple of weeks, making his third operation for this year. Bob has had a pretty tough run this year, but we all wish you a speedy recovery Bob and hope you'll soon be back with us all again.

Members of the V.h.f. Group spent a most enjoyable evening at the last V.h.f. meeting. The lecture was not, as is usual, a technical one, but was more in the field of entertainment. The lecturer was Mr. Dave Callow, a radio physicist, and holder of the call IDC, who was a member of the A.N.A.R.E. on Macquarie Island in 1955, and he gave an illustrated talk covering his stay on the island. He showed a very excellent and most interesting collection of coloured slides illustrating life on the island, both of the men and the animal and bird life there. His shot of the scenery, the penguins and seals were very fascinating. His talk on life on the island was also very interesting. Dave has a very ready wit and his amusing little stories brought forth many laughs. One quip that amused everybody greatly was his feelings in regard to Amateur Radio. It was wonderful, he said, to be able to chat with somebody over the air for a change and not know word for word what the other fellow was going to talk about. He was sporting a very fine beard, everyone on the island always does, of course, but he mentioned one decided disadvantage with the beard. When it snows, he said, your beard gets clogged up with snow which soon turns to ice, and it's always very difficult trying to thaw your beard out. All enjoyed his lecture very much and applauded warmly at the conclusion.

Conditions are apparently improving greatly as it has been reported that JAs have been breaking through on 6 metres. Michael 3ZCS, Malcolm 3ZCL and Alf 3DE have all built up gear for 288 Mc. Michael and Malcolm are also experimenting on micro-waves. Butter-fingers, David 3ZAQ, has further troubles. He saved up and bought himself an 832 and then went and dropped it and broke it before he had even plugged it in! John 3ZAI and Ray 3KD are both busy working on t.v. home-brew rx's.

For those interested in catching up on a little practice in c.w., there is a relay of the slow morse practice transmissions every Sunday evening at 8.30 p.m. on the 2 mx band on 146 Mc. for the special benefit of v.h.f. listeners. 3YS, 3ABA and 3FP take it in turns to handle this relay and they are all situated due east of Melbourne.—Phyl Moncur.

SOUTH AUSTRALIA

V.h.f. work in this State has not come to a stop—far from it—but lack of notes on that activity from here may have given that impression. An endeavour will be made to pick up the threads and let you know of the movements, activities, plans and future intentions of the v.h.f. boys as we go along, which task will be aided by me hearing from some of you, and thus get the ball really rolling again.

Starting from the North we have a flock of Z calls at Woomera, beam them this way chaps, you will be surprised how they can get through. Ern 5EN at Pirie, has 100 watts on 2 mx, p.p. 6146s we think, and a xtal front-end for his rx that has to be seen to be believed. A magnificent job, brass chassis, and a crop of 6BQ7s popping out of it that would be the envy of anyone. It is capable of tuning 5, 2 and 1 mx and has been used on a successful contact on 1 mx between he and Reg 5QR. Much planning and patience was displayed on that outstanding contact, but they stuck to it and finally made the grade. Ern used a long-long yagi with so many directors on it that they had to be counted, you just couldn't look at it and say 8 or 8 el. Anyway, congrats Ern and Reg.

Bob 5RI is patiently awaiting a break-through to him on 2 mx and anxious to contact anyone near him to help make the grade. Gawler has two types on 2 mx and shortly to be added to by a Z call; 5 mx also coming up. Les 5AX is the stalwart who never really deserts these frequencies, and manages to keep on the air no matter what modifications he attempts to the tx. He will be restoring his 12 el. co-linear soon so watch out.

The writer has at long last put the 5 over 5 on the tower (about 48 ft. up) and hopes to have it in use before this is read. P.p. 6146s 100w. input will feed it, and under that 5 over 5 is a 4 el. on 5 mx that will be warmed up by a similar outfit soon. 2 mx signals heard here in recent times, include Bill 5ZAX who is on most Sunday nights, Reg 5QR who never fails to pin my 5 meter back, George 5BG who never fails to bob up with something new. Neil 5ZAW puts in a fine sig. So also does 5GL, 5ZAE, 5ZAF, 5HD, 5RO and 5MT.

Keith 5MT did some good work and tests with me on mobile 2 mx some time back when he worked Hughie 5BC from Mt. Lofty whilst mobile, but haven't heard him about much lately. The South East boys seem to be getting steamed up these days. Claude 5CH has worked Dave 3ZAM at Penola, which of course has aroused some interest. Col 5CJ also on 2 mx these days.

2AGZ (Broken Hill) will shortly be operating on 2 mx with a 5 over 5 directed at Adelaide. He will be looking for contacts and may repeat the procedure of last year in calling at regular intervals, but with the carrier on all the time. More of this when all the dope is known. Don 2AMN can be contacted for information and progress in the meantime.—5EF.

WESTERN AUSTRALIA

Sept. 29 saw another Fox Hunt under way, King's Park once again the starting point, with Murray 6ZAM and Tom 6ZAF being the foxes. The roll up must have been close on the best to date with 13 cars taking part. At 8.15 p.m. sharp, the signal came on and the cars got under way, screaming their way through Perth. It's surprising the way the 3 and 4 el. beams attracted the attention of passers by. Syd 6SJ was the winner and it was good to see him break a run of outs, nice work Syd. Rolo 6BO was very close again—handicapped by lack of phones for his diode detector, he'd lent them to Bob 6BE. Don 6ZAV and driver Roy did better than the last time, thanks to a genemotor power supply, instead of a vibrator. "Never seen so many dead-end roads in them 'th' hills." Supper was partaken of at Murray's QTH at Kalamunda. Thanks Murray, what a view you have from the house!

I hope there is a bit more activity on the bands during the coming months.—6ZAV.

YL CORNER

(Continued from Page 16)

and as a new arrival, was astonished to find myself elected Secretary. Then later I was offered a temporary job (I too am professionally qualified) and since then others have followed with only a week or so in between.

"I am not able to listen in as consistently as I used to, as unfortunately the shack here is a tiny room, just large enough for rig, receiver, the OM and the inevitable accompaniment of weird junk. However, on occasions when I squeeze in and stand carefully (so as not to knock anything over) behind the op's chair, I've found it as fascinating as ever and although it wouldn't do to admit it to the OM, I do regret the fact that the room is too small for regular XYL participation.—73 Lesley Fullagar."

Lesley has promised to send in further contributions from time to time. Now what about all the rest of my readers, I must have one other one surely. What about you sending in a contribution? We'd enjoy hearing your slant on "Life with Amateur Radio."—P.M.

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" 6U7	7/11 ea.		
" 6Y6	12/6 ea.		
" 6A6	10/6 ea.		
" 6SF5	7/6 ea.		
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" EF50	3/6 ea.		
" 6AC7	3/11 ea.		

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 - Co-ax Cable 2/6 yard
 - Dural Tubing in following sizes:—
 - 3/8" x 22 gauge 8d. ft.
 - 1/2" x 14 gauge 11d. ft.
 - 1" x 10 gauge 2/- ft.
 - 1" x 12 gauge 1/9 ft.
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- (Sorry, no Mail Order for Tubing)

TANK WHIP AERIALS

In flexible steel. Make splendid CAR RADIO AERIALS.

We have the following:—

English slotted type, three sections, 12 feet—

22/6 per set

English slotted type, two sections, 8 feet—

15/- per set

Aerial bases to fit these—

7/6 each

Packing and freight (all States) 5/- extra.

WALKIE-TALKIES

The real thing for BUSH WORK. Five Valves: 1—ATP4, 4—ARP12. Powered from 3 volt and 120 volt batteries which you can obtain readily from your nearest electrical dealer.

Complete with Microphone, Headset and 4 ft. Aerial Section.

Price: £9/10/- each

Plus packing and delivery to railhead, 7/6.

CHASSIS

See our ALUMINIUM COASSIS, with useful components.

Price 5/- each

Space does not permit details of all Bargains available. We suggest you call and inspect stocks.

DX ACTIVITY BY VK3AHH†

PROPAGATION REPORT

3.5 Mc.: The only break-throughs reported were to North America, 0830-1130z.

7 Mc.: Openings to North America and the Far East seemed to be quite reliable. In addition, conditions to South Africa were reported to be satisfactory around 1800z.

14 Mc.: This band followed the usual pattern. Times of openings were in accordance with what could be expected, in other words conditions were so good that the openings overlapped each other.

21 Mc.: This band also displayed reliable conditions to all continents, and no extraordinary openings have been reported or observed.

27-28 Mc.: During the month, this band showed reliable openings to all continents, times being as usual.

NEWS AND NOTES

Radio districts in CHlle have been re-allocated (from NCDXC).

CE3ZO is ex-G6ZO (from 2QL).

PJ2ME represents St. Marteen on 14 Mc. c.w. (from W6YY).

Congratulations are due to the boys of the Neckartal (DL) Radio Club, DL-1CR, DL3AO, DL9CI and DJ2OS, for a well-organised and efficient DXpedition to Luxembourg in August.

Beginning on 23rd October, G3IDC will be active from several spots in Europe, Africa, Middle East, and Asia: 23/10: 5A2; 24/10: VS9; 25-26/10: VQ4; 27-30/10: VS9; 1-3/11: 4S7; 4-17/11: YI2AM; 18-21/11: ZC4; 22-23: ZB1; and 24-25/11: ZB2 (from W6YY).

A new station has commenced operation from Antarctica: FB8YY in French Adelle Land (from W6YY).

JZ0ACK and JZ0ADM are new stations in Dutch New Guinea (from 3ADW, 3ALD, 5AB).

It has been reported that the district Tannu Tuva—Zone 23—will be represented by UA0KTT in December (from W6YY).

QTHs OF INTEREST

(From W8YY, NCDXC, and VKs 2QL, 2AIR, 3ADW, 3AGD, 3ALD, 5AB, BERS196 and Rod de Balfour)

FE8AE—Box 408, Douala, French Cameroons.
FE8AG—Box 298, Douala, French Cameroons.
JZ0ACK—E. Walsh; JZ0ADM—T. Moulou, C/o Naval P.O., Biak, Dutch New Guinea.

ZD6DT—Box 68, Zomba, Nyasaland.
CN3JO—C/o. U.S.A.F. QSL Service, Box 7386, A.P.O. 118, New York.

ISRAM—Box 179, Magadiaclo, Italian Somaliland.

AP2AD—Box 4074, Karachi, Pakistan.
YNI1BW—C/o. American Embassy, Managua, Nicaragua.

ZC3AC—V. E. Mathew, Christmas Island, C/o G.P.O., Singapore.
Ex-VS6CW—Via GW3IVS.

ACTIVITIES

8.5 Mc.: The only report came from Dave WIA-L3039: W7MSB (0855z), ZK1BG.

7 Mc.: Frank 2QL reports JA, and Laurie 2AMB mentions VR1B* (Tarawa Island), ZS6ANI*, ZS6AEA* (1800z), and YU, LU3JRM, VE7AQ, DU7SV, UF6KPA, Neville 2APL worked JA3MC* (c.w.) and heard JA7GW on phone. Dave 3ADW talked to JA1BMY*. WIA-L3039 heard JA1BU and JA8CX. Rod de Balfour mentions Ws on phone.

14 Mc. C.W.: 2QL: VK1RW, YJ1RF*, ISRAM, 9S4AZ, FE8AE, FE8AG, ST2NG, ZS7C, VQ5GC, FL8AB, ZD3D, PZ1AM, 5A2FE, OY2S, UL7CB, UR2KAA, UG6AB, UD6BM, VP8BW, 2AMB: PY1HQ*, VR3B*, GI4RY*, G*, ON*, DL*, UA*, UB*, CE7DJ*, LU3EL*, CT*, KP4*, CE3RE*, 4X4IV*, GM*, XE*, VR4AA*, EI9Y*, VP9BM*, FMTWD*, EA*, LA*, SM*, YU*, YJ1AA*, YV*, EA9DF*, CO*, PJ2CE*, VP9Y*, CN2AY*, UA1KAE*, ZD6BK*, VP6GT*, FA*, TI2PZ*, CN2RV*, KZ5KW*, CE0AC*, PJ2AN*, LU*, 2AMB: YU*, ON*, YP4AO*, PY1RW,

PY2BC*, DL*, VPTNS*, VS6*, 9S4AX*, VR4AA*, VP8BW*, KP4*, PZ1AH*, FG7XC*, FG7XD*, VE8OJ*, VK1RW*, VK1GA*, XE*, LU*, VQ4DT*, ZS*, and GI, ZD8AC, ZS8P, VQ2IE, ZS7C, ZB8YJ, CR8Z, DU3DO, LU0AC, KC4USV, EK9WP, CX8IBZ, CX2CO, LA, KG1AG, CT, EI9Y, EA, VPTNM, VY1AD, BVIUS, FL8AB, UFG6AM, FB8BR, OX3LD, 4K4DE, YV5BJ, VQ-8AB, YJ1RF, AC3SQ, HB1MK/HE, VP9Y, HC-1LE, LU, Bud 2AQ: DL*, DU*, F*, FO8AO*, G*, GM*, HB*, JA*, KL7*, OE*, OH*, OZ*, PA0AY*, SM*, UA0AA*, YJ1AA*, 4X4GC*, 8ADW: ZS8P, John 5HI: 3V8AO*, UB5KAG*, TI2PZ*, LZ1KNB*, 9S4AX*, UB5KMA*, UB5-WF*, UC2KAB*, XE*, SM*, YOSLC*, HA5KBR*, GM*, ZB1BX*, YU*, UA0KCA*, UH8KAA*, VQ4DT*. Ray 5BK: LU2DRM, LU5AQ*. Austin 5WO: 3W8AA*, VK1RW*, VQ8AD*, FB8-BR*, Eric BERS196: BVIUS, AP2AD, CE3ZO, EA9AP, CX2CO, GFPAZ (ship), IS1FC, ISRAM, KC4USV, KG1AG, LU, OX3LD, UH8KAA, UD6-BM, UC2KBA, UO5KBB, VK1RW, VE2ACW/8, VP8BW, VP9CX, VQ8AB, VQ8AD, VQ8AG, XE, VR3B, YV3AN, ZC3AC, YJ1RF, ZS, YA1AM, 9S4DE, ZC4NS, WIA-L3039: YV5HL, G. Bod de Balfour: JA, PZ, BS, 3AMR; PA0*, DL*, G*, EA*.

14 Mc. A.M.: 2AMB: PA0*, TI2OE*, EA*, CE3HL*, LU*, VR4AA*, OZ*, SM*, FUBAC*, GW*, F*, VP8BM*, 4X4HK*, I*, HB9*, DL*, CN8MM*, HB1MK/HE*, YNIAP*, and OA5G, BVIUS, OQ6FQ, FB8BE, HP5MP, HC1ES, EA-9AP, ZM8AS, YN1RA, SM, ZS, ZS2MI, FB8ZZ, VP8FL, VY5BV, LU, YJ1RF, CX2AK, CR7DI, CR7AH, PY2JU, HH1HB, CN8HN, OE, VK1DA, CR6BL, CR6SA, 2AQ: DL*, EA*, HC1ES*, KA*, VR4AA*, ZS*, 4X4DK*. Neil 3HG: VP8BM*, JZ0ADM*, CR5SP*, UQ2AN*, EL2F*, 8ADW: CT2AH*, VP8BM*, YV3AO*, TI2JA*, HP5MP*, VP5AO*, HC1ES*, PY1MK*, ZS*, FB8BC*, VE8MO*, SM*, ET2US*, John 3AGD: CO2VM*, VS2*, XE*, PA0*, JZ0ADM*, LA*, and ZM8AF, ZD6DT, YK1AA, YO3VI, Bruce 3AGG: FB8BP*, OQ5FH*, ZM8*, G*, KZ5*, SM*, KL7*, CN8*, OZ*, EA*, HP*, LU*, PY*, HC*, YV*, Bram 5AB: DL*, G*, VP9CY*, JA*, KA*, OH*, ZB2I*, F*, DU*, PA0*, I*, EI4Q*, SM*, EA*, YN4AT*, YNIAP*, YS1MS*, HB1MK/HE*, LA*, OZ*, CX1VD*, ZS2MI*, LU*, CR7DU*, ZE*, ZS8I*, PY4P*, CO*, YV*, OQ5FH*, ON*, ZB1BG*, HK3PC*, HK3HY*, OY2A*, ZB8JZ*, ETZUS*, CN8AS*, FM7WQ*, 5HI: DL*, OE*, F*, G*, GM*, ON*, OA4FA*. Ian WIA-L3007: ZS9, ZS8I, ZS2MI, VQ4FH, YS1MS. Rod de Balfour: F, GM, G, CT, I, HB9, LA, SM,

EA, DL, KV4BI, CO, CM, TI2RS, YNIAP, HP3FL, HP1HE, HC1ES, LU, ZP5CF, PY2CK, KP4, VO6D, YJ1RF, ZM6AR, ZM6AS, JA, DU, FUBAC, VR4AA, JZ0ADM, 4S7YL, AF2AB, and VU2DE.

21 Mc.: 2QL: ZD6BX*, LZ1KNB*, YU*, OY-7ML*, ZS7C*, ZS*, UA1KAE*, UC2KAB*, FA-8RJ*, VU, KP4, KP4CC*, 4X4BD*, 4X4BX*, 3V8AO, VQ4DT, KW8AB, SPIKAA, HB1MK/HE, 2APL, LU*, KV4BB*, G*, ON*, 8HG: ZS*, G*, EA*, ZP5ET*, CE3DY*, GDM1A*, PY*, CE3H*, TG8US*, 4X4BX*, GM*, PY7AEI*, EI9Q*, JZ0ACK*, VP2GC*, VP6GT*, OD5AV*, Jack 3JA: VP8BP*, CE*, PY*, DL*, ZS*, 8ADW: GM*, CT*, BVIUS*, G*, ZE*, ZS*, LU*, JZ0-ACK*, PY*, CE*. Len 3ALD: JZ0ACK*, VS2*, 5AB: DL*, JA*, G*, HB9*, DJ*, CN8FF*, TG-9JW*, FB8BZ*, 5A1TA*, LX1SI*, G66FQ*, F*, ZS*, HB1MK/HE*, VQ4DT*, KP4AZ*, GDS-GMH*, OH*, ZP5CF*, TI2BX*, KL7*, ON*, CE-311*, YNIHF*, FO8AO*, JZ0ACK*, KZ2TV*, CR9AL*, CR9AK*, CE3CZ*, TG8US*, GW*, SV0WT*, G2ACT/M*, VS4NW*, LX1DC*, 5WO: VP5EM*, GM*, G*, DL*, PA0*, GDSGMH*, ZS*, Col 7LZ: G*, ZP5CF*, CE1AH*, CE1AJ*, LU*, PY8DK*, VS2*, EA*, ZS*. Rod de Balfour: G, GM, GW, F, CT, PA0, I, OH, LA, JA, DL, EA, ZK1BS, BVIUS, 4S7YL, VS4BO, ZS7C, ZS, VQ-4ERR, CE1AJ, CE1AH, CE3RN, PY8DK, LU-9DAH, K1TAZ, KE2KW.

27/28 Mc. C.W.: 2QL keyed with VS6DE, DM2AEN*, ZD6BX*, OQ5RU*, KH6AO*, JA*, 5HI reports ZD6RM*.

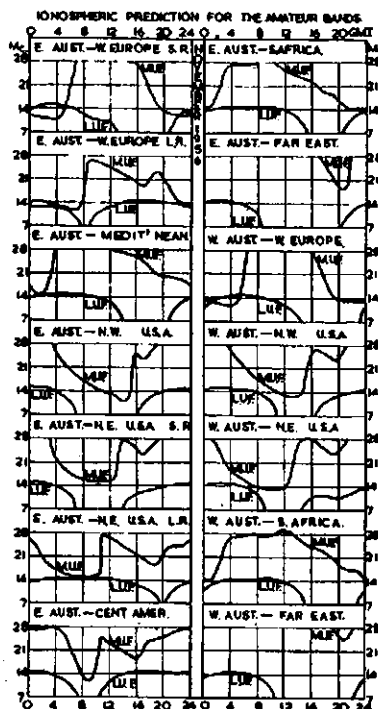
27/28 Mc. A.M.: 3HG spoke to GD3FOC*, OH5NW*, OH2OV*, G*, CT1H3, VE*, IITDU*, ZS6LE*, ZS6L*, LU2MT*, ZS6AJB*, VE*, TG8W*, KA2DS*, ZS8UN*, ZS6OP*, ZS3BC*, GHSN*, VS2DQ*, ZS1W*, ZS8AJ*, ZD8RM*, JA3AH*, DL1LP*, ZS2KC*, 8ADW mentions VE 4S7*, OH4NT*, PA0*, OE*, GM*, ZS*, 3ES 4XJ contributes this nice list: ZS2ZK*, ZS5CM, ZS8L*, ZS1W*, ZS6SA*, ZSIDO*, 4X4FQ*, DL7FU*, IIDV*, EA3JR*, EA3IT*, GW3UO*, GHSN*, VE*, JA*, 4S7YL, HC1KW, HP1BR, LU8DDI*, LU8DM*, LU7AR*, LU1HA*, LU4CC*, YN-4CB*, 5HI adds KA2KA*, KH6*, ZS6OV*, ZS-5LX*, ZS6ZK*, ZS6DS*, VE7*, 7LZ worked 4S7WM*. Rod de Balfour heard KH6, JA9BE, BVIUS, 4S7YL, G2CDI, F0LE, KZ5KY.

27/28 Mc. S.S.B.: Charles Thorpe reports the following s.s.b. DX stations: W8HHU, W6PCK, W4WSJ, W6NLC, W6DSX, W6MMD, W4BUZ, K6FE, K0APG, W0GW0.

Bare QSLs were received by: 2QL: CE0AD, BVIUS, IS1FC, IITAI, CE3AG (7 Mc.), YN-1PM, 2AMB: CE0AD, 4X4DF (7 Mc.), IITAI (7 Mc.), YNIAP, VPIJH, CE4AD, CE4CY, CE-3AG, 3HG: VP8BE, 7LZ: BVIUS, BERS196: ISAAW, ZB8YJ, ZS5RE. Rod de Balfour: CN-6JO, GWACC, VQ8CB, KZ2SS, VPIEK, VP9AK, 3AHH: DL9CI/LUX.

Thanks to W8YY, the Northern California DX Club, VKs 2QL (QSP 2AIR), 2AMB, 2APL, 2AQJ, 3HG, 3JA, 3ADW, 3AGD, 3AGG, 3ALD, 4XJ, 5AB, 5RK (QSP 5HI), 5WO, and BERS-195, WIA-L3007, WIA-L3039, Rod de Balfour (QSP 7LZ), Charles Thorpe.

PREDICTION CHART FOR NOV., '56



WIRELESS INSTITUTE OF AUS. VICTORIAN DIVISION OLYMPIC GAMES ACTIVITIES

★ OLYMPIC DINNER

A special Olympic Dinner is to be held on November 16, at 6.30 p.m., at the Prince of Wales Hotel at St. Kilda.

★ STATION VISITS

For the special benefit of Overseas Amateurs visits will be arranged to a number of VK3 Stations.

★ FIELD EVENTS

These events will be held in conjunction with Transmitter Hunts on Sunday, 25th November.

Intending Amateur visitors are requested to get in touch with the W.I.A. office, 6th Floor, 191 Queen Street, Melbourne (Phone: MY 1087) after arrival in Melbourne.

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

* Call signs and prefixes worked.

z—zero time—G.M.T.



FEDERAL

EMERGENCY CO-OPERATION IN GREAT BRITAIN

An interesting note from overseas is the announcement by the Council of the R.S.G.B. that the Post Office has approved the co-operation of the Radio Emergency Network with the British Red Cross Society in its disaster relief operations when the Post Office telephone network in the vicinity of a disaster is congested or disrupted, and also in relief exercises run by the Red Cross.

The necessary amendments to the Amateur licence to permit the passing of third party messages on behalf of the Red Cross in actual emergencies, and in exercises, are being made by the Post Office.

INTERNATIONAL GEOPHYSICAL YEAR

The following letter has been received from the A.R.R.L. in regard to activities by Amateurs concerning the coming v.h.f. research programme in connection with the International Geophysical Year.

It is pleasing to record that the Institute is well prepared in this regard and the Convenor, Professor Webster, of the Queensland University, already has lists of names of those Amateurs willing to help. Any other Amateurs who would be willing to take part in this most interesting programme are asked to notify Divisional Secretaries.

"During 1957 and 1958, A.R.R.L. is planning to carry on a programme of research dealing with v.h.f. propagation. This work is to be done in connection with the International Geophysical Year. The project offers a great opportunity to enhance the reputation of Amateur Radio in scientific circles, while also making a real contribution to the I.G.Y.

"Since there will undoubtedly be a great deal of long-range communication on the 50 Mc. band during this interesting part of the sunspot cycle, observations in no one nation will be sufficient to tell the whole story. Therefore, we wish to invite Amateurs in all the I.A.R.U. countries to join in contributing to the project. The work will involve sending in reports of stations contacted or heard on the v.h.f.'s. Emphasis will be on trans-equatorial scatter, sporadic-E skip, and auroral reflection, although we are interested in any communications which are at all out of the ordinary.

"Data from all countries is needed to fill in the gaps in the propagation picture. Central and South American Amateurs will be of special help in the transequatorial phase of the programme. Even Amateurs in places where 50 Mc. operation is not sanctioned can assist by sending in heard reports.

"What is needed from you is as much publicity for this programme in your country as possible. We hope to contact the leading v.h.f. operators around the world directly a bit later on, but it is appropriate that the initial announcement should come through the I.A.R.U. publications. All interested Amateurs are invited to get in touch with the I.G.Y. office here at A.R.R.L. Headquarters, so that we can send them detailed information on the project as it becomes available.—Mason P. Southworth, W1VH, A.R.R.L.-I.G.Y. Project Co-ordinator."

FEDERAL QSL BUREAU

The Irish Radio Transmitters' Society advises that the new address of their QSL Bureau is Mr. J. Corcoran, E15M, 194 Collins Ave., Whitehall, Dublin, Eire.

The I.R.T.S. draw attention to the fact that EI calls do not include the numeral 1 or the letter O. Calls containing either of these are illegal.

The Singapore Amateur Radio Transmitters' Society now give the address of their QSL Bureau as: Box 2394, Singapore.

Alan McLoud, VK3AHM, apropos of 3W8AA QSLs, states he has received two QSLs for separate contacts. Alan advises routing of cards to 3W8AA via Hong Kong and Canton.

ISAAB, located at Bender Bella, 500 miles N.E. of Mogadiscio, Italian Somaliland, is operated by Carlo Bostoloni (ex-1IAAW). He uses a BC810 tx with an input of 500 watts, and a BC312 rx. Carlos QSLs all contacts and s.w.l. reports and has worked numerous VK stations. He solicits cards direct to him at Box 85, Mogadiscio, Italian Somaliland, East Africa.

HERS195, in a screed bemoaning a spell of wet weather whilst he was in VK6, suddenly

remembered that was his native land, and wasted several additional lines endeavouring to square off for the VK3 climate. Treb, during September, received the following rare cards: MF4QAL/Qatar, YAIAM, VS4BA and CE0AD, bringing his score to 229 confirmed. Gripes me to hear of it as the latter two stations have owed me QSLs for nigh on two years.

Ray Jones, VK3RJ, QSL Manager.

NEW SOUTH WALES

The September meeting of the N.S.W. Div. was fortunate to have Mr. John Moyle, 2JU, as its lecturer. John gave a most interesting account of his recent overseas trip and illustrated his talk with an excellent selection of colour slides. Members present enjoyed John's talk and appreciated his action in sharing some of the highlights of his trip with the meeting.

The big news for this month has been the South Western Zone Convention at Griffith, and the Hunter Branch Blackalls Field Day, held on the same week-end. Both will be fully reported later in these notes.

At the time of writing the Division's official station at Dural is nearing completion, at least as far as the building is concerned. There have now been two working parties on the roof construction, and all should soon be ready for the tiling. First priority will then be given to the installation of 2W1's transmitters.

Members were saddened recently to hear of the death of Bill Felton, VK2RF. An active member of the Division for many years, Bill will be sadly missed by his many friends. Our sympathy is extended to his family in their sad loss.

In a very interesting letter written at Penang in Malaya, Greg VK2ANP passes along the news from that corner of the globe. Greg has been active from Hong Kong as VS6DM and contacted Horrie 2FA and George 2AUR. VS6BE, who is very well known to VK2s has a very nice set-up, which Greg describes as a dream. 75A4 and KWS1, which apparently has OK of local authorities! A frequent visitor to Hong Kong is Kurt Carlsen, of Flying Enterprise fame. Greg describes the dog-pile that resulted when he persuaded ZCS5F (normally c.w.) to try phone. The whole world came back to a CQ VK2—New South Wales must be growing! Contact was made from here with 2FA and 2AJZ. Greg expects to return to Sydney in November and is looking forward to renewing old acquaintances at the November meeting.

HUNTER BRANCH

The September meeting of the Hunter Branch was held at the University of Technology, Newcastle, with President Bill Hall chairing the meeting. Present were 19 Amateurs, 4 Associates and one Visitor and the Lecturers for the night were Frank 2FX and Harry 2AFX, describing and demonstrating a c.r.o. which they had constructed.

Among new faces at the meeting were Bob 2AQR, Bill 2ZL and his friend, Bill McKay. Les Baber, who now holds the call 2ZCB, made the trip down from Scone, and Chris 2FZ put in an appearance from Cessnock. Rodney Prout has now passed the full ticket and is sporting the call of 2CN. President Bill 2XT had teeth removed during the month and is now known as the "Toothless Terror." Dave 2BZ has succumbed to the lure of the "one-eyed monster" and has found that all household chores stop till the t.v. session ends. Leo 2QB will only be heard at week-ends for quite some time in the future as he is studying and receiving tuition five nights per week to further his education for a pass in the Leaving Certificate; best of luck, Leo. Ron 2ASJ and Syd Daniels have returned from VK6 none the worse for the journey; they also managed to remain single.

Listen for 2AWX each Monday night at 8 p.m. around 14140 Kc. for latest news on the Hunter Branch activities.

SOUTH WEST ZONE

The main news this month is regarding this Zone's Fourth Annual Convention held at Griffith. Approx. 80 Amateurs, XYLs, YLs and harmonics attended. Visitors came from Sydney, Tumut, Wagga, Albury, Melbourne, Bendigo, Hillston, Hay, Uranquinty, and Coolamon. The success of the Convention was due to the organising ability of Stewart 2PL, ably assisted by members of the Griffith Radio Club, and their ladies. Proceedings were commenced at 2 p.m. with a bus tour of Griffith and district where places of interest were described by Assoc. Laurie Ashton of Griffith. Arriving back at the I.O.O.F. Hall, at which the Convention was held, afternoon tea was served by the ladies and other helpers. Short addresses were then given by attending Council members. Ragchewing was then indulged in until dinner, which was served in the Presbyterian Hall by the Presbyterian Ladies' Guild.

With the inner man fully satisfied, zone officer Jim 2AJO, who occupied the chair, welcomed the visitors and congratulated the Griffith boys on the great job of organising they had done. The chairman then called on the President of the N.S.W. Div., Jim Corbin, M.B.E., to officially open the Convention. Jim did so in his usual efficient manner. Stewart 2PL endorsed the President's remarks most ably and extended his thanks to all his helpers, not forgetting his secretary, Lyla (Mrs. 2PL).

The gathering then returned to the I.O.O.F. Hall where several competitions were held. Later we were entertained by Mr. Harry James, magician. Films were then shown by Alf 2EW, the audience being much appreciative of Alf's films. Supper was then served.

Sunday morning commenced with the Scramble on 40 mx, which started at 8 and finished at 10.30 a.m. Next event held was the 144 Mc. Tx Hunt. While this was going on the official 2W1 broadcast was done by Jim Corbin from Stewart 2PL's shack. After lunch all returned to the Hall where the usual auction of disposals gear was held; needless to say bargains galore were snapped up. Next event was the Blindfold Tx Hunt in which both ladies and gents participated; much amusement was caused with this event. Afternoon tea was then served and a final ragchew and goodbyes were exchanged by some who had to head for home. Those who remained were entertained in the evening by films, Eric Clare being the operator.

Results of Competitions: 40 Mx Scramble: 1st 2RS, 2nd 2VC, 3rd 2AJO, 4th 2AGJ, 144 Tx Hunt: 1st 2VC, 2nd 2FN, 3rd 2AJO, 4th 2ZAA. Blindfold Tx Hunt: Gents—1st 2ACS, Ladies—1st Mrs. Arntsen.

We have again seen a really successful South Western Zone Convention, and as zone officer, I am proud of my fellow Amateurs and their lady helpers for the efforts they put into their work to make each Convention the success they have all been in the zone. Also many thanks to our visitors who travel such long distances to our Conventions. Without your attendance we would be unable to make a success of our functions. Thanks very much to you all.—2AJO.

HUNTER BRANCH CONVENTION, BLACKALLS PARK

This Convention held over Labour Day week-end, was the fifth conducted by the Hunter Branch. Previously conducted as a Field Day, this year it took the form of a Convention as will each year in the future.

Activities commenced at 3.30 p.m. on Saturday, 29th Sept., with 38 OMs and 3 YFs present. President Bill Hall welcomed those present to the Convention and handed over to Perce 2APQ, who introduced members of the v.h.f. Group who had journeyed from Sydney to be present. Don 3PO lectured on construction methods in VK3 and stressed the importance of antennae in v.h.f. work; Vic 2VL described his walkie-talkie; John 2ZAV explained the most interesting points of his v.h.f. tx; Ken 2ANU demonstrated his grid dip osc. and showed its tuning range; Geoff ("Paint Pot") Partridge gave some interesting information on power supplies for ATR2Bs; Perce 2APQ also described his g.d.o. of unique design and demonstrated his v.h.f. walkie-talkie with its dipole constructed of flexible steel tape; Doug 2ADS, Hunter Branch liaison officer (v.h.f.), thanked the v.h.f. Group boys for their attendance. Tea break was from 5.30 to 7.30 p.m. and, thanks to the efforts of the ladies' committee, anyone who so desired was provided with an abundance of eats and numerous cups of tea.

SILENT KEY

It is with deep regret that we record the passing of:—

VK2RF—Bill Felton.

At 7.30 p.m. 40 OMs, 12 YFs and numerous children assembled in the hall to hear John 2VU give a talk on his impressions of his recent world tour. John illustrated his talk with numerous transparencies taken on the tour, and played a record of experiments using a sound synthesizer and all present expressed their appreciation at being able to hear this astounding recording which he had brought back from "Stateside."

The activities on Sunday, 30th, commenced at 9 a.m. with a 144 Mc. Tx Hunt. Les 2AOR provided the tx, ably assisted by Neil 2XY, and they journeyed to the location selected by Lionel 2CS. Les and Neil started the tx and settled down with the Sunday papers, waiting to be found. The location was five miles in a direct line from Blackalls, but it was on the other side of the lake and necessitated a trip of 16½ miles to arrive at the site. Harold 2AHA, with assistant Norm 2ANA, arrived first, taking just one hour to find the tx; ten minutes later Bill 2XT and driver Ray James arrived; a further ten minutes later Dick 2ZCF showed up; next in was Eric 2AFM, and later John 2ZAV and Perce 2APQ.

The Hunter Branch Scramble commenced at 11.30 a.m. and went until 12.30 p.m. with a number of stations operating. Bill 2AWG was the winner, 144 Mc. contacts helping him; Harold 2AHA was runner-up. After the luncheon adjournment, sports were held for young and old, results being as follows: Girls' Race—Merilyn White 1, Patricia Healy 2, Diane Davies 3. Boys up to 12—M. Meyers 1, R. Cairns 2, N. Hugg 3. Boys 12-14—J. Gray 1, C. Myers 2, P. Davies 3. Ladies' Race—Mrs. Cairns 1, Mrs. Whyte 2, Mrs. Hall 3. Men's Race—Crieff 2XO 1, Les 2AOR 2, Bill 2XT 3. Nall-driving—Ladies, Miss Bailey, Men—Ben 2ABT.

For the Blindfold, Hidden Tx Hunt, Les and Neil set up the tx in some scrub 150 yards from the start, with numerous trees, bushes, long grass and parked cars in between. The contestants, suitably blindfolded and with a guide to protect them from injury, were turned loose. Three heats were run for OMs, the winner being Crieff 2XO with Perce 2APQ as runner-up. In the ladies' section, the winner was Joyce Whyte with Mrs. Bailey as runner-up.

The prizegiving was at 5 p.m. and, although we were pleased to see local boys take first and second prize in the 144 Mc. hunt, we were very pleased to see Bill 2AWG and Crieff 2XO from Coff's Harbour, and Benn ("Nulla Nulla") 2ABT from Coonabarabran take out some of the prizes. Others who travelled long distances to be present were 2GV from Scone, 2ANY from Muswellbrook and 2VU from Singleton.

A complete list of those attending is as follows: 2WQ, 2AWG, 2PY, 2XT and family, 2ARV and family, 2ZL, 2ABT, 2AQR, 2APQ and family, 2ZAV, 2GV, 2KF and family, 2QB, 2VU, 2ANU, 2VL, 2KQ, 2AOR and family, 2XY and family, 2ANA and family, 2AFA, 2ZDI, 2AHT, 2ADS, 2AUB, 2CS and family, 2AGY and family, 2JU, 2AFM and family, 2SF and family, 2BZ and family, 2ON, 2AQ, 2GE, 2ZCF, 2PZ, 2ASA and family, and Associates H. Miller, R. Bailey and family, G. Sutherland, K. Archbold, J. Fontemuler, N. Connors, Allan Sell, L. Hawkins, N. Otley.

TAMWORTH

An interesting sidelight this month was a visit from Mick 4ZAA and Ross 4ZAT, who heard 2APF in Tamworth from the top of the Moonbi Ranges during their journey. These lads are on their way to VK3 land and will have many interesting contacts during their trip.

Tamworth has again increased its Amateur ranks by the addition of Dennis Wheaton, ex-2ZAV, who is now living in Tamworth, and has recently taken the Morse and was successful. Dennis has just acquired an XYL and obviously it will be some time before we hear him on the air, although he is very keen to get on. Sam 2LY is giving 40 and 80 mx quite a hiding, and now his log is starting to look like an Amateur station log; Sam is also active again on 2 mx. Noel 2ASQ is hard at work constructing the mast and supporting frame for his 64ZU array and has it well under way. Merv 2ATD is now on 2 mx consistently and should not be long before we hear him on the d.c. bands as well. All in Tamworth extend their deepest sympathy to Tex 2KX in the recent loss of his father.

2MF in Armidale is, at this date, enjoying a well earned holiday and has had several weeks at Coolangatta. Bob 9BS, on a tour of N.S.W. and Qld., is, at the time of writing, enjoying a stay at 4HD's QTH; Bob tells me he has had a very nice time on his trip so far.

COALFIELDS AND LAKES

Activity in this zone still very slight; maybe the warmer weather and nights will bring some of the boys out of winter haunts. Bob 2KF has been active on 28 Mc. Heard an old-timer, 2ZL, putting out good 7 Mc. phone.

Geoff 2VU is again on 2 mx, putting in good signals here. Major 2RU is only one heard from Gosford area; he works most bands. Alex 2JZ was active during the VK-ZL Contest. An ex-zone station, 2ADT, was worked while mobile at his Urunga week-end. Conditions have been quite good at writer's QTH, 7, 14, 21 and 28 Mc. being worked regularly and 2 mx when anything shows up. Any notes from zone stations would be appreciated by 2YL by end of each month for inclusion in these notes.

VICTORIA

Approximately sixty were present to hear and view one of the most brilliant lectures we've ever had at the W.I.A. given at the general meeting last month by Commander Batterham, of the R.A.N., on the Navy's Frogmen work. One and all of those who attended considered themselves most fortunate to have the opportunity to hear this wonderful lecture and were full of praise of the Hon. Secretary, 3YS, for arranging it. It was a delightfully told story and kept you enthralled from beginning to end. His description of the heroism and daring of the frogmen left you breathless with amazement and then the next moment his very charming and subtle sense of humour had you in raptures of laughter. He also showed us two very excellent and most amazing films, taken under water, of frogmen in action. Our thanks go to Commander Batterham for a very wonderful and interesting evening.

We had a visitor from VK2 at the meeting; he was Les 2ZBJ. The following were welcomed as associate members of the Institute: Messrs. A. J. Fisher, M. J. Swindon and L. M. Stone.

Council is pleased to announce that it has decided to award the Gadsden Trophy to Ron 3RN in recognition of his excellent and untiring efforts on behalf of the publication of "Amateur Radio," the W.I.A. magazine, for the past 10 years and his association with the earlier duplicator-produced issue. Congratulations of members are extended to Ron on being awarded this coveted prize, an honour he richly deserves.

Council is anxious to find someone who would be willing to act as membership secretary for the Victorian Division and would be pleased to hear from anyone who might be in a position to help out in this regard.

The State Convention is scheduled to be held at Leongatha on the week-end of 3rd and 4th November. The Convention will commence with a dinner at 8 p.m. to be held in the old Council Chambers and followed by the meeting at 8 p.m. Arrangements can be made for the ladies to attend the local picture theatre during the meeting. Sunday's entertainment will include an inspection of the local butter and cheese factory in the morning; this factory is the most modern of its kind in VK. A Tx Hunt or Fox Hunt will probably be held in the afternoon. If you have not already booked your accommodation, then contact Ron Jardine, VK33R, 8 Blackmore Ave., Leongatha, immediately and please enclose 10/- deposit for each booking.

The seventh round of the Bi-Monthly All-Band Scramble was held on the second Monday in October. There was a fair amount of activity on the bands but, as usual, mostly from the v.h.f. operators. The result of the previous scramble, the sixth edition, is as follows: Section C, equal first—3YS and 3ZAQ, both with 10 points.

The Annual Victorian Division W.I.A. Dinner will this year be known as the Olympic Dinner and will be held at the Prince of Wales Hotel, Fitzroy Street, St. Kilda, on Friday, 16th November, at 8.30 p.m. The dinner this year, being held in the Olympic year, will be a very special event and we are expecting to have many overseas visitors and also several distinguished guests who will be interested to meet as many Amateurs as possible. On this very important occasion the Victorian Division requests you to make a very special effort to be present. Tickets are available from the Administrative Secretary, priced 27/6 each.

During the past month we had a visitor from Norway here in Melbourne. He was Jimmy 1A6CF who spent a couple of days meeting VK3 Amateurs while his ship, the "Tourcoing," was berthed at Port Melbourne. The very newest in grandparents are the JDs, Jack and Phyl Davies. Their daughter Barbara has a small son.

Call books and log books are still available from the Victorian Division office, priced 4/6 a copy. Please add postage if you desire a copy

posted to you. 6d. extra for call books and 9d. extra for log books.

Members are advised that Mrs. May, Administrative Secretary, will, in future, be in attendance at the rooms, 191 Queen Street, Monday to Friday from 9 a.m. to 4.30 p.m.

At a recent S.W.I. Group meeting, Fred 3YS spoke to members regarding operation of Amateur Radio tx's. He explained how the P.M.G.S. Department was waging an unceasing war against illegal operation and made clear the dangers of participating in such operation. He also stressed the necessity of consideration which should be given beforehand to all remarks which are made over the air. If you have the opportunity of speaking to another person via Amateur Radio, be very careful in your choice of remarks. Remember you could cause trouble for yourself and also for the owner of the station. Also, if you hear of anyone attempting or considering to attempt putting an illegal tx on the air, do your best to dissuade them. No matter how keen a person is, it is always better to do the right thing by the Amateur fraternity, the community, and yourself by studying to obtain your A.O.C.P. than to "pirate." [Have you read the Editorial yet?—Ed.]

At the next general meeting, to be held on Wednesday, 7th November, Maurie Anderson, 3ANA, will give an illustrated talk on his recent trip to the Northern Territory and Alice Springs. Maurie, who was an operator for the Inland Mission, made the trip to be present at the opening of the John Flynn Memorial Church.

80 METRE TRANSMITTER HUNT

80 mx tx hunters were again very fortunate in having a lovely sunny afternoon for their hunt. Another record crowd turned up, over fifty there were, and all enjoyed the spot chosen by Tom 3AOG who hid the tx. It was down at the beach at Rickett's Point, an ideal spot for such a lovely day. At first it seemed as though the tx was going to win this hunt as the location apparently played tricks with the signal and sent everybody off in a northerly direction, when actually the location was due south. All bar one had to open their envelopes to get at least a bearing, but once they had the bearing, they were soon able to get back on to the track of the signal again. The only one who made the location unaided even by a bearing was Reg 3ZAD, who of course was the winner.

At the conclusion of the hunt we all gathered around a fire to cook chops in the flames, potatoes in the ashes and make toast on the end of a long stick. We got a bit sooty, but we had a lot of fun, and never have chops tasted better. How about coming along and joining in the next hunt? We can guarantee you'll enjoy it! Bring the family and friends and a picnic tea. Dates are advertised over 3WI broadcasts each Sunday morning. Make a special effort to come along to the Olympic Tx Hunt to be held on 25th November when we are expecting to have many very special visitors with us.

SOUTH WESTERN ZONE

The zone is still holding its activity, particularly the Sunday morning hook-ups at 1000 hours on 7.050 Mc. We get a good muster from the Geelong boys now, but would like to have someone from Ballarat, there are plenty of you up there, so how about it, chaps? John Beames, from Ballarat is now 3ZDM and hopes to be on by now, so there is another 144 Mc. station on the band. We wish you plenty of QSOs John. Whilst on Ballarat, the zone and all members would like to thank Bob 3GR for all his excellent work in organising the convention; it is not as easy as some think. Harry 3XI still going hot and strong on the DX; now on 21 Mc., using a cubical quad and working 100 per cent. Norm 3EQ has got the rig working f.b., remote control from the lounge, also has new cubical quad for 21 Mc.

Dan 3ADD at Hamilton is a new member to our zone, and is on the hook-ups on Sunday mornings; we wish you all the best whilst in our zone. Dan, John 3ARJ visited Bill Wines' QTH for an evening, complete with portable rig, but Bill's XYL and John were too busy talking their school days over. Cec 3YW will be back on the air shortly with his familiar s.s.b. signal, this will suit John 3AGD, 3AKR and 3AGD attended the Central Western Zone Convention and punished 3HL's rig on the hook-up. Jim 3ABT active on the bands from times to time.

NORTH EASTERN ZONE

Some say no news is good news, but in this case it means no news except for local doings. It is said that Howard 3YV is now deep in the mystics of colour films. Ken 3KR is still on the sick list; Sid 3CI has been knocking

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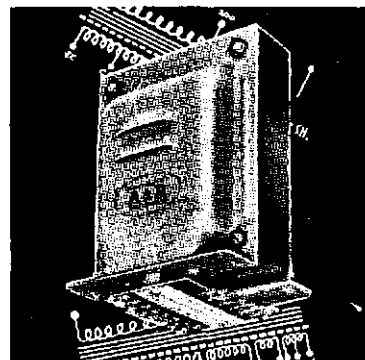
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" 1779	" "	" "	350-C.T.-350
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over the DX on 10 and 20 mx. George 3GD has found DX too easy to work so is now turning his talents to the higher frequencies. Keith 3JC was heard on 20 mx working LU and other DX. Peter 3AFP is not very active because of a 40 db. over S9 power leak. Bruce 3AGG has a log book full of DX, while Brian 3ASF is suffering from the same power leak as Peter. Ray 3FI has got to the stage of thinking in terms of antenna height and the sky hooks that were left at the old QTH. Andy 3FD is still battling on, while Dec 3CO hasn't been contacted, but is believed to be keeping his head above the DX.

Ray 3ZAK has spasmodic bursts of building. Ivan 3ZDI has been spending a few days learning things at the b.b.s.s. (biggest broadcast shortwave station). There, at last, I've got it into the notes; no comment from VK5 please. Vern 3AXW is in his new shack, all that is needed is wall to wall carpet and the XYL will move in too. Frank 3ZU is doing a stirring job every Sunday morning. John 3ACK has been heard talking shop on 20 mx. Come on fellows, lift your heads out of the DX and let's have your news and views.

CENTRAL WESTERN ZONE

The weather turned out fine on 30th September when we held our Annual Convention in Stawell. We were pleased to welcome our visitors who included Leigh 3II, John 3AGD, Kevin 3AKR and Don McLeod from the South Western Zone. Jim 3AOE, Max 3ZCW and Bruce from Hopetoun and Ouyen districts. The tx hunt was keenly fought for and the successful contestant was Don McLeod who was assisted by Keith 3AKP and Bob 3ARM. Chas 3IB operated the hidden tx and I believe he will think twice before he chooses a spot near a lagoon again as the local mosquitoes had a feast before he was located. Kevin 3AKR scored the most points in the scramble so we must congratulate the South Western Zone chaps on their successful day.

Our annual meeting was held in the evening and it resulted in the following office-bearers: President, Byron 3TA; Vice-President, Bob 3ARM; Sec. and Treas., Bill 3AKW. After the meeting, Chas 3IB screened slides which he photographed while on Macquarie Island. They were perfect in every respect and were much enjoyed by all. Also Merv. 3AFO screened some 8 mil. film which he had taken during his holiday in VK6. Again these were excellent and scenes of the wild flowers were all that could be desired.

EASTERN ZONE

Well the long-awaited State Convention is in a few days' time and I hope everyone who is going has notified Ron 3PR and not springing any surprise arrivals. Talking of arrivals, Jack 3AJK and XYL are receiving congratulations on the birth of a daughter, likewise is Gordon 3TH and XYL, also a daughter. Doug 3ADC, formerly of Leongatha, who is in the Navy and has been in the U.K. for the past two years, is back and renewing old friends. Ron 3PR has his antenna down, but has a temporary one in operation; better get it up Ron so the visiting boys can pull it down again, hi! Cliff 3AIT is working plenty of DX on 20 mx, but he does not forget the 80 mx hook-up on Sunday nights, like some people I know.

Gilbert 3AYM is trying out some speech compression, but as yet is not working too good; hope you get things going OK Gilbert. Have not heard Graham 3QZ lately, hope to see you at the Convention. Graham, also a lot of other boys that we don't hear on the air. David 3DY has a new utility so we have not heard much from him lately although he does get around to see the boys and gives them their QSL cards personally. Heard the old man of the mountains, Bill 3WE, on 40 mx and sounds his chirpy old self. Ian 3AAV has his 813 going at last, but don't know that it sounds any better than the 807s although the shack at 3AAV is well illuminated now, wonder why? George 3ZCG is getting his shack nice now, so perhaps his XYL will be able to work in the kitchen without fear of sticking her foot through the 832.

FAR NORTH WESTERN ZONE

An attempt has been made to revive local zone activity on 7 Mc. every Thursday night at 1930 hours, and to date have met with only mild success. What about it fellows, even if only for a short burst. The main item of interest at the moment is keeping in regular contact with Geoff 2AHM at Willow Point, who has been floodbound this last two months. We were pleased to see Ron 3OM and Lynette pay us a visit during their tour through Mildura. Ron's mobile gear was greatly admired and all agreed that it was a masterpiece. 3FC is holding his own with a Type 3, both on 40 and 20 mx; a mighty good signal Frank and don't

forget Thursdays. 3TI putting out very nice phone on 40 mx after re-building. 3GZ sneaking in good DX during those odd moments. Glad to see you foresakes the key Max and join in with the local rag chasers.

3AJU, all quiet from your locality Bill; how about giving us a break on 40 mx in between working DX on 20 mx? 3AUG migrated from 20 to 40 mx only to meet numerous gremlins; now attempting to stabilise a rock 'n roll v.f.o. 3ZCW doing very good work on 2 mx, re-building tx and increasing power. 3AKF installed an all-band final and met with indifferent success; hope to hear more from you after the pi coupler has been completed. 3AFP is busy t.v.l. proofing his tx; let us hear some more of that f.b. signal, Jim. Expecting to hear from 3AWT any day. Associate Fred Uchtman and Chas 3TI will possibly be attending the Convention at Leongatha and are talking of taking mobile gear for the trip. Harry 3MF still too busy to find time for radio. 3TI had a visit from W6PPT and the gang hope to meet up with him before he completes his job in this area.

GEELONG AMATEUR RADIO CLUB

Recently Arch 3BW and his XYL royally entertained members at a recent visit to his QTH. Arch has an aerial farm consisting of 20 mx 3 el. beam, 5 over 5 2 mx beam, plus a cubical quad and vee beams for 15 mx. During the evening a contact was made with WSTJY, but QRM drew a nice contact to a close. The President thanked Arch and XYL for such a friendly evening and excellent supper.

The October tx hunt was in the capable hands of Vic. Clarke and Fred Freeman. The tx was hidden at Leopold and Ted 3AEH won the hunt again. Kevin Nills was in second place. During the day other short hunts were held and Ted was again the winner. Bill 3AWZ is still looking for the tx as this goes to press.

T.v. is all the rage here and Bill 3BU is getting haggard by over indulgence with varied programmes. There will be some cheap gear for sale down here soon if t.v. gets the boys in. No indication of t.v.l. yet either!

The members were fortunate in hearing an excellent lecture by Mr. Brownless on t.v. at a recent meeting. There was a good sprinkling of Amateurs from as far as Colac so the one-eyed monster has the boys in its thrall. See you at the Convention.

MOORABBIN RADIO CLUB

The club's meeting nights are held at the clubrooms, Moorabbin Town Hall, on the first and third Fridays each month. The first Friday is usually just a "natter" night. What you forget to say on your QSO, you catch up with in person, so to speak!

Friday, 16th Nov., is the annual general meeting when the election of office-bearers for the ensuing year will take place. Final arrangements will be made at this meeting for the annual picnic to be held again at Mornington—this being such a successful location last year. Remember the date, Sunday, 9th December—day after the Olympic finale. Any enquiries contact 3JE, Deputising Sec., or 3XV, Treas. (UW 1472).

QUEENSLAND

BRISBANE AND DISTRICT

We have some really amazing news this month and as usual it is concerned with t.v. Shortly after TCN became active on Channel 9 in Sydney, Ian 4MO came by a t.v. rx for use in checking what Amateur signals did to the rx. As conditions on the "a.c. bands" were so good, he put up a stacked array on Channel 9, directed on Sydney. One Sunday night he had the "one-eyed monster" on Channel 9 and a picture began to form. At first Ian, who is in the medical profession, was of half a mind to reach for his thermometer to read his temp. and at the same time feel his pulse, when his little daughter arrived on the scene. "What do you see," he asked and, as though it was quite normal to see pictures on the "dancing," daughter replied, "I see three ladies dancing." As yet we have no confirmation from Sydney, but are pretty certain Ian has seen the first Inter-state reception of t.v. in Australia.

Our second slice of news is more important to prospective Amateurs. We are very pleased to announce that A.O.C.P. classes have again started in Brisbane. Some months ago a par appeared in "QTC" that a Morse instructor was wanted in Brisbane and Mrs. 4SA happened to see the item. "That's a job for you, Stan," she said, and after careful thought Stan decided to go one better. Instead of restricting classes to Morse he decided to give technical lectures. He made one stipulation, all those taking advantage of the chance to "swot up" for the A.O.C.P.

ticket would have to be members of the VK4 Division of the W.I.A. Not only will Stan's mighty nice gesture be a great help to budding Amateurs, but will be a greater help to our Limited A.O.C.P. boys. Please accept the grateful thanks of Council and members of the Division, Stan.

The general meetings are really something to see lately. We thought the wonderful attendance at the meeting when Tibby gave his lecture was interest in t.v. and the problems we could expect when it came to Brisbane, but meetings since then have been very heart-warming and they bring back memories of the early post-war days. Why, only a year ago, we had to reduce the number to constitute a quorum, and now we have packed meetings.

The monthly v.h.f. d.f. hunts have become such a popular affair and so well attended that they now conclude with a barbecue at the location of the hidden tx. One thing we do ask, gentlemen, if any of you can read smoke signals, please don't "home" on the fumes arising from the barbecue fire. A little bird told us that some characters have been getting a lot of d.f. practice in hopes of beating our "d.f. champ," John 4FP. The short trip to ZL would not be enough to make him lose his "master's touch" and besides, his Jag. can do 120 m.p.h. without any trouble. The barbecue will take a lot of work off the hands of Mrs. 4JO who always put on a nice supper after the hunters returned from the search.

Congratulations to Frank 9FN for the work he did in the rescue of Danny 9TW, on the "Yasme." The operation just goes to show how few stations listen before calling CQ. P.M.G. regulations state that you must listen on your frequency before you make a call, so what about it, gentlemen?

When twenty is open to Europe or America, it is pretty hopeless. A "W" on 15 mx was heard saying he was through with the "rat race" on twenty and was parked on 15 and 10 mx for good. Call CQ on 15 mx when the Europeans are coming in and you usually have more stations replying to you than you can handle. Ten has started to open to Europe and Africa every evening and is open to America almost all day. And yet the "rat race" continues on twenty, keeping it almost useless. The game is starting to populate fifteen and ten; one point in operating on fifteen and ten, if you don't hear anything on the bands, don't be discouraged, just call CQ and sit back and listen to the calls. While everyone calls CQ on twenty, the fifteen and ten mx bands are usually packed with stations listening and waiting to pounce.

MARYBOROUGH

4CB got his 60 ft. tower up at last, complete with electric motor. With legs set in concrete eight feet under the ground, it should be there for good. Arch is first going to put his 16 el. 2 mx beam on top, and possibly a 4 el. 10 mx beam later. 4AI rarely heard lately. 4BG's windmill tower still on the ground. Ron had a visit from 4HZ who proved with his grid dipper that 4BG's absorption wave meter was wrongly calibrated. 4TF also dropped in while on holidays. 4BG replacing ribbon line to beam with open-wire.

TOWNSVILLE

A very poor attendance was noted at the last monthly meeting, at which opportunity was taken to have a regular ragchew. Various bits and pieces were ordered to the club for auction by 4TQ and 4LR. As the Secretary, 4WH, was still in hospital, a club visit was arranged and the regular stalwarts turned up, which cheered Eddie very much. Since then he has had another operation; now totals three, and still unsuccessful. Better get a zipp fastener in Ed and save a lot of time and pain. All the boys are asking after you in the hook-ups and wishing you a speedy recovery.

Andy 4BW had thousandth QSO with 4ZM on 7 Mc. and now going for the second one. A visitor to writer's shack was Jim 2AKU; after a brief overseas Jim came to sunny North Queensland to top off a glorious vacation. A brief visit to Charta Towers enabled a look-see at Edmund 4GZ and Vern 4LK, but time did not allow a run out to Col 4CE. Vern is putting up 16 el. beam on 144 Mc.; determined, if sunspot activity allows, to work down south. Quite nice to see how the boys co-operated on 14130 Kc. and kept channel open while Danny 9TW was having a hectic time in the Coral Sea. Good work Frank 9FN on arranging rescue operations. Never hear 4SE on the air, must be still after the DX, or maybe has other pressing home chores to do; give me a call sometime! 4EJ trying out new stunt for G4ZU beam. 4RW's dural arrived for same, now finds that coil is being discarded and hairpin stubs in lieu means more dural. 4JH built an electronic keyer and very happy with same, but cannot be persuaded to build a replica.

SOUTH AUSTRALIA

Our September meeting was a gem! The lecturer being Ross Treharne, 5IQ, who extended himself, giving us the real low-down on radio's newest and smallest development—semi-conductors—or transistors to you. Many thanks Ross, your attention to detail, the diagrams, slides, and working exhibits provided many highlights, whilst your typical method of lecturing was enjoyed by all. Ross was ably supported by Ted 5TP. The impact these little wonders are likely to make on our hobby was thus amply demonstrated. All present were privileged to hear the outstanding discourse of the series.

A packed house enjoyed this experience and included visitors Messrs. C. Dorman, T. Keln, J. Sach, Maurice Phillips (5ZU), A. Richmond, J. R. Watts, C. Greaves (GAGTX), E. B. Colbach, J. A. Evans, Reg Whiting (3MZ) and R. (Jimmy) Asberh (LA6CF). Our Norwegian friend, who is /MM at present, was a scorer as a listener in VK-ZL contest so received his certificate personally from President John.

Whilst it was nice to see Reg 3MZ, we regret the circumstances of his visit and hope all is well by the time this is read. Ron 5FY and Burnie 5QW, both from 5WC, deserted the gibbers to pop in to the meeting and see us for a few days. Sitting near the back of the hall was a member in a blue uniform, we will call him VK590 (S.A.P.) who kept a fatherly eye on us and our behaviour, or perhaps he was watching Doc 5MD who was handling the slides; could be, for the hall lights were dimmed.

General business confirmed acceptance of W. H. John, Burnie Waight (5QW), and R. S. McKenzie (5KN) to full membership, and the following new Associates: J. L. Watts, M. J. Brunker, M. P. Bellmans, J. A. Evans, D. E. Taylor, and F. L. Choate. Congrats, chaps, hope you enjoy your membership with us.

Associate members are reminded of their status in that they are entitled to the full privileges of membership, which includes attending meetings and so on. Don't be shy, come along and enjoy the fellowship which benefits us all. Your representative on the Council, Norm Colman, is far from shy and he will make you very welcome. If you don't know him look for a "broad" shouldered type with evidence of good feeding, a hearty laugh and with a bundle of "application" papers permanently in his hand, he will take you in hand. Any associates who are eligible for full membership should make application to the Secretary for same, just write in—no forms to fill out for this—and give the details, call sign, etc., and Brian will do the rest.

By the time you read this it is hoped the classes will have started, the delay in doing so being the numbers required not forthcoming previously. It costs the Division about £150 to run the class which must be made up by the course fees, so if you are a possible starter, be in it to get the class under way.

There seems to be a rush for antenna towers these days; John 5KX has just finished his, Gordon 5KU has one to go up and a little bird tells me 5GM has just finished his. Looks like DX is going to get a hiding. Wal 8DF has a new interest, radio controlled model aircraft, fill up her tanks Wal and guide it this way—not a bad idea for a new method of conveying QSL cards, anyway.

RIVER DISTRICTS

A letter to hand from Fred 5MA tells of work undertaken by the gang at Renmark and environs. The river floods there caused such damage that it was feared normal communication would suffer, so they entered into the general emergency organisation and on obtaining a permit from P.M.G., set up gear to operate on the police frequency.

Hughie 5BC, Bob Pearce, and "Hobby" 5RE were involved in setting up gear on the "240" and also getting mobile gear going. Lance 5XL loaned a power supply. These fellows pooled their gear and had an emergency net operative—but fortunately not called upon. It is reported that the undertaking had the blessing of the Commissioner of Police, P.M.G. Department, the local Police, and the local Emergency Committee. Good work, fellows, such community spirit is commendable and will be a lesson to us all for the future. It was proposed that this Amateur net would operate alongside the R.I.T. and Army emergency nets also set up and in use.

SOUTH EASTERN AREA

The last meeting at Mount Gambler found Tom 5TW missing—batching it is believed—go easy on the tin opener, Tom! Claude 6CH not on much these days; he has been on v.h.z.

it is understood. Col 5CJ also that way inclined. Stewart 5MS hasn't cleared out all the bugs from his tx yet, but will get around to it soon. Speed it up Stewart, even for you it is thought some of the rare DX could be tempting.

Maybe it is the weather down there that has caused a lapse in activity—more air-conditioned shacks called for—because even Erg 5KU has done little but listening. The sailplane really must be interesting. Get the beam up again Erg and be in it, and make up the DX C.C. number. Leo 5ZAG is speeding up on morse, so we should hear him on the d.c. bands soon, keep it up Leo.

WESTERN AUSTRALIA

Owing to 6AG's absence from the city, the weekly broadcast was taken, during September, by 6LU and 6RU. Thanks Lou and Jim.

At the last Divisional meeting films were shown, including some technical ones and a very interesting record in colour of 6MK's recent trip to G land. Parts showing views of the Alps were particularly good.

Merv. 5AFO has been staying with his brother-in-law (6EA) and has been doing the rounds of Perth shacks. 2AYE has also been seen around town. He works /MM from the ship when in VK6 waters.

The Contest Committee is very pleased with the results of the R.D. Contest. Seven logs were submitted, claiming an average of over 830 points. A record score and also there were a record number of participants. 40 mx scramble results not yet to hand, at the time of writing these notes, but there was a good crowd on and conditions were good.

The bands are getting lively now, 40 and 80 mx producing DX as well as the higher frequencies. Ten mx is also showing more frequent DX openings, OQ5 and Gs having been worked from 6BE. Quite a bit of c.w. on this band, too. Reverting to 40 and 80 mx, Len 6LG has worked two ZSs on phone on the former and one on the latter band, using his half wave 160 mx antenna.

6LU has invested in a c.r.o. and has been making good use of it, resulting in a very nicely modulated signal on 15 mx. 6LP was heard here putting out a very f.b. S7 phone signal whilst he was in the Albany district working portable. 6EJ has had a bit of modulator trouble and is building a new one. Engine trouble too has kept him quiet lately, but he hopes to get things fixed up soon.

A recent listen around the 15 mx band showed the long path to Europe open during the afternoon. It was reported by ZLICI that W2PEO heard 6EJ peaking S8 during a series of skeeds with WTKB on 80 mx c.w. a few weeks ago.

TASMANIA

NORTHERN ZONE

Owing to the absence of Ken 7LX who has gone to VK4, the absence of Northern notes have been lacking, however I will endeavour to try and keep them going. Hope the weather is good Ken and the company genial. Ray 7RK is in strife with his power supply, heard that his power main fuses blew out, and investigating the sudden cause found that he had done in his power tranny. How's the new QTH coming on Max? Henry Solomon's XYL has been keeping his nose to the grindstone with re-decorating the interior; hope it won't put him off radio all together.

Had our old friend, Chris. Cullinan, over from VK3 on a spot of leave. During his stay he gave a very fine lecture on t.v. and what have you; most enjoyable Chris., and it was good to meet up with you again. Have two new members up in the North: 7ZCC (George Cransby) is at Bell Bay with the A.A.P.C., and 7MC from VK2. Welcome to you both. Hope to hear you on the air soon George and Bill. Things are too quiet with 7ZAW. What's cooking Perc? It's getting near the warm weather, so what about a signal or two? Our new associate, Charles Spiegler, is still studying hard so we will hear something soon we hope.—H.S.

NORTH WESTERN ZONE

It's good to know that our associates in this zone are receiving the necessary encouragement and help from the full members. A special effort will be made in this column to publicise their doings. After all, we hope they will be future OMs. Associate Max Ives has just started a course with Marconi School for his A.O.C.P. Good luck Max. How about that g.d.o. Max? So accurate you could use it for a freq. meter after the calibrating effort at Jim 7JO's place. Congrats to David Sloman on

his engagement some weeks ago. Would 888 be in order? I wonder? Another associate, John Lee, very busy on a rx and a freq. meter. I'd suggest you build your test gear first John, otherwise you'll never finish it properly.

George 7XL very industrious down the low end of the spectrum, with the construction of a tape recorder. I can't remember what the fly-wheel weighed, and the hole in the middle was full of, but what a lovely piece of white velvet or something it was wrapped in at the office. How's it going, George? 7½ to the bar probably. Ted 7EJ not on the air again yet since R.D. Contest, when he and George 7XL borrowed Jim's 7JO portable for a few contacts. Ted says the trouble is that there is a section of 600 ohm feed line shy between the antenna and the rig.

A visitor from Hobart recently, Edgar 7BY, on holidays, called in to see Jim 7JO at Devonport. Nick used to run a beeper in the old days—about 1w. Probably gone to high power now, say 2w. Long time no see Nick! Belated congrats to Bob Wilson on his limited ticket obtained recently. How about a V.h.f. Group in Burnie Bob? Leon 7JP at Queenstown wishes to retain his association with the North Western gang. Pleased to have you Leon. Minibeams and cubical quads seem to be all the rage now, Leon 7JP has one under way and our President, Jim 7JO, has cubical quads in the attic. Whoa! I mean under construction in the attic. Sorry Jim.

Ellis 7WA active on 15 mx. Had a few I calls lined up a few week-ends ago, but liking variety, went after an odd OH or two that happened along. Our Secretary, Sid 7SF, had a fine signal during a Sunday morning hook-up, heard early in October. Keep it going, Sid, or those cobwebs will grow again. The Emu Bay Railway Company has obtained the services of Chas 7CF. When last heard, Chas was considering a portable in the railcar.

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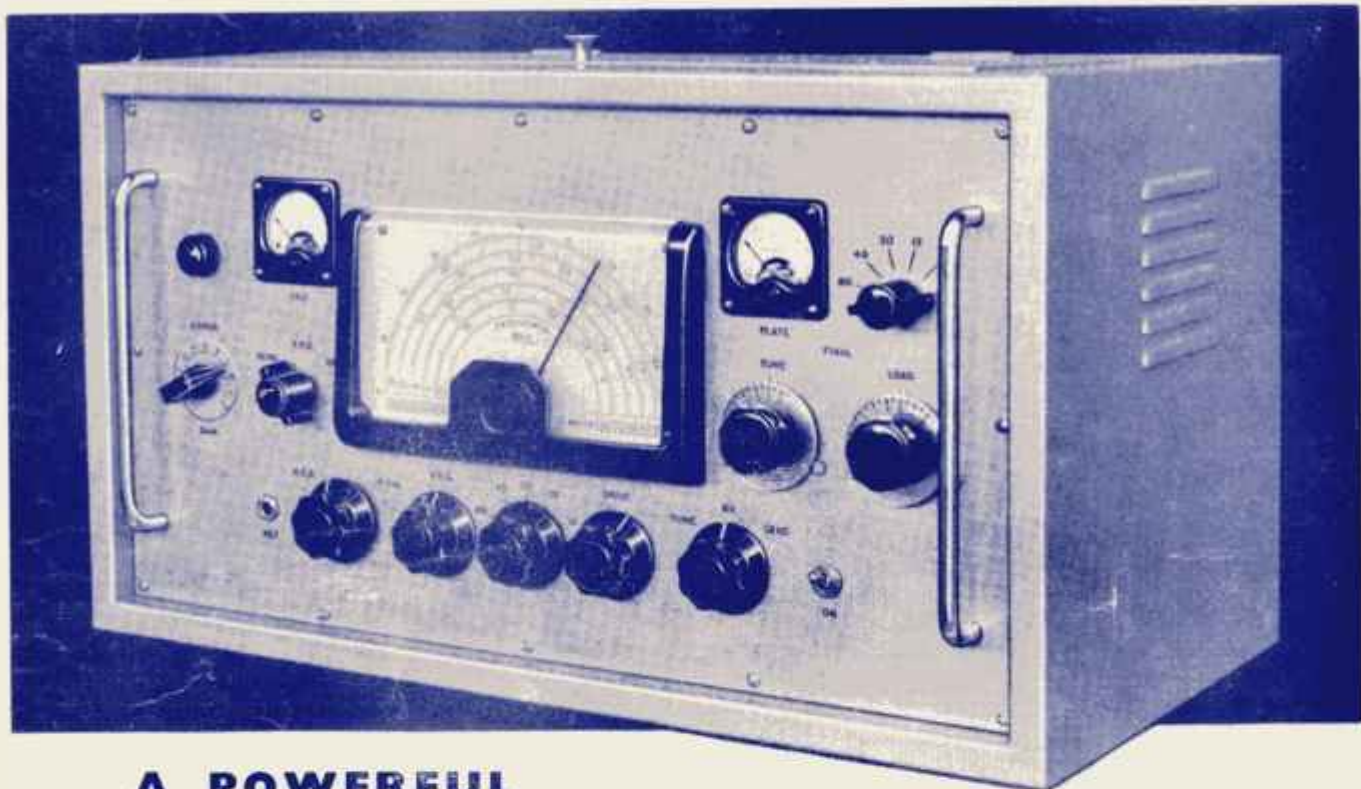
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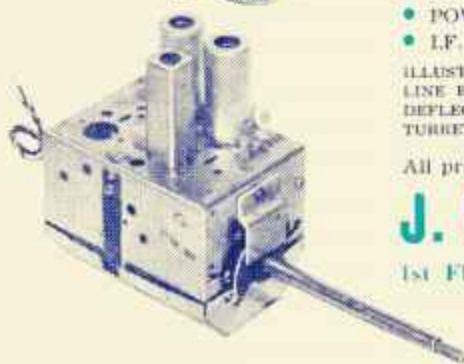
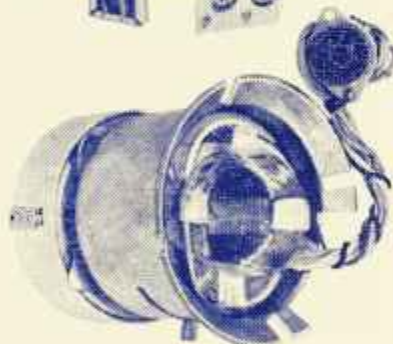


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All Amateurs are urged to keep these frequencies clear during, and for a period of 15 minutes after, the official Broadcasts.

VK2WI: Sundays, 1100 hours EST, 7146 Kc. and 2000 hours EST 58 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 145.25 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. 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 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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C.O.R. House, 191 Queen Street,
Melbourne, C.I.

EDITORIAL



AIMS OF THE INSTITUTE

To act as the voice of the Amateur in public discussions.

To assist in the investigation of communication problems.

To conduct educational work.

To provide a medium for exchange of ideas and to publish a journal.

To promote friendships between experimenters.

At this time of the year most people endeavour to convey to others, expressions of Christmas goodwill, and to show in a practical manner by the exchange of gifts, that friendship means something real and valuable to them.

The spirit of friendship has much to commend it at all times and the Radio Amateur knows that his attitude to his fellow Amateur is important in this respect, as friendship has always been part of the Amateur's code.

At this season of the year, it seems to us that we should ensure that our help and co-operation is extended more heartily and consistently than usual to others interested in Amateur Radio, and that we make special efforts to break down the natural shyness and reserve which often prevents us getting together.

Your Federal Executive suggests that you endeavour to carry the Christmas spirit to some young enthusiast in Radio, with the intention of assisting him to qualify as the holder of an experimental licence.

No doubt many of our members already do assist others in this way, but there are plenty of young people who would be cheered and helped by a little practical assistance and advice.

Christmas offers a suitable opportunity for us to visit other Amateurs, especially establishing friendly relations with our near neighbours as well as forming lasting friendships with other Divisional members.

For those who are shy types and find it difficult to form new friendships, this time of the year makes new contacts easy. Everyone is more easily approached at Christmas and the general spirit of friendliness makes these contacts simple and effective.

We have been reading through some old copies of "QST" (1928 vintage) and find that the prevailing spirit of those days was "real and practical friendship." Perhaps that is why some of our overseas Amateur Radio associations have grown and developed to the strength they enjoy today.

Your Federal Executive desires to extend sincere thanks to all those who have assisted in the administration and development of the Wireless Institute of Australia and to express the wish on behalf of the Federal Council that Christmas will be a season of goodwill indeed and that the New Year will be a happy one for you and yours.

FEDERAL EXECUTIVE

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ANOTHER TWO-METRE CONVERTER

BY R. M. WINCH,* VK2OA

YES! Another 2 metre converter using the same old tubes and the same old cascode circuit with the same old overtone oscillator and multiplier. Well, why all the hullabaloo and fuss? The answer is in the way it is put together!

If you have read the results of sundry fox hunts, hidden transmitter hunts, etc., which have taken place in VK2 land you may (?) have gained the impression that VK2OA is one of the top line boys on 2 metres in Sydney. This shows just how wrong you can be. Chasing signals down a back road of Killara and chasing paradiddles down the screen circuit of a 6AK5—ahah! there you have two entirely different set-ups. VK2OA can (and has) run into every bit as much strife with 2 metre gear as was ever visualised by VK2QZ ("A.R." Aug. '55) and VK5EF ("A.R." June '56). For months, his pet 2 metre converter had a noise figure which only occasion-

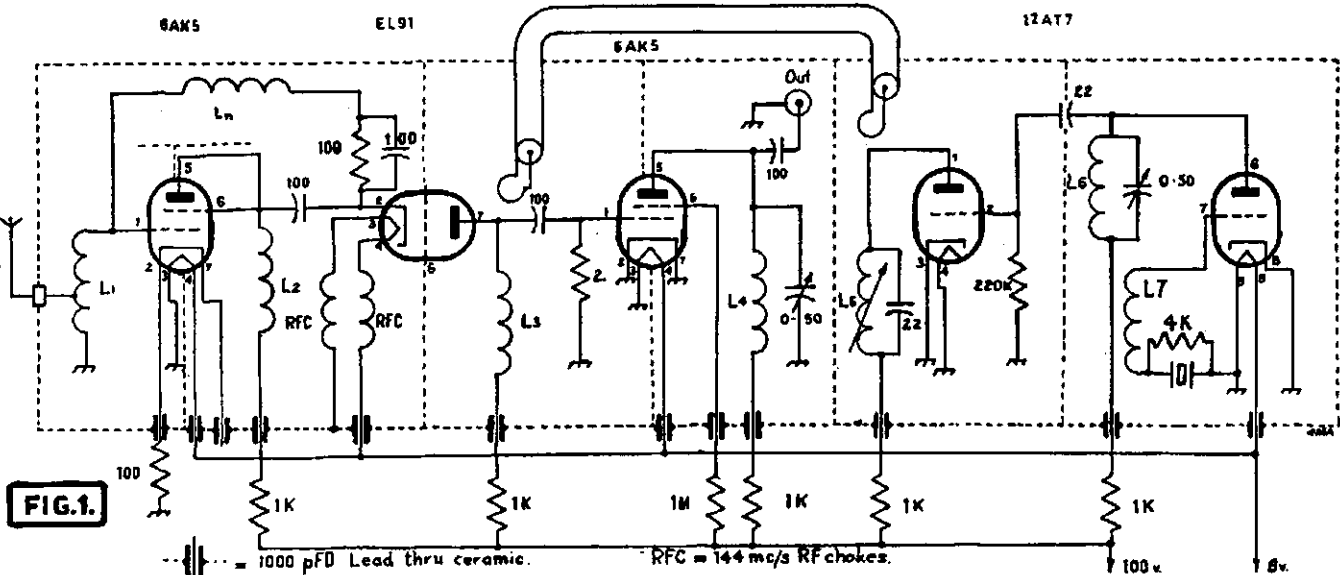
ally dropped below 20 db. so that when he finally built a new converter which came up, first go, with a noise figure of 5 db., there must be something worth talking about, don't you think?

with each other. The technical bods refer to this sort of thing as r.f. coupling of some form or other. The straightout mutual inductive kind we lick with shielding, generally the more the better. Now, straightout mutual inductive coupling can be a menace, but at least we can see it. With one coil here and another coil there, we can visualise the lines of force reaching out from coil to coil and we can see what a beautiful job the shield does in foiling their dirty designs. But what you can see is only half the story!

Nevertheless, with modern high-gain tubes they are a must, irrespective of what frequency we are using. The catch is that the difficulty of accomplishment is proportional to the frequency we are using. ($\frac{1}{2}$ " at 80 metres equals Struth! I can't get the iron in.) However, if you are willing to change your conventional constructional ideas a little you will find the problem is softened up somewhat.

PRACTICAL APPROACH

Too long have we followed the old idea of putting all the valves, transformers and other bulky items on top of the chassis and all the wiring, resistors, capacitors and other small items underneath. Why not divide our leads and components into "hot" and "cold" categories? Then, if we put one lot on one side of the chassis and the other lot on the other side of the chassis, we have automatically shielded them from



TECHNICAL REASONING

In every piece of r.f. apparatus there is both "hot" and "cold" leads and components. Circuitwise, that is OK, but when it comes to construction some very nasty little problems rear their ugly heads. Obviously, we want to get the "hot" bits as hot as we can; you know, lo-loss, hi-Q sort of thing. That is what the handbook means when it talks about ceramic valve sockets, air supported coils wound of heavy wire of an optimum form factor and not too close to surrounding metal, etc.

Also, we do not want different families of "hot" leads getting mixed up

0.1 uF. paper capacitor to a spot on the chassis two feet six inches away from the cathode. ($\frac{1}{2}$ " at 2 metres equals 2' 6" at 80 metres.) Rocks you, doesn't it?

By now, you should be at the stage where you will readily believe that we want our "cold" leads and components so cold that they have icicles on them and they should be like that all over. (Who said take it up to the top of Mt. Kosciusko?). From the foregoing it will be seen that we should treat each cold lead and component in the following manner:—

- Completely shield it from all hot leads and components so that no r.f. can be induced into it, either inductively or capacitively, and
- Where the cold lead joins a hot component, completely by-pass the junction to ground.

These sound to be very stringent requirements which we have to fill.

other other. That has fixed up requirement (a).

Now we come to requirement (b). Suppose we consider the lead from the cold end of the plate coil which we want to by-pass and then take through the chassis to h.t. Our normal way of looking at by-passing is by providing an easier path for the r.f. to get to ground. The way we should look at it is that the r.f. potential at the by-passed point is proportional to the impedance between that point and ground. Note the use of "impedance" instead of "capacitive reactance." Again, this "cold" lead still has to get from the by-passed point to the hole in the chassis and on its way it can have r.f. induced into it. OK! Then we want a by-pass capacitor with no impedance and the by-passed point wants to be right at the hole in the chassis.

That certainly is a tough assignment, but we can get full marks for the sec-

* 38 Boundary Street, Parramatta, N.S.W.

ond part and score pretty highly for the first part if we use ceramic lead-through capacitors to do our by-passing. These little dinguses have been in existence for a fair while, but they seem to be not so well known as they should be. Briefly, they consist of a ceramic tube plated inside and outside. Through the centre is a lead connected to the inside coating and sticking out both-ends. The outside coating is connected to some form of mounting so that the capacitor can be mounted in a hole in the chassis with one half of the centre conductor on each side of the chassis. Since the outside electrode becomes an integral part of the chassis the overall impedance between the centre and ground is virtually the reactance of the capacitance only.

They can be placed around the valve socket so that the screen, cathode and filament connections of the socket can be connected to them with the minimum of lead length. The supply leads, of course, being connected to the other end of the centre conductor which is on the cold side of the chassis. (The cold end of the plate coil is supported by one also.) These capacitors are currently available from VK5EF's friend, they hold 1000 pooffs and they can stand more jolts than you can. And they compare in price with the Aspros VK5EF consumed.

PRACTICAL APPLICATION

Now that you have the meat of the story here are some pretty pictures. Fig. 1 shows the circuit of the converter drawn in a fashion which illustrates how the two categories—"hot" and "cold"—are kept apart. Fig. 2 shows the layout on the hot side of the chassis. The cold side is not shown as it is not in the least bit critical. The original converter was built long and narrow only because it had to fit into a given space in a mobile rig. The chassis and partitions were made from twelve "thou" shim brass bent up with pliers and soldered together. The chassis itself was bent up and soldered first. The socket holes were then punched and the sockets mounted. After that the partitions were shaped and soldered into place, and finally the holes for the lead-through capacitors were made. Of course, if you are a blacksmith you can use heavy gauge brass, but it is surprising just how rigid the shim is.

The circuit is straightforward and has appeared in many publications over the last five years or so. The EC91 was chosen for the grounded grid stage because it gave a better layout than the conventional 6J6 or 12AT7. There may be some argument about the use of the pentode mixer, but some research (into

"QST" and the like) seemed to sum up that if the cascode is doing its job properly the difference in noise between a triode and a pentode mixer does not mean much and the pentode is not so critical of oscillator injection voltage.

The overtone oscillator circuit used as chosen for its ease of adjustment. The plate circuit of the multiplier section is shown as being slug tuned (brass slug!). This could equally well have been capacitively tuned. The deciding factor in this case was the availability of a nice ceramic former already slugged and the non-availability of a suitable small sized variable capacitor. Which ever way it is done it should not be too broad in its response. Any r.f. at other than the desired harmonic appearing in this coil will get on to the mixer grid and cause some extra noise without causing some extra signal. The link from this coil to the mixer grid coil was made from a single piece of co-axial cable. The outside, braid and inside were stripped to leave enough of the inner conductor to form a single turn loop.

A hole was bored in the chassis, the co-ax pushed through from the top, the braid soldered to the chassis, then the piece of inner conductor bent round to form a single turn and the end soldered to the end of the braid. The single turn is closely coupled to the cold end of the coil.

GETTING IT GOING

This is where you re-read the articles written by those two blokes whose names were mentioned earlier, say to yourself, "They don't scare me—I think," get out the g.d.o. and start some serious work. In addition to the g.d.o. you will want twice as much coil wire as you estimated and a thin stick which has a small brass slug mounted on one end and an iron dust slug on the other end. (Once upon a time when we wound our own broadcast coils, this dingus was known as a "tuning wand." Remember?)

L1, L2, and L3 could start off at four turns, $\frac{3}{8}$ " diameter, spread out a fair bit and with L1 tapped one-third the way up. L_n could be made about 13 turns, $\frac{1}{4}$ " diameter and almost close wound. L4, L5, L6 and L7—well, you're on your own there, chum. The size of these will be determined by the crystal frequency.

Just to save all argument, let's assume that the crystal frequency is 8500 Kc. Three times that is 25.5 Mc. (that is where L6/7 has to go) and—let's see—five times that is 127.5 Mc. (L5) which gives 16.5 to 20.5 Mc. out, so straight-away you can play around with L4 until it hits approximately 17-17.5 Mc. This done, forget it and turn to L6. Wind eleven coils of different sizes and pick

the one that resonates at 25.5 Mc. with approximately 35 pF. across it (wired into the circuit and with the valves plugged in, of course). Incidentally, a good former for this coil is a piece of the polythene out of co-ax cable.

Now carefully remove L6 from the chassis and wrap a small piece of paper around the cold end of the former. On the paper wind L7 with approximately one-third the number of turns in L6. Fasten the turns of L7 down—not with chewing gum—and make sure that it will slide up and down so that the coupling can be varied. Now put it back and wire it in. Better check that L6 still hits 25.5 Mc.!

Apply the h.t. on it and see what happens. By tuning the plate circuit it should be possible to make the stage oscillate. If no oscillation occurs at any setting of the plate tuning check the following: L7 either wound or connected back-to-front, insufficient coupling between L6 and L7, L7 too small.

With oscillation occurring over a wide range of plate tuning, decrease the coupling a little bit at a time until the stage oscillates over only one small portion of the plate tuning. Now listen on 25.5 Mc. for that nice clean crystal note and make sure that there is nothing else.

Got that all fixed up? Good! You're halfway. Laddie, you've made an overtone oscillator work and you may now go out and crow over those uninformed 80 metre types that inhabit your town. They'll only look at you with pity, but take no notice.

Come back and put the g.d.o. over L1, L2 and L3. Squeeze, push, pull, stretch or whatever is necessary to make them resonate at 144.5 Mc. and then use the same procedure to make L5 resonant at 127.5 Mc. (Don't forget your crystal won't be 8500, so for 25.5 and 127.5 Mc. read the appropriate multiplications of your crystal.) While you have been doing this, you will have noticed that L2 has a very broad response. Don't worry, that is how they all are.

Now comes the big moment! Make sure that the 2 metre beam is connected to the converter and that the converter is connected to the receiver, which is switched to the right frequency range, and that the speaker is connected. (You would be amazed just how essential it is to do all those things.) Hit the big switch and as soon as it has warmed up, tune over the band, starting at 144 Mc. What? No signals? Of course there isn't. It is Saturday night and they have all gone to the pictures. Never mind, they'll be there tomorrow night.

(Continued on Page 7)

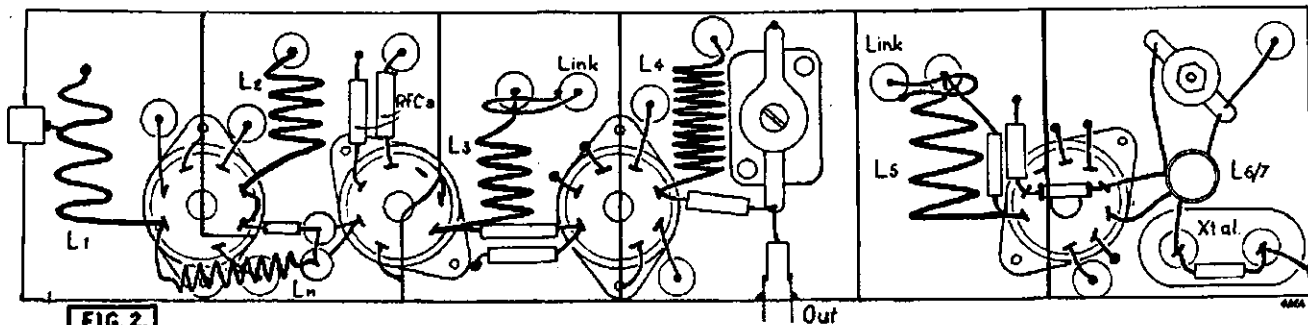


FIG. 2.

ZEPHYR MICROPHONES

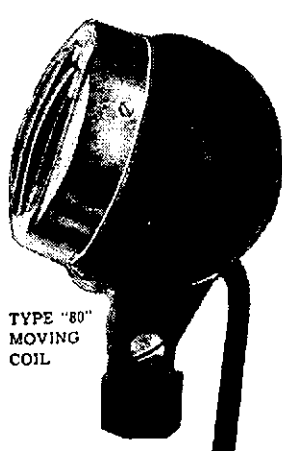


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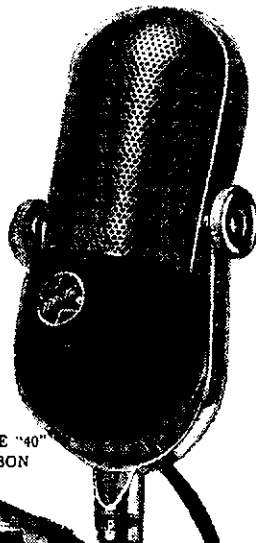


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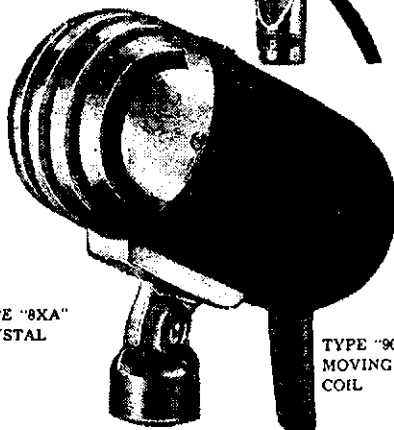


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Nullabor Plains Expedition, '56-7

BY G. M. BOWEN,* VK5XU

THE Expedition is being run in conjunction with the first National Conference of Australian Speleologists (cave explorers to the uninitiated) and constitutes one of the major scientific expeditions in this field undertaken in Australia. It aims to acquire data on this remote area in the west of South Australia which hitherto it has not been possible to obtain because of its inaccessibility and the inhospitable nature of the terrain.

Most Australian States now have a group of enthusiasts who are devoted to the exploration of caves and the Conference, which precedes the Expedition, is being held in order to inaugurate a National Federation of Australian Speleologists. This is to be held at Pamanga, near Christies Beach, some 20 miles south of Adelaide, from 26th to 28th December, 1956.

At 0400 hours, on the 29th, approximately 60 members, from three States, will set out for the Nullabor Plains under the leadership of the S.A. Cave Exploration Group (Elery Hamilton-Smith, President). They will travel in trucks, each vehicle being fully equipped with material for exploring the caves and carrying its own food, water and fuel. Ceduna will be the dispersal location where final details will be arranged and water taken aboard for the 10 days in the field. The trucks will disperse over the Nullabor Plains forming the apexes of a triangle some 100 miles apart, operating in areas far removed from civilization.

Contact between each party and the Headquarters vehicle will be by radio communication as each truck will be equipped with mobile transceivers. These will operate on the 5 Mc. and 8 Mc. frequencies allocated to the Bush Church Aid Society at their Ceduna base. George Cameron (VK5EC) is in charge of the radio network in that area. Each vehicle will also be able to contact Ceduna direct in any case of emergency.

As organiser of that side of the expedition, I shall naturally be carrying equipment capable of operating on the Amateur bands and whenever possible—as power permits, usually in these cases—will be on the air looking for contacts.

The question is bound to be asked by someone—"What is the value of such an excursion." Well, although the cost is approximately £25 per person (and paid by them too!), very little is known of this unique area except that it is a large limestone plateau rising some 500 feet above sea-level, and in places above the surrounding country another 200 feet. It is not perfectly horizontal, having a marked slope from west to east. Propagation of medium frequency radio waves by ground wave is negligible because of the very poor conductivity of the earth (compare the S.E. of South Australia) and some trouble is anticipated on the 2020 Kc. frequency unless dipoles or counterpoises are used.

Many caves occur in the area. Some of them have amazingly large single chambers with ceilings reaching 250 feet. Others penetrate to the water table nearly 300 feet below the surface and provide large areas of deep lakes which can be navigated in dinghies. The mineral content of much of this water is too high for human use—except externally; and summer being what it is, and the temperatures on the Nullabor Plains running usually over the century, I guess that any water will be acceptable, even though I have been told that its normal temperature is just above 65 degrees—"shiver-me-timbers."

Scientists in every branch will be making their studies of the rock formations and origins of the caves will be "meat" for the geologists; physicists will plot air temperatures and movement within the caves; zoologists, animal life on and below the plains; botanists, plant life; anthropologists will be looking for signs of native occupation and relics of earlier periods; surveyors will accurately map the caves and their exact positions will be determined; photographers will gather valuable records of everything that is worth photographing.

And what will yours truly be doing? Well, that's a secret even to him yet, but he'll let you know if and/or when he returns! So keep listening, chaps.

The W.I.A. is in this up to its neck, by heck!

AMATEUR CALL SIGNS

FOR MONTH OF SEPTEMBER, 1956

NEW CALL SIGNS

- New South Wales
 2AE—L. E. Harris, 26 Park Ave., Wattle.
 2QH—H. D. Howe, 25 Maroubra Bay Rd., Page-wood.
- Victoria
 3ZD1—E. J. Crisp, 69 Northcliffe Av., Edithvale.
 3ZDK—K. J. McLachlan, Shingler St., Leon-gatha.
 3ZDM—R. J. Beames, 502 Ligar St., Ballarat.
 3ZDR—R. H. Chapman, 15 Corona St., North Balwyn.
 3ZEB—S. J. Beaton, 101 McKinnon Rd., Mc-Kinnon.
- Queensland
 4B1—J. Birmingham, 103 Kerry Rd., Coopers Plains.
 4DP—D. M. Portley (Dr.), 36 Oxlade Drive, New Farm, Brisbane.
 4HF—C. H. Foley, 2 John St., West End, Towns-ville.
 4RR—K. W. Beale, 2 Duncan St., Hill End, Brisbane.
 4WR—R. F. Woolley, 12 Kennedy St., Aeroglen, Cairns.
 4ZW—B. Whitmee, 104 Cairns St., Cairns.
 4ZAH—B. P. Ward, 11 Melville Ter., Wynnum.
- South Australia
 5TK—G. P. Tuck, 57 Cowra St., Mile End.
 5WH—W. H. John, 14 Shirley Ave., Woodville West.
- Western Australia
 6ZAO—R. G. Smith, Waterloo.
- Tasmania
 7BT—T. G. Barnes, "Cotteswold," Main Rd., Tarooona.
- Territories
 0AA—W. J. Stewart, Antarctica.
 9AJ—E. L. Lerpiniere, Direction Island, Cocos.
- CHANGES OF ADDRESS
 New South Wales
 2MU—L. J. Case, 29 Faraday St., Padstow.
 2OZ—W. E. Dixon, Mann St., Glenbrook.
 2Q1—C. Bowler, M.V. "Century," C/o. 25 Castle St., Randwick.

- 2XN—W. E. Gibbings, 52 Churchill Ave., Strath-field.
 2AGN—G. E. Nixon-Smith, "Banyandah," R.M.B. 288, via Bathurst.
 2ZAR—R. A. Ridgley, 77 Garfield St., Five Dock.
 2ZAT—J. Wakefield, 5 Oakes Ave., Eastwood.
- Victoria
 3LC—A. W. Chandler, 1013 High St., Armadale.
 3NJ—K. H. Meallin, 35 Peterleigh Gr., Essendon.
 3QL—S. H. Le Breton, 19 Butcher St., St. Arna-ud, Buxton.
 3AMU—A. M. Upton, Cambridge St., South Belgrave.
 3APC—Moorabbin & District Radio Club, C/o. J. Keenes, 73 Daly St., Bentleigh.
 3ASC—S. T. Clark, 68 Jensen Rd., East Preston.
 3ZCP—A. D. Pridgeman, Nepean Highway, Drom-ana.
- Queensland
 4KG—K. J. Briggs, C/o. H. West, 10 Watson St., Wilston Heights, Brisbane.
 4RB—R. J. Browne, 2 Garden Gr., Dorrington.
 4TD—T. A. Dale, 84 Prince St., Annerley, Bris-bane.
- South Australia
 5BM—A. R. Matthews, 16 Gurr St., Goodwood Park.
 5DR—A. W. Winter, Murray St., Kingscote.
 5ON—C. J. Othens, 82 Main Road, Blackwood Park.
 5UF—R. Fenwick, C/o. 5AU, Box 207, Port Augusta.
 5UW—K. E. Wilson, 5 Reading Rd., Clearview.
- Western Australia
 6AH—A. S. Hill, New Springs Station, via Wiluna.
 6QO—F. R. Gray, 128 Flinders St., Mt. Haw-thorn.

CANCELLED CALL SIGNS

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 2ZBE—R. C. Proust.
 2ZBL—W. S. Lane.
- Victoria
 3VD—C. M. Burnett.
 3VW—G. Stoble.
 3ARI—R. M. Tutton.
 3AUM—A. M. Upton.
- Queensland
 4JC—J. M. Cohoe.
- South Australia
 5ME—S. G. McLean.
 5OP—K. N. Theel.
 5ZAT—G. P. Tuck. Now VK5TK.
 5ZAY—G. P. Yelland.
 5ZBJ—W. H. John. Now VK5WH.
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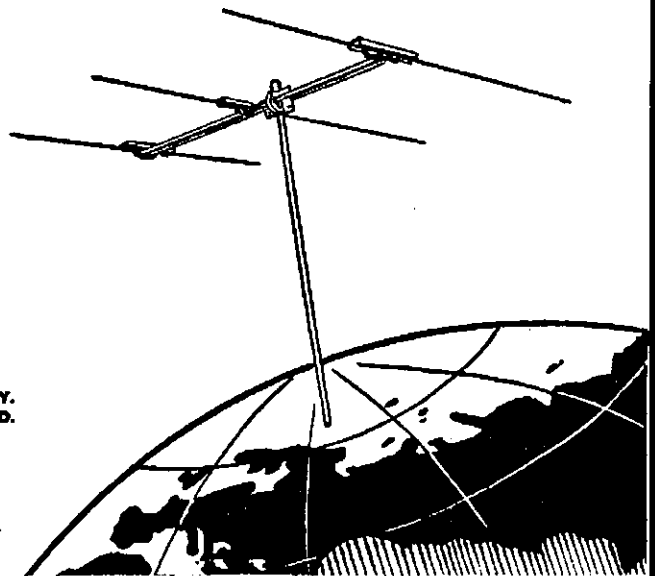
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CLAMP TUBE MODULATION

BY L. F. BRICE,* VK5OK

Do you want to go on "fone"? Then here is a modulator that will get you there quickly and cheaply without any fiddling. This should appeal to the new Amateur who, perhaps, has not yet acquired a modulation transformer and the other necessary bits and pieces needed for plate and screen modulation. It might even appeal to some of the c.w. boys who would like a good old "fone" ragchew (although they probably would never admit it).

With a few condensers and resistors, a couple of tubes, a little time and you are on the air.

This modulator offers the following: (1) cheapness, (2) simplicity, (3) will modulate any power, (4) suitable for mobile and portable rigs, and (5) excellent quality (hard to pick from plate modulation).

* 21 Hampton Street, Brooklyn Park, South Aus.

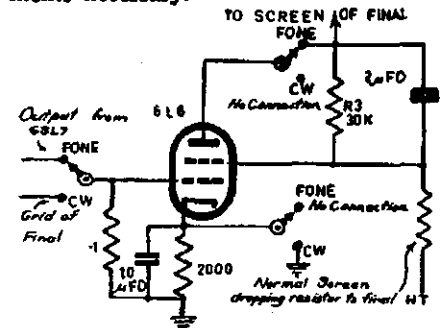
It has one disadvantage (but the importance attached to this rests with the individual). Being an efficiency type of modulation a certain amount of power is lost when the carrier is modulated. The input to the final drops by approximately one-third when the carrier is modulated. Tests have been conducted and this drop in input power represents a drop of $\frac{1}{2}$ S point in signal strength.

Unlike other forms of Clamp Tube Modulation, the carrier remains constant when modulated and the usual carrier surge in sympathy with the audio is not seen on the S meter of a receiver.

A point to note! Should the clamping tube to be modulated serve as a protective tube on the final in an existing rig, it will cease to function in this manner when used as the modulator, therefore it may be wise to have some other form of protective bias should the grid drive fail.

Operating: The transmitter should be tuned and loaded for c.w. conditions.

Switch to modulation (input to final will drop by approximately one-third; this can be adjusted by varying the value of R3). No further tuning adjustments necessary.



With audio applied to the grid of the clamp tube, no change in final plate current should occur before 100 per cent. modulation is obtained.

Tests should be conducted to find the optimum setting of the audio gain control.

No difficulty should be experienced with this modulator and it can almost be guaranteed that you will have a "fone" signal on the air first try should you decide to give it a go.

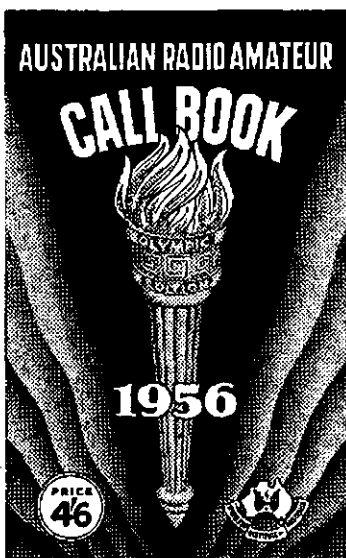
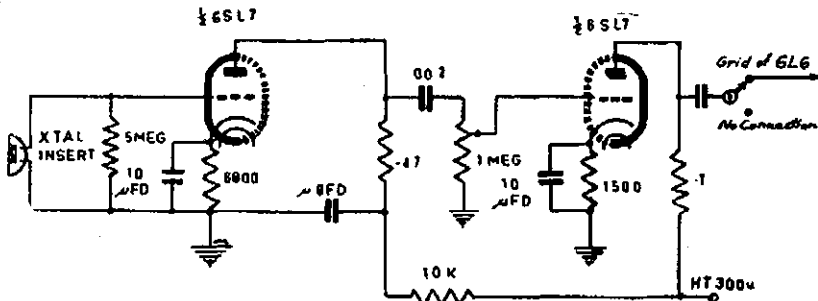
ANOTHER 2-MX CONVERTER

(Continued from Page 3)

Anyhow, here is what you do tomorrow night. Tune in a medium strength signal (no more than 20 db. over 9) and check L1, L2 and L3 with the tuning wand. Gently approach each coil from the end with each slug in turn. If the signal goes up as the brass slug comes nearer, then the coil is too big. If, however, it is the iron slug that gives you another S-point, the coil is too small. Fix it. It is better to do one coil at a time and start with L3, then L1 and leave L2 to the last. Then have a go at L5. When you have the coils right, either slug will cause a decrease in signal strength.

Now find one of the real hefty signals and adjust Ln. It is best to pick one of the ear-bashers for this adjustment. Disconnect the supply to the filament of the first valve and, using the tuning wand, adjust Ln until the signal recedes into the murky distance. The adjustments of L1 and Ln may interlock, likewise L5 and L3, so it's as well to check back and forth on them. Right! Reconnect the filament supply and start listening. You'll hear them—if your beam works—and your location is alright—and there's one!

After about a month's use you will get to the stage where you will think, "She's not bad, but I wonder if I can do a bit better?" This is the stage where you cultivate one of the boys who owns a noise generator. You keep at him until he lends it to you and then you do the whole tuning procedure again, including adjusting the aerial tap and the amount of oscillator injection until the noise figure is as low as you can get it. If it is worse than 5 db. then I've wasted my time; if it is better than 5 db.—well, how's about dropping round and having a go at mine, pal? Cheers, CU on 80!



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- One thousand additions, alterations and deletions since last edition, making over two thousand amendments since the 1954 edition.
- DX Countries, Prefixes and their Zones.

1956 REMEMBRANCE DAY CONTEST RESULTS

CONGRATULATIONS TO WEST AUST.

Last year I referred to the extremely high scores from contestants and commented that it seemed that saturation had been reached. With the VK6 Division winning the trophy for the third time, it is necessary to amend that statement, for their final score this year has reached the highest ever yet attained. Magnificent operating by the top six scorers and the outstanding entry of other logs has shown that careful organisation beforehand can be the deciding factor in winning the trophy.

The colossal score turned in by VK3ATN merits your special attention and congratulations.

The scores of the States were fairly well separated this year, much to the relief of the Committee because each year the entry grows larger. My thanks on your behalf go to the VK5 Division Secretary, Brian Austin (VK5CA), who is not a member of the Committee, but who has hardly missed a session over the past two months; to the new Contest Manager, Rex Richards (VK5DO), for his organising ability and patience during the marathon task of checking; the other members of the Committee, Reg 5RR, Les 5LC and Reg 5QR; and last but far from least, those impressed stalwarts 5PM, 5RG, 5HQ, 5KX, 5KO and 5OR.

As we ran out of midnight oil last year, we had to exist on the calories and fluid provided by our long suffering but good hearted wives.

Since postal arrangements were uncertain, no log was disqualified for late arrival; in point of fact this year seems to be the lowest yet, but the Committee was sorely tried in some cases where scores had not been added and in one instance points had not even been allotted for the contacts! In future no quarter will be given for incorrect logs; this Contest has been going too long for contestants not to know how to fill in their logs.

There were some funny incidents during the 24 hours. Les VK5UX working from my QTH and calling "VK5XU log VK5UX"—one poor VK4 wondered whether he was "contest happy"; a prominent Ballarat v.h.f. Ham who was having fun just prior to the opening trying to get drive to an 807 and loading it into a 68 footer with the far end in the mud!; Bill, VK6DX, who worked all night, so he thought, until he looked at his log and found a couple of hours missing.

One sad incident occurred when one of my friends called a certain VK3 Amateur and was treated to a homily on how stupid the whole Contest was and how he didn't care whether it was a Memorial or not, blah! blah!! blah!!! I just wondered where his Amateur Radio hobby would have been if those who died for him hadn't answered the call and made the supreme sacrifice. As I felt ashamed that a fellow Amateur could so lower his dignity to make such statements for all to hear (and that included the general public), I am afraid that he was on my calling frequency! I apologised to my friend later.

Propagation conditions were almost ideal for the period and all bands were well populated. VK6, with its greater distances, had the edge on the other States as all bands were easy to work to the Eastern States. An interesting feature to the Committee was the total contacts made by each Division (as per logs) and the average on the basis of 1 point per contact. These figures were particularly interesting and could form the basis for a modification of the scoring system.

There is no doubt that the Contest is becoming more popular each year and I would remind you all that it is for a memorial to those who died that we do contest with each other. Please do not at any time let your striving for place-getting banish from your thoughts that selflessness and honour are the keystones of our grand hobby. For be ye well assured—

*"By your acts of grace
So shall they live."*

G. M. Bowen, Chairman, Contest Committee.

STATE SCORES

Western Australia		Australia	
VK6FD	963	Average	881
6RU	944	Licenseses	206
6HK	804	Logs	97
6MK	870		
6TH	848	Total Points	1296
6DX	759		

South Australia			
VK5EN	922	Average	812
5RG	890	Licenseses	383
5WO	881	Logs	83
5JN	786		
5GW	752	Total Points	988
5MG	641		

New South Wales			
VK2AMR	841	Average	719
2AHH	808	Licenseses	1112
2RS	803	Logs	54
1PM	782		
2BO	569	Total Points	755
2PN	509		

Tasmania			
VK7AI	682	Average	552
7LJ	597	Licenseses	124
7BR	532	Logs	41
7DR	519		
7AB	512	Total Points	734
7YY	467		

Victoria			
VK3ATN	1147	Average	671
3ADW	804	Licenseses	1056
3HG	623	Logs	73
3ALZ	518		
3DQ	508	Total Points	717
3ZU	426		

New Guinea			
VK9DB	959	Average	437
9XK	480	Licenseses	38
9FN	454	Logs	5
9WK	184	Total Points	495
9OQ	109		

Queensland			
VK4CC	840	Average	447
4NT	529	Licenseses	335
4MO	447	Logs	35
4DI	302		
4JF	283	Total Points	493
4OV	278		

Antarctica			
VK1IJ	978		
IGA	12		

AWARDS

Open			
VK1IJ	978		
2AHH	808		
3ATN	1147		
4CC	840		
5RG	890		
6RU	944		
7LJ	597		
9XK	480		
2RS*	803		

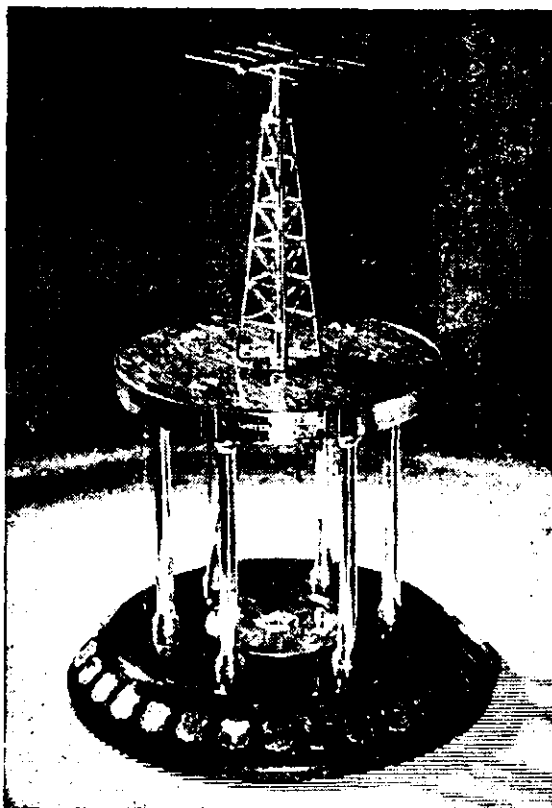
* Special Award.

Phone			
VK2AMR	841		
3ZU	426		
4MO	447		
5EN	922		
6MK	870		
7AI	682		
9DB	959		

C.w.			
VK2GW	436		
3AHH	320		
4DI	302		
5MD	269		
5TL*	95		
6EZ	145		
7CH	399		

* Northern Territory.

Listeners			
A. Stebbing	392		



Remembrance Day Trophy won by West. Australia

OTHER LOGS

NEW SOUTH WALES

VK2XQ 503	VK2AHI 135	VK2WT 62
2EL 429	2ZS 113	2VN 58
2AWN 429	2ANO 113	2AHT 56
2QL 428	2AGJ 112	2AJY 49
2JS 398	2APQ 111	2SJ 49
2APP 338	2ANU 106	2UC 49
2AHP 293	2QZ 92	2ADL 44
2ARV 250	2PL 83	2ADZ 43
2JR 234	2ACD 77	2AIC 38
2GT 222	2AVJ 75	2AWQ 36
2AIQ 220	2BA 75	2AOR 28
2AKV 211	2AAJ 74	2YC 23
2ABE 208	2EG 67	2HZ 17
2AJQ 165	2AFA 67	2AWX 15
2ADT 151	2PV 65	2CS 14
2AJL 147		2EO/P 10

Rejected Logs

VK2JY—No contact times shown.
2EN—No "sent" serial number.
2AC1—No serial numbers.

VICTORIA

VK3IB 408	VK3YS 167	VK3CX 56
3AIT 400	3ARL 164	3AYM 54
3AGD 391	3PR 160	3AKW 50
3ADV 381	3JC 157	3DY 45
3ZA 368	3AFF 154	3II 41
3TG 352	3DW 152	3OH 38
3HE 312	3SM 148	3ARM 31
3FY 312	3IC 141	3ZZ 31
3KB 289	3RJ 139	3PG 31
3ZO 286	3ADU 131	3AFP 29
3VF 262	3ABT 99	3ARV 29
3KC 258	3AFJ 96	3UM 29
3ANO 240	3XH 95	3OP 22
3AEP 239	3HL 93	3ASE 21
3DU 227	3GZ 89	3AWZ 21
3AJG 200	3KU 79	3XJ 20
3KR 197	3KB 78	3LV 18
3ARJ 196	3AXU 73	3JO 18
3NN 192	3GE 71	3TI 17
3YQ 186	3AXW 70	3ALD 14
3ATK 180	3WY 70	3ZS 14
3ZM 169	3AIM 69	3OJ 10
	3AZR 68	

Check Log: VK3JE.

QUEENSLAND

VK4DK 183	VK4CN 71	VK4EC 22
4HH 180	4KK 51	4BG 20
4JE 145	4PW 50	4LR 18
4VS 145	4XJ 48	4AF 15
4NU 140	4JR 47	4ZM 13
4HR 93	4GG 37	4XL 12
4ZP 90	4LE 35	4ZZ 9
4OR 82	4EA 32	4XY 8
4HZ 81	4RW 24	4PR 8
4TF 74		4PA 7

Check Log: VK4BW.

SOUTH AUSTRALIA

VK5AB 582	VK5KM 314	VK5LC 224
5AP 408	5JT 314	5FP 221
5FY 408	5BG 312	5FQ 204
5QW 376	5BH 287	5KU 198
5DK 369	5JO 275	5PM 170
5ZB 363	5AX 273	5FJ 151
5LQ 352	5JC 267	5MZ 133
5OK 329	5HI 261	5HR 127
5EF 322	5KN 239	5XU 109
5BF 319	5FM 243	5LD 98

South Australia (Continued)

VK5CH 92	VK5KY 50	VK5XA 32
5QR 91	5JG 47	5LE 32
5DH 87	5RO 47	5DP 24
5KX 79	5CJ 46	5EA 24
5IC 78	5HQ 46	5IW 23
5OR 78	5UF 40	5LL 20
5OC 67	5WM 40	5FT 19
5WR 67	5DF 39	5PU 16
5RK 66	5LN 39	5CO 16
5WI 63	5PS 39	5OD 16
5RI 57	5UX 38	5ZY 16
5CE 65	5TW 37	5DO 14
5ON 53	5HW 36	5LB 14
5HM 52	5AV 35	5XL 13
5EH 51	5FO 32	5CA 9

Check Log: VK5EG.

WESTERN AUSTRALIA

VK6BE 487	VK6WI 27	VK6GA 18
6KO 284	6ETI 26	6RO 18
6TB 249	6FS 26	6RD 18
6VK 216	6WZ 25	6RS 17
6LU 170	6FR 25	6BG 17
6AF 159	6AC 25	6BA 17
6GY 84	6EW 25	6HC 17
6KE 76	6WH 25	6TX 17
6CP 69	6FL 24	6WR 17
6ZZ 67	6XG 23	6PW 16
6UP 66	6SJ 23	6IA 16
6BC 61	6KW 23	6KU 16
6GU 54	6EL 23	6MR/P 16
6TK 52	6BK 23	6ZI 16
6DJ 51	6AF 22	6LB 15
6BS 50	6FR 22	6SR 15
6RW 46	6KX 22	6WT 15
6BO 42	6OR 22	6JG 14
6KJ 40	6EJ 22	6GH 14
6FB 40	6LL 22	6VM 14
6MO 40	6WJ 22	6TP 13
6TR 40	6GM 21	6JN 13
6WL 38	6LH 21	6MM/P 13
6AV 35	6EC 20	6GB 13
6WS 35	6FT 20	6WM 13
6LT/P 30	6WG 20	6EF 11
6WV 30	6AW 19	6JB 11
6CC 29	6XF 19	6JR 10
6NF 29	6AE/P 18	6MB/P 9
		6JK/P 8

* Log A.
† Log B.

Check Log: VK6FL 742.

TASMANIA

VK7KA 453	VK7WA 93	VK7OM 31
7JP 404	7LS 78	7LK 28
7JO 396	7RT 73	7BJ 24
7RL 378	7AL 72	7RK 23
7GM 355	7RN 69	7DJ 20
7AC/P 278	7CK 66	7WI 20
7SD 258	7LZ 53	7LE 17
7CA 155	7WN 47	7XL 17
7SM 142	7PF 45	7RM 16
7RY 128	7AX 35	7DS 16
7SF 113	7JD 35	7DW 15
	7FJ 33	

LISTENERS

Rankin, D. H. 377	Dash, N. L. 257
Price, F. H. 374	Woodman, I. R. 215
Campbell, J. A. 334	Dunstan, R. 149
de Balfour, R. A. 319	Sherrin, G. E. 139
Thorpe, C. H. 295	Jenkin, D. H. 40
Davey, W. 288	

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YL CORNER

BY PHYL MONCUB

THAT EVENT OF GOOD CBEER—THE DINNER

The following is a definitely unbiased and of course unprejudiced report and any resemblance to any member of the VK3 Division is most certainly intentional.

Girls, I must tell you about the dinner. But, of course, I was there. Oh I know the OMs seem to consider it is for men only. Women just can't go to their dinner, they think (or hope). Well I joined their Institute, I gets some money out of the OM and I pay me sub, I even buys myself a badge—but still no dice. Definitely no women at the dinner. Then a great idea came to me, I would go to their dinner, I'd get a job as a waitress. Of course I had to change my appearance, but a bit of camouflage and even my OM didn't recognise me.

Well it was a wonderful evening, an affair of gay light-heartedness (no KYLs there), an evening of froth and bubble, in fact it was a real bottler. They started at 3.5 mugs, doubled to 7 and then tripled to 21. Of course that was all right for those low types, but the upper-crusts—the v.h.f. blokes, the ones who went up to 376 mugs—wheh! They needed real capacitance. When the mugs ran out they used pots, then jars and then tanks. Some got rather exasperated and a certain amount of push-pull and push-pull went on. Considerable disturbance was experienced and soon they were splashing all over the band of hi-fi musicians till the place looked like a sea of micro-waves. Now Hon. Sec. Fred couldn't help feeling a bit like-y about all this and the thought of all that juice of the current draining away was too much for him so he started "Ball"-ing it up and re-hashing it.

There wasn't much scope when they sat down to dine so the parabolic dish had to be pl on a plate, even if it choked you. From the feed point, the feed line was very long, and if you couldn't get any feed back where you were sitting, you swapped places and were end fed, or centre fed. Some even had to be fed through a tube. There was a considerable amount of speech distortion all evening and the noise level was exceedingly high.

There was a great crowd there, up round about 144 mags, all the most noticeable notables, and the dressing was a dazzling, gorgeous extravaganza. Most favoured the new "Q" factor, sorry "Q" line I mean (Q for quarrelsome, querulous, questionable, quitter, quizzzy, queer—you can say that again—quick-witted, and quiet spoken). Something definitely out of phase with those last two qualities, I've never seen either of them in anybody's ole man. The most outstanding thing about the dressing was that all were identically garbed, favouring the severely tailored suit type of creation.

Gordon wore an exquisite old world period ensemble in a selective shade of navy blue, fashioned on the lines of yest-year (probably the one he got married in). Doug, in an electrifying shade of navy blue, was a little overdressed, I thought. He came along all done out in "buttons and Bowles." Harold, in an ir-resistor-bull shade of navy blue, wore one of those divinely fashionable off-the-shoulder little things (his coat was obviously three sizes too big for him). Jim was a pulsating creature in a softly modulated garment dotted here and there with pink sequins (or was it spots of paint—well I do know, he's just finished painting the bedroom out in exactly that shade of pink). George, in a variable shade of navy blue, added flowing ribbons just below the shoulder line (could have been 75 ohm ribbon hanging out of his breast pocket), also another characteristic of his rig-out was a bunch of geraniums and silicon at the waist line (what waist line?). Len, whose figure has those natural ample exponential curves, was adorned in a powerful shade of navy blue; although I couldn't help feeling his suit looked a bit ohm-made. Russell, in a sensitive shade of navy blue, wore an outfit that featured the new decorative bulgy pockets (probably full of R C and L). Arthur was there too, in an illuminating shade of navy blue, designed on very flowing lines, the image of the one he wore last year. He was full, so very full of good cheer, he seemed to enjoy the "real spirit" of the evening. Cyril, that bucking Ham, was there also in a magnetic shade of navy blue, fashioned on lines borrowed from the pages of the latest overseas designers (well he probably borrowed it from somebody anyhow). The line-up on Robert, the cunning ham is that he

wore a fundamental two-piece suit in an alternating shade of navy blue in some static material with a sinusoidal pattern. Noel would like to have been there but his wife had gone to the pictures and he had to go and meter.

The facial make-ups were many and varied—there was the clean-shaven, the dirty-shaven, the unshaven, the close-shaven and the near miss (electric shaver type). And the moustaches—there was the toothbrush mho, the curl-a-mho, the Antarctic mho, and handlebar mho, and the half-a-mho.

And the ousies they wore. Funny but all wore identically the same jangle-ery, the quaintest little dee-vice, formed in the shape of a map of Australia with fine tracery in gold of an electronic insignia across the centre. A most delicately executed work of art of priceless value.

And the jokes. There was the one about—but no, I'm afraid that one is censored. Well there was the one about—oh yes, very amusing that one too, but definitely unprintable. Just been thinking—perhaps I could do a bit of trading with the jokes. How about 3d. a joke, girls? We could put the proceeds towards their building fund.

Now everything didn't go exactly according to Hoyle (or even Hull). Ah no! You see the handsome "beau-es" was handle-ling things this year. He did a very excellent job, but do you know what, we just can't stop him CRO-ling about it. However it was a grand evening, plenty 59-er, plenty 518-er too, and everything was f.b. until I heard one DX-er say he was going to let somebody have a brass slug. After that I look-off as I had no desire to become a skeleton or a slot or anything like that, and besides, I just couldn't "wait" any longer, I had to be home before my OM.

S.W.L. SECTION*

Firstly, I must apologise for no notes in last month's issue, but some unlucky circumstances prevented them from being printed. Next I would like to bring to your attention the text of a VK3WI Sunday broadcast extracted from the S.w.l. Group notes in that broadcast. It refers to the September 1956 Group meeting, and reads as follows: "Fred Bail, 3YS, was present and spoke to the members regarding operation of Amateur Radio tx's. He explained how the P.M.G's. Dept. were waging an un-censuring war against illegal operation and made clear the dangers of participating in such operation. He also stressed the necessity of consideration which should be given beforehand to all remarks which are made over the air. If you have the opportunity of speaking to another person via Amateur Radio, be very careful in your choice of remarks. Remember, you could cause trouble for yourself and also for the owner of the station. Also, if you hear of anyone attempting or considering to attempt putting an illegal tx on the air, do your best to dissuade them. No matter how keen a person is it is always better to do the right thing by the Amateur fraternity, the community and yourself by studying to obtain your A.O.C.P. than to 'pirate'."

NEW SOUTH WALES

Stan Abbey, of the "Coolamon Key Klickers Klub?" keeps VK2 on the map together with Barry Cartwright, of Richmond, N.S.W. Stan tells of a very interesting display of mobile v.h.f. gear (2 mx equipment) put on for the benefit of Jack Ashley and himself by Jim 2AJ0 and Les 2ZBJ, of Uranquinty. These Hams are really doing a good job keeping the s.w.l.'s interested whilst they are grinding away studying for the ticket. Keep it up boys. Stan remarks: "There must be more than three VK2 listeners that are active. I know for a fact that there are more than three associate members of the Institute in VK2 and you would think that they would have a rx at least!" So how about it all you VK2 s.w.l.'s? Write to Stan Abbey, Mimosa St., Coolamon, 6S, N.S.W., and let him know all about your activities for inclusion in these notes.

I have received two letters from Barry Cartwright, per media of the Vic. Award Manager, Gordon 3KU (thanks for onforwarding them Gordon). Barry is evidently very keen and makes several queries. I'll try to answer them as soon as possible, Barry.

VICTORIA

Sept. Group meeting.—At this meeting of the Group, Ron 3ARV gave one of the most interesting lectures ever presented to the Group. He spoke on Radio Astronomy. His listeners were

kept enthralled by some most wonderful slides depicting the stars, planets, moon and other heavenly bodies, and Ron's most graphic descriptions as to how all these things affect our own planet. He also explained how various types of radiation from space influence our radio conditions and described simple equipment for observing these radiations.

October Group meeting. Len 3LN was present at this meeting and gave a most interesting talk on 'Amateur TV'. As this subject is the topic of the moment the talk was well timed. Items of equipment brought along by Len were enthusiastically studied by Group members. Thanks very much for your lectures Len and Ron.

Michael Ide was back at the last meeting after being absent in Sept. He may have been fixing that tape recorder. Frank Nolan is still listening around for rare ones and generally keeping an ear on the bands. Bert Stebbing has been chasing foxes or something with the V.h.f. Group. Your writer is now enjoying a good rest after earning about ten lovely blisters on one hand painting the new QTH. Henry Zaal, from Trairagon, was recently seen in Melbourne precariously perched on top of 3XD's 66 ft. tower. Putting up a beam of some kind Henry, or just wiping the dust off for the owner? Dave Jenkin, of Orbest, is still busy listening whenever he has a let up from herding them thar critters.

QUEENSLAND

Don Bryant has favoured us with a letter from the Sunshine State. He tells us he is busy with some building projects and has also the idea of procuring some more gear in mind. Thanks for your letter Don and hope to hear from you again soon. Nothing heard from Bruce Hughes for some time. He's most likely washing dishes and baby clothes now. Congrats would be in order I think.

SOUTH AUSTRALIA

Since Mac Hilliard left the premier (?) State John Campbell has taken up the pen on behalf of VK3. Pleased to hear from you John. At the last Group meeting in Adelaide Jim 5FO spoke on the subjects of shortwave listening conditions and receiving antennae. Everyone was kept interested by Jim's talk and it was generally agreed that it could well have been extended to include the next meeting as well. The boys say thanks very much to you, Jim. John Hillitch brought along a home-brew two-tube portable rx and demonstrated it by receiving all the local b.c. stations including 5DN. Any VK3 s.w.l.'s should address correspondence for these notes to John Campbell, 35 Devonshire St., North Walkerville, South Aus.

WESTERN AUSTRALIA

Mr. F. E. Price, 10 Dunedin St., Mt. Hawthorn, Western Aus., has written saying that a few s.w.l.'s there are contemplating forming a Group. We wish you every success with this move chaps, and are looking forward to hearing from many of you soon. So all you VK6 listeners rally round and be in this. Let's know all about your activities and just what goes on.

TASMANIA

Finally from our island friends we have two letters. One from Lindsay Brehaut and one from Rod de Balfour. No doubt you have seen Rod's name in the DX Activities column. Lindsay, who is a parson, still finds a little time for squeezing in some listening, using a four-valve dual-wave rx. He mentions quite a few stations heard and seems to be doing quite well considering his poor location surrounded by hills at Queenstown. We would be pleased to see you as a regular contributor to our notes Lindsay. Rod de Balfour from Launceston has included a wealth of information in his letter and we will let you hear more about it very soon. Although only fifteen years of age, he is apparently very active and is using a 6-valve superhet rx, built by himself, covering from 80 through to 10 mx with plug-in coils.

Well that completes our round-up of news for this month and we will now sit back and wait for more of your letters. Soon I hope to have caught up with my correspondence and all who have written contributing to this column will receive a reply from me.

To all readers, a Merry Xmas and a Happy New Year. May 1957 bring good listening.

DO NOT FORGET!

The closing date for copy for the January issue is 3rd December.

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



A Merry Christmas and A Happy New Year

To you and those within your home
This Christmas Day may blessings come
And may good luck, good health, good cheer
Be guests of yours for all the year.



FROM

AMALGAMATED WIRELESS VALVE COMPANY PTY. LTD.

#8-56

FIFTY-SIX MEGACYCLES AND ABOVE

NEW SOUTH WALES

The 2 mx spring field day was held in beautiful weather and quite a number of home and portable stations took part. Messages were originated at 10 a.m. and relayed until 4 p.m. on 21st Oct., '56. Logs have been handed to the contest managers and at the time of writing results are not yet to hand.

Each Wednesday preceding the monthly meeting night of the V.h.f. Group has been reserved for nocturnal hidden tx hunts which commence at 8 p.m. and terminate at 9.30 p.m. Results are given over VK2WI Sunday evening b.c.

On 21st Oct. the station of Horrie 2HL, assisted by Chas. 2NP, was given the job of going out and hiding somewhere. They really planted themselves in the scrub, but were eventually found in the Forestville district. The first in was Dave 2AWZ, closely followed by John 2ANF and Dick 2ZCF. Several others arrived before time had expired, but Bob 2OA and co-pilot Perce 2APQ needed final instructions to find the location. Hot dogs and cuppas were then indulged in and a good night had by all. Several visitors made themselves acquainted with the V.h.f. Group at our usual monthly meeting held on Friday night, 2nd Nov., '56. Suspension of standing orders to enable the well attended meeting to listen to an interesting lecture were soon agreed to and the Group then heard Mr. Gordon Harne, of S.T.C., give a talk on Pulse Radio Terrain Indicators, which Mr. Cox assisted with block diagrams. Also on display were examples of tx's, rx's, meters and antennae. A vote of thanks was carried by acclamation in the usual way, after Arthur 2AJA kindly thanked the lecturer for his instruction and entertainment.

The December meeting will manifest itself by holding an "Auction Sale" which will be conducted by Ted 2XX on behalf of the Group.

From the northern area we are informed by Ken that 2GV, 2VU and 2ANU were the representatives who attended Blackalls Field Day. Visitors to the area were 4ZAA, Mick and Ross working mobile with a 522. Geoff 2VU heard 4ZAA from Tamworth, 2ANU out of luck with rx trouble. The Tamworth boys 2APF, 2LY, 2ZAD and 2ATD are working 2 mx. Both 2ANU and 2VU were active on the Spring Field Day and were able to clear all messages. Frank 2APF reports that 2ZAF of Warwick will be running tone interspaced with call sign at 1900 hours for 15 minutes each night with beam south. Frank now has a xtal locked converter, also 2KQ at Totonto. 2ANU is holding nightly sked with 2HO at 2100 hours, also 2VU is receiving Roy well on phone. Noted with interest 2ZCB is listed as new call in Scone.

From Ian 2AZN we are informed that JA2RU, on 50.1 Mc., has been heard calling CQ.—2AFM.

VICTORIA

We had a very warm pleasant evening for the last fox hunt but strangely, we didn't have nearly as big a turn-up as on some of those freezing cold nights during the winter months. However there were enough there to make a good hunt, seven car loads turned up with that vicious hound type of blood in their veins and off they went after the fox 3LN in a chase that took them round the suburbs of Toorak, Kensington, Footscray and through the streets of the city. That hound of a fox slowly traversed up and down the main streets of the city, this made things really tough with all the tall buildings. Then he cut the tone and used speech, just to make it really difficult. Everyone was very pleased to hear the familiar voice of our control station, Bob 3OJ, back on the job again.

The final location was held at the home of our associate member of the Institute and A.O.C.P. class student, Bert Stebbings, and we offer our sincere thanks to Bert and his KYL, Phyl, for opening their home to the Group. The winner for the evening was Roy 3ARY, second place went to Tom 3AOG and third place to Eric 3ADU. Make sure to come along to the Olympic Fox Hunt to be held on December 12. The December hunt, which winds up the year, is the occasion when the fox uses every fair or foul means he can think of to trick the hounds, a hunt in which anything can happen, and you can be certain that the fox will make sure it does.

At the last V.h.f. Group meeting, Mr. D. F. Watson, Group Engineer of the P.M.G.'s. Circuit Laboratories, gave a general lecture on operation and use of relays. He brought along many examples of the P.M.G. type of relays giving full details on how to determine whether the points were silver, platinum, etc., and many constructional details which determine the speed and load capacities of the various relays. He answered many questions as he went along and concluded by giving a seven page pamphlet containing a description of all types

of service relays to each member present. A vote of thanks was passed and members warmly applauded, showing their appreciation of Mr. Watson's very interesting lecture.

During the general business of the v.h.f. meeting, it was decided to hold field days during the forthcoming summer season. The first one will be held on Sunday, 16th Dec., and will be followed by field days on the third Sunday in Feb., Mar., and Apr. These latter dates for 1957 are for the time being only tentative, pending the date to be set for the National Field Day for 1957. The scoring will be the same as last year, that is, one point per mile to be arranged during the QSO. An attractive certificate will again be awarded to the winner of each field day.

5BC and 3ATN had a two-way phone contact on 56 Mc. on 4th Nov. This is possibly the first Interstate contact on 56 Mc. since the allocation of the new band. Distance approx. 180 miles. Equipment used: 5BC—80w. to QQE06/40, 4 el. w.s. beam 40 ft. up, cascade converter; 3ATN used 90w. to 829B, 6 el. beam 65 ft. up, 3 stage xtal converter.

News of 2 mx activity. 3ATR at Warrackbeal is using 80w. to QQE06/40 with 5/5 beam, freq. 144.72 Mc. 3NN at Yanac uses 100w. to QQE06/40, 5/5 beam, freq. 144.73 Mc. is experimenting with long yagis. 5BC at Renmark uses 8w. to QQE06/40, 16 el. phased array, freq. 144.13 Mc. 3ZCW at Ouyen, 32w. to p.p. 7193s, 5/5 beam 40 ft. high, freq. 144.16 Mc., is building up QQE06/40 rig, hopes to have it going shortly. 5ZAM at Penola, 50w. to 815, 5/5 beam 20 ft. high, has c.c. converter, freq. 144.81 Mc. and is hoping to get his beam up higher. 3ACE at Birchip using about 20w., 822 modified, with 5/5 beam 50 ft. high, freq. 144.17 Mc.

5AB although busy on other bands chasing the DX, has a 522 and is building 100w. final, 30 el. beam 5/5/5 alongside 5/5/5, 100 ft. high, c.c. converter. 3ATN has moved his location and is using about 90w. to 829B, shortly to be changed to QQE06/40, freq. 144.42 Mc. Ant. now using 15/15, 2 long yagis 20 ft. booms stacked two w/s apart and 85 ft. high. Ray 3ATN, of Birchip, has been breaking through to Melbourne recently with very good signals round S9 to S9 and has worked 3ZBJ, 3ZAI and 3ALY. He will be on the air looking for Melbourne contacts each evening round about 8 p.m. His frequency is 144.41 Mc. With all the above activity you are assured of contacts if you direct your beam N.W. of Melbourne.—Phyl Moncur.

SOUTH AUSTRALIA

The oncoming Geophysical Year activities should not be overlooked by the v.h.f. boys, who are asked to co-operate to thus spread the listening or operating points. A lot of very interesting and helpful information will be obtained as a result of this, and although the little bit each of us may do—for few will be able to man their outfits full time—may seem insignificant, it is all to be collated to obtain a full picture of the varying propagation conditions.

The Manufacturers' Exhibition next year will include a stand run by our Division and one of the many items required will be v.h.f. links to them to enable DX to be worked. It will be appreciated that the noise level for h.f. receiving at the grounds will be poor, so all you types that have real good locations and can shoot a relay to them on v.h.f. now is the time to speak up. Doc SMD and Les 5LC will be very pleased to hear from you, for they have a lot to organise and want many helpers, so v.h.f. gang, this is your chance. If a number are prepared it will break down the time each link would be required to operate.

Nothing further heard here re 2AGZ and their proposal for 2 mx to Adelaide, will keep you posted on this as information comes to hand. Listen on 144.59 from time to time and I'll pass the news that way, too.

Aif 5ZAL will be on 2 mx again soon, he has re-built his rig and now has a QQE/12 in the final, whilst Ray 5ZRM, a new call by the way, has a new shiny 829B ready to use on 2 mx. We will all be interested to hear you fellows, welcome to the bands Ray. Bill 5ZAX has been heard quite a bit lately, a very fine sig too, his antenna is perched up on a tower that is a v.h.f. man's dream. Neil 5ZAW has had some bother with his final (haven't we all at times), but has straightened it all out and now all happy again.

George 5EG and Reg 5QR have had some fun and 5 x 8 signals across town on 1 mx by merely modulating the oscillator train of their converters—how is that for flea power? Bob 5RT and Reg continue to play chess via 2 and 1 mx; couldn't tell you a winner on any of the games. I've heard—you know chess—they may be still going. My own activities have been brief on 2 mx this month, mainly confined to doing a

relay of W.I.A. session on Sunday a.m. With the rest of the weeks devoted to getting the tri-band beam going. Yes it works, so must get back on 2 mx again.—SEF.

WESTERN AUSTRALIA

The monthly meeting of the V.h.f. Group was held at the QTH of Syd 6SJ on Sat., Oct. 13. After welcoming visitors, among whom was Keith ZS2FW, whose ship was in port, the meeting settled down to serious business, constitutions and g.d. equipment discussions took the remainder of an enjoyable evening, concluding with the usual very good supper at a late hour.

Sat. night, 20th Oct., saw another Fox Hunt in progress. The job of foxing their opponents was undertaken by 6ZAD, 6ZAS and 6ZAG. The hide out was really good, right on the edge of the Swan River, only three made the grade, these being 6SJ, 6HK, and 6BO in that order. "Never in so short a space of time, have so many been foiled by such a small stretch of water." Anyhow, everybody had a good time and that was the main thing.

6ZAZ has conducted tests from Wagin over a path of about 150 miles with some success. Activity on the bands may increase with the advent of warmer weather.—6ZAV.

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MAXWELL HOWDEN

15 CLAREMONT CRES.,
CANTERBURY, E.7,
VICTORIA

DX ACTIVITY BY VK3AHH*

XVth OLYMPIAD, MELBOURNE, 1956

ON BEHALF OF THE AUSTRALIAN DX FRATERNITY AND THE W.I.A. OLYMPIC GAMES COMMITTEE, A HEARTY WELCOME TO ALL VISITING AMATEURS. MAY YOUR STAY IN VK BE A MEMORABLE ONE, FULL OF ENJOYMENT AND PLEASURE!

PROPAGATION REPORT

8.5 Mc.: Contacts with the North American continent and Pacific Islands took place around 0800-1100z. Other conditions were not observed.

7 Mc.: DX contests during the month of October enabled this band to regain its full DX usefulness. Conditions to the American continents were reported between 0600z and 1000z. Between 1600z and 2000z, the band opened to Africa and Europe over the short path, while long-path openings to Europe were reported around 0700-0800z. Contacts with South-East Asia were possible around 2000-2100z.

14 Mc.: As was to be expected, this band displayed fair to good conditions to all continents at reasonable times. European conditions existed around 0900-0900z, 1400-1500z, and 2100-2200z. The band opened to Africa at 1400-1500z and 1900-2200z. The American continents seemed to be represented round the clock.

21 Mc.: Here reports show that the band opened to the American continents between 1900z and 0700z, to Europe 0500-0900z, 1200-1400z, and 1900-2100z, to Africa around 0600z, 1000-1200z, and 1900-2100z.

27/28 Mc.: North and South America were represented between 2100 and 0600z, followed by an African opening 0500-0700z and a European opening 1000-1200z.

NEWS AND NOTES

According to press reports, German Saarland, since 1945 occupied by France, will be returned to Germany as from the 1st January, 1957. It can be assumed that 9S4 will not count as a separate country after that date.

One of the greatest DXpeditions came to an untimely and very regrettable end. Having visited several rare DX spots in the Pacific, Danny Well lost his yacht in Australian waters. Anyway, Danny, you did an excellent job for DXers everywhere, and, I am sure, all of us wish you best of luck and hope that you can continue your single-handed sea travel around the world at some other time.

VK1RW, of Cocos Island, has changed his call sign to VK9AJ (from 5WO).

Does W6ITH intend putting Spratly Island (9°N. Lat., 11°E. Lon.) on the Ham Radio map? News came around a few corners: F9RS to West-Gulf DX Club to W6YY to VK3AHH.

Who said you can't work DX on s.s.b.? It has been reported that VK3AEE managed a W.A.C. round-table QSO with mutual readability. On the 28th October at 0800z he contacted the following stations on about 14300 Kc.: DL4SV, KA2FC, CN8GD, PY2JU, W5SVP, G3HRO and ZL3PJ, all on s.s.b. (from 3SK).

ZC3AC is active on 14010 Kc. (from W6YY).

Chas VK3IB, ex-VK1AC, is getting ready for another trip to the cool south.

VK5WO reports that JZ0ACK and JZ0ADM have changed their call signs to JZ0PC and JZ0PA, respectively.

G6YL, operating on 21012 Kc., is looking for VK contacts on 21 Mc. c.w., tuning the entire c.w. band (from 2YL).

Following my paper in the October issue, several correspondents have gone to a lot of trouble in supplying more detailed information on DX conditions, particularly as far as the times of contacts are concerned. Well known DXer and editor of this page until 1952, Frank VK2QL, sent an extremely useful report. Thank you, gentlemen!

QTHS OF INTEREST

(from W6YY, NCDXC, 3ACN, 5WO, 7LZ, BERS195 and Rod de Balfour)
 YN1BW—C/o. American Embassy, Managua, Nicaragua.
 HZ1AB—M/Sgt. Jeff D. Harman, RFD 1, Suisun, Calif., U.S.A.
 HP1EH—Box 189, Panama City.
 SV0WE—H. B. Wood, Alexandrow, Diakew 13, Rhodes, Greece.
 SM8KV—Via SMSKV.
 ZD6DT—Box 89, Zomba, Nyasaland.
 FE8AE—M. Veber, Box 408, Douala, French Cameroons.
 SV0WJ—Air Attache Radio Club, APO 206, C/o Postmaster, New York, U.S.A.
 ZD2GWS—G.P.O., Buea, Nigeria.

ACTIVITIES

3.5 Mc.: Frank 2QL reports W4*, W6*, W8*, KH6*, ZK1*, W9.

7 Mc.: 2QL contributes G6JR* (0700z), XW-8AB*, CE3AG*, DU7SV*, and ZS6, ZSS, HB, DL, YU, F8, Laurie 2AMB adds ZS6AJH*, ZS2Q*, VE7AG*, K4AQL/KG6*, and VS1GV. Dave W1A-L8039 heard DU7SV and Rod de Balfour heard W9 on phone, and JA1BWK. 3AHH worked CR7BS* (1900z).

14 Mc. c.w.: 2QL: PY*, CE*, TF3KA*, VQ-2GW*, 15RAM*, VQ5GC*, and ZD1FG, VQ2RG, 5A2FE, F9BJ, ET3AF, 3A2BR, CT3AB, CX-1BZ, VR5AB, YAIAM, 3AMB, VP9Y*, PZ1AM*, VQ5GC*, XE1Y*, FG7XC*, LU2DAW*, FM7WP*, and ZS, KA0IJ, Z21C, KR6, KP4AP, VQ2IE, VQ2FF, VK1GA, Neville 2APL: CE3DZ*, DL*, Gordon 5HM: KM6*, Rav 6RK: CO8DL*, VU-2AC, JA/KCA, Austin 6WO: LA*, XE1A*, SL*, YV4AU*, G*, GW3*, LUTAS*, VQ4KRL*, ZS9P*, FE8AE*, CR7IC*, ZS4EJ*, Fred 6UF: CT3AN*, PA0*, ET2RH*, G*, GI*, HB9*, OE*, SM*, F*, YUI0A*, IHJ*, OZRU*, ON4*, XW8AB*, LA*, LUTCD*, VQ5CG*, VQ4KRL*, Col 7LZ: TF5TP*, HB9*, ZBIZY*, CF3AG*, JZ0ADM*, Eric BERS-195: BV1US, CR7BS, EA6AW, FB8ER, FO8AO, FL8AB, FB8ZZ, H18WL, ISRAM, W4EMF/KS4, KA0LJ, I-X1DW, PZ1AP, PY4ZG, SUIIM, TF-3NA, TI2WR, VK1RW, VQ2IE, VQ5GJ, VP3ZA, VQ4KRL, VQ3AB, YAIAM, YJ1AA, ZC5GL, ZD6RM, ZC4NS, ZD2GWS, ZS, 5A2FB, 9S4DE, W1A-L8039: PY1AIF, DL, KUL, VQ6AB, SL, CT3AN, OZ7HS, OH, AP2RH, KP4CC, JA, FB8ZZ, FB9YY, LUTXP, VU2KL, PY2QW, LU-1BA, CX1BZ, KC4USV.

14 Mc. A.m.: 2AMB: PYIMK*, HC2BH*, CO-2BL*, CO8DL*, ON4*, CT*, HK3PC*, TI2LDT*, EA*, CT3AN*, LU8MAJ*, LA*, TG9AD*, and ZM6AT, ZM6AF, VP2KB, JZ0ADM, KP4ZC, KP4WD, FURAC, OA4FA, OA8M, LA, CE3CZ, HP3FL, HRIEZ, TG9MG, KV4AA, VP9CY, VP1FG, ZD6DT, Neil 3HG: VF8EU*, EA7EV*, VE*, KA0LJ*, G*, Neville SACN: VE*, TI*, VP-9BM*, PY*, LU*, G*, EA*, CT*, OE*, LX1DA*, DL*, TF2WBJ*, ZS*, ZD6DT*, ZE1JX*, FB-8BX*, HB1MX/HE*, John 5HI: CO8DL*, HP-3FL*, 457YL*, KA0LJ*, CO2BL*, VP9CY*, EA*, G*, DL*, OE*, XE1CW*, TI2AE*, TI2FFD*, TI-2HP*, TG9AD*, YV5AG*, TI2LDT*, Austin 5WO: FURAC*, KC4USV*, VE*, LU2WB*, KP-4ABD*, KP4WD*, CO8BL*, TG9AD*, G*, GW*, DL*, F*, I*, EA*, CT*, VP9CY*, OE*, HB9*, YU2CF*, TI2HP*, TI2OE*, ZD6DT*, ZS9G*, OQ0DZ*, CR7AR*, FB8ZZ*, VK9AJ*, 7LZ: JZ0ADM*, VK9AJ*, XE1DU*, TI2OE*, YS1MS*, HRIEZ*, BERS195: ZD6DT, JZ0ADM, Rod de Balfour: SV0WT, SV0WJ, EA, OE, ON, PI1J, PA, GW, G, DL, F, I, CT, KT1EOX, CN8MM, 5A2TF, 5A1XX, ZS9G, ZS8I, ZD6DT, VQ2DA, VQ4AQ, 3V8BL, JA, JZ0ADM, 457YL, DU, FO, FUSAC, ZM6AT, TI2KY, TI2HP, TI2RC, TI2OE, TI2AB, HP3FL, KE, HRIEZ, VP5AO, VP9CY, VP9BU, VP7NS, KP4WLU, CO2CY, CO2OS, HK3PC, CX2OZ.

14 Mc. S.a.b.: Rod de Balfour heard the following s.s.b. stations: XE2JK, VS6BE and W6. See also the item under News and Notes!

21 Mc.: 2QL: BV1US*, FA8CR*, ZS7C*, PY-1ADA*, VQ5GC*, VQ4KP*, KP4KD*, CE3AG*, LUBNA*, TF5TP*, ET2*, EA*, IT1TAI*, IT1WS*, ZS5U* and VP6HT, GDSFXN, CN8SK, ET2US, YV, ZC4NS, 2AMB: ZS1DO*, ZAPL: VU2HF*,

DL*, OE*, PA0*, ZS2H*, JA*, and HP1EH. 3HG: LU4DMG*, HZ1AB*, VE8MA*, Les 6PN: LX*, FA3*, TG1*, VP2*, CX*, PY*, 5WO: PY1ADA*, VE*, VS1GN*, VU2HF*, JA*, DL*, OD8LX*, ZSSU*, HB9*, G*, VS4NW*, SM*, OH*, LA*, JZ0PC*, 7LZ: GDSGMH*, DL*, PA0*, OH*, G*, JZ0PC*, JZ0PB*, KL7*, DU*, VP6JK*, VP6WR*, PY4APE*, PY4AKT*, PY3QX*, LUSCK*, LU-3AQ*, HC1ES*, CE2CC*, CE3DY*, CE3HL*, CX-2CO*, F*, ZSIDU*, CE3AG*, SM*, JA*. Rod de Balfour: EA7EM, EA, DL, OE, OZ, SV0WT, PA, I, LA, G, OD5AV, HZ1KN, HZ1AB, MP-4KAC, VU2BK, VU2EJ, JA, CR9AH, VS4BO, JZ0PC, BV1US, VQ4DT, ZS, FO8AB, XE1DU, KZ3DG, KZ5MW, TG9AL, TG9WE, TG9US, VP1EE, HP3DA, TI2BX, TI2RC, VP6WR, CO-2AS, CO2CY, HRI1W, HR3HH, KP4DX, YV-5AP, HC1ES, HC1FS, HC1PL, HK1PJ, CE3DY, CE2AG, LU9DAH, PY4APE, ZS1B.

27/28 Mc.: 2QL: BV1US*, LA1WF*, PY1HQ*, G*, D*, OZ*, XW8AB*, PY1ADA*, HK3PC*, and ZS5U*, HB. 3HG: LU2GH*, OHNSW*, VS6*, ZS*, ON*, Max 4HD: VE*, VE8CN*, VE8AB*, TG9AD*, CX3AA*, CX2AY*, CX1AK*, CX2BP*, ZP5CF*, LU9LJ*, LU2BN*, HK4DF*, CR6AK*, JZ0ADM*, DU7SV*, DU1AF*, JA/KCA*, CR9AG*, VU2EJ*, 457YL*, VS1FE*, ZS*, VQ4RF*, G*, GW*, GM*, GD*, GI*, CT*, F*, EA*, DL*, OH*, SM*, YV3BC*, HB9*, OZ*, Les 4XJ: VE*, JA/KCA*, FUSAC*, KR6QV*, HC1KV*, ZS6AJV*, ZS6WW*, ZS4L*, G*, EI4Q*, OH*, EA*, DL*, LA*, 5HI: KR6*, VS1*, VS2*, JA*, LUGAE*, LUSBQ*, 5WO: PY1HQ*, VE*, G*, PA*, DL*, OE*, HB9*, OH*, ZD6BX*, ON*, XW8AB*, HK-3PC*, VS6*, DL*, G*, LU8FAO*, 7LZ: GW*, G*, SM*, OH*, ON*, LA*, F*, ZS*, CR7BS*, FA9VN*, JA*, BV1US*, VS6*, VE*, CE3AG*, PY1HQ*, PY4AJK*, HK3PC*, 457YL*, CX6BM*, LU3AQ*. Rod de Balfour: G, HB9, DJ, DL, I, PA, OH, GD, VU2RM, 457YL, 457WE, DU, JA, ZM8AR, VE.

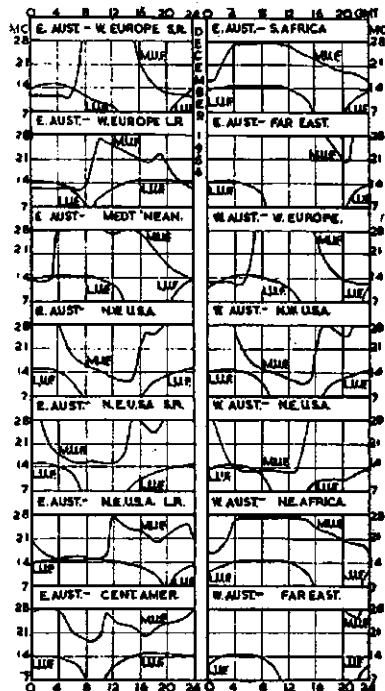
Rare QSLs were received by: 2DI: FG7XB, YV0AA, F9QV/FC, EA6AU, 2QL: YN1PM, VQ8AG, VP8AZ, ZE2IC, OQ5QS, HL9AA, 2ACX; FG7XB, AC5PN, YV0AA, 2AMB: YJ1AA, VQ-8LQ, 3HG: CR5SP, MIB, 5HI: EA8BK, IIBNU/ Trieste, ISREX, OA4FA, 5WO: ISREX, ZD6RM, YV5FL, EA9AZ, YA2B, 7LZ: CP5EK, PY4APE, ZP5CF, VP5FH, BERS195: VQ4ERR, VQ6LQ, VSHB, Rod de Balfour: ZS5OV.

Thanks to W6YY, the Northern California DX Club, and VKs 2QL (QSP 2DI, 2ACX), 2YL, 2AMB, 2APL, 3HG, SSK, 3ACN, 4HD, 4XJ, 5RK (QSP 5HI, 5HM, 5PN), 5WO, 6UF, BERS195, W1A-L8039, and Rod de Balfour (QSP 7LZ).

Another year is approaching its end and brings us its festive season. A Merry and Peaceful Christmas to fellow Christians everywhere.

PREDICTION CHART FOR DEC., '56

IONOSPHERIC PREDICTIONS FOR THE AMATEUR BANDS





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

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

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.

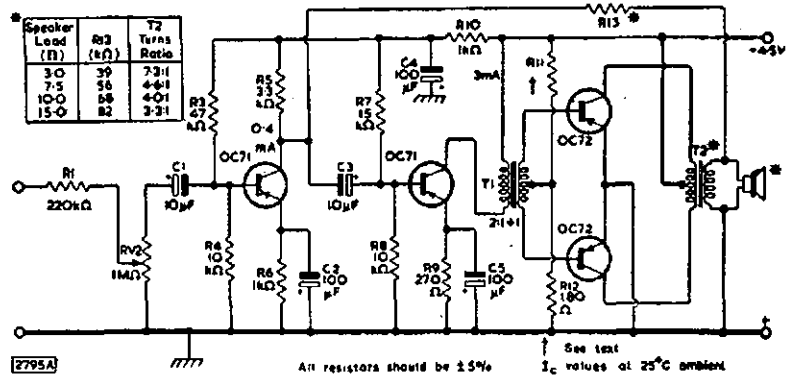
The factors entering into the design of an R-C coupled transistor cascade are not difficult to appreciate; many of them are similar to those encountered when working with valves. The collector voltage and current are limited by d.c. ratings $V_{c(max)}$ and $I_{c(max)}$, and by a.c. ratings $V_{c(pk)(max)}$ 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 $I_{c(e)}$ 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).

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Interstage Transformer

"C" core, 0.004 in. strip, English Electric HWR/4/3/5.
Window length & 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 + 73 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 1/2 in.
Strip width = 1/2 in.; Build-up = 1/2 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

Fed. President: W. T. S. Mitchell, VK3UM.
 Fed. Secretary: L. D. Bowie, VK3DU, Box 2611W, G.P.O., Melbourne.
 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: 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, VK-2AOR, 18 Kahibah Rd., Highfields, via Adamstown; Coalfields and Lakes: H. Hawkins, VK-2YL, 9 Comfort Av., Cessnock; Western: W. Stitt, VK2WH, "Cambijowa," Forbes; South Coast & Southern: E. Fisher, VK2DY, 2 Oxlade St., Warrawang; Sth. Western: J. W. S. Edge, VK2AJQ, 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

VK0 (ZERO)

Following the allocation of the prefix VK1 for those Amateur Stations operating in the Australian Capital Territory, a further change has now taken place with regard to those stations which operate from the Antarctica.

The prefix VK1 (for Antarctica) has been withdrawn and in future VK0 (zero) will be allocated to these stations.

It is expected that the change over will take place when relief parties arrive at the various bases towards the end of the year.

EMERGENCY CO-OPERATION IN GREAT BRITAIN

In the November issue mention was made of amendments being promulgated for Amateurs in Great Britain. The "Amateur (Sound) Licence" has been varied and the following new Clause 1 (1) (c) has been added:—

"To use the Station, as part of the self-training of the Licensee in communication by wireless telegraphy during disaster relief operations or during any exercise relating to such operations conducted by the British Red Cross Society, for the purpose of sending to other Amateur Stations such messages as the Licensee may be requested by the said Society to send, and of receiving from any other Amateur Station such messages as the person licensed to use such other Amateur Station may be requested by the said Society to send."

This official recognition of Amateurs and their value in emergencies is most gratifying and the R.S.G.B. is to be congratulated on its fine work.

FEDERAL QSL BUREAU

Amateurs will be pleased to learn of the granting of the Polar Medal to the following Amateurs who in some cases served two sessions in the Antarctic: Eric Macklin (VK1EM), Jack Ward (VK1JW), Dr. Allison (VK1RA), and Hugh Oldham (VK1AWI). It is forecast that the investiture will be made by H.R.H. The Duke of Edinburgh about Dec. 3. Last year Bill Storer (VK1EG) was the recipient of a similar honour. Another Antarctic Amateur to receive an honour of a different class was Frits Van Hulsen (VK1VH), who on 1st November, qualified for the Matrimonial Medal.

Further again to recent parts about the correct addressing of cards to reach 3W8AA, Col Wright advanced proof that the address suggested by Alan VK3AHM does not always ensure delivery. Col forwarded intact a letter to 3W8AA that he had sent addressed via Hong Kong and Canton, but which had been returned undeliverable,

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, Luback; 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. Polle, 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, VK4PR, 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, VK4PR.

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, VK5KK.
 Secretary: B. W. Austin, VK5CA, Box 1234K, G.P.O., Adelaide. Telephone: UX 2621.
 Meeting Night: Second Tuesday of each month at 17 Waymouth St., Adelaide.

being back stamped "Saigon." No evidence that the letter had been routed as addressed was forthcoming. So it appears to be a gamble whether the postal authorities forward the letters by the route requested.

Col VK7LZ also advises that VK1RW on Cocos informed him that his call sign had been changed to VK9AJ. The change, while making for uniformity, is unfortunate because VK1RW had just had a bunch of cards printed with the old call on them.

Due to the death of old-timer, VE3QE, who managed the VE QSL Bureau for many years, the address of the VE3 Bureau has been changed to 32 Sylvia Crescent, Hamilton, Ontario, Canada. The new manager is Les Whetham, VE3QE.

The R.E.P. advise that the correct address for that body is: Rede Dos Emissores Portugueses, Rua D. Pedro V, 7-4, Lisbon, Portugal.

Dig through your logs chaps and see if you have sent a card to LA5SA, Helge Heigesen, Box 70, Tonsberg, Norway. Helge is eagerly awaiting a card from the many VK stations worked, but none to hand so far. Helge has a soft spot for VK, having been a crew member of the Norwegian whaler factory ship Balaena which called at many of our ports during 1950 enroute to Antarctica.

An interesting QSL addressed to BERS195 was from an aircraft mobile station, operated, by Jack Wanzer (now WORHJ), under the call sign W6RHJ/AM. At the time Treb heard the signal from the aircraft mobile on 14 Mc, the plane was flying at 9500 feet between Darwin and Djakarta.

Bill Storer (VK2EG, ex-VK1BS and VK1EG) will be in Melbourne on P.M.G. duties for about a month covering the Olympic period. Hopes to bend the elbow with many of his old friends.

The Radio Club of Chile advise that due to modification of the number of call districts in Chile, it has been necessary to amend the conditions of their W.A.C.E. Award. As from July 1, 1956, ten districts have been created in lieu of the existing seven. The present districts CE1 to CE7 remain practically as before, but additional areas are CE8 Magallanes and Tierra del Fuego, CE9 Chilean stations in the Antarctic continent, and CE0 Easter Island. The new conditions for the Award provide that eight QSLs proving communication with eight of the ten districts in any of the bands, must be submitted. The direct sending of the QSLs can be omitted if the list of QSOs is certified by the Awards Manager of a Club or body affiliated with the I.A.R.U. This means that it is only necessary to send your cards to the W.I.A. Awards Manager, who will return you the necessary certification to forward to the Radio Club of Chile.

Letters from the rival societies in Sweden—the S.S.A. and the S.A.R.C.—seem to indicate

Divisional Sub-Editor: E. C. Daw, VK5EF, 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: F. A. T. Tredrea, VK6FT.
 Secretary: J. Mead, VK6LJ, Box N1002, G.P.O., Perth, W.A.

Meeting Place: Perth Technical College Annexe, Mounis Bay Road, Perth.
 Meeting Night: Third Tuesday of the month.
 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, VK7EJ.
 Secretary: M. Hurburgh, VK7MH, Box 371B, 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: F. M. Nolan, VK9FN.
 Secretary: Mr. H. Young, C/o P. & T. Dept., Port Moresby.

Divisional Sub-Editor: To be appointed.
 QSL Bureau: R. Lloyd, VK9ZAL, C/o Commonwealth Dept. Works, Port Moresby.

an unfortunate cleavage in that country. The handling of cards seems to be the main bone of contention. The S.S.A. definitely state they will not handle or deliver cards to members of the S.A.R.C., while this latter body, whose address is Box 7, Bjarrad, Sweden, delivers cards to all Amateurs and listeners irrespective of their membership in either society. They claim that big packages of cards dating back to 1945 are lying in the S.S.A. Bureau unopened. We hope this unfortunate schism is quickly healed.

The correct address for cards for Amateurs in the Federal Capital Territory (now VK1) is Bud Pounsett, Box 59, Kingston, Canberra. It is as well to include the word "Canberra" in the address as several packages addressed to Kingston, A.C.T., were tried at every Kingston in the Commonwealth—except Kingston, A.C.T.

Ray Jones, VK3RJ, Federal QSL Manager.

NEW SOUTH WALES

Approximately 70 members were present at the October meeting of the New South Wales Division, held as usual on the fourth Friday of the month, at Science House. The meeting heard reports from Norm Burton (deputising for Horrie 2FA) and Perce 2APQ on the activities of the Divisional B.c.f./t.v.i. Committees. Although no t.v.i. calls have yet been made, the Committees have been kept busy with tests conducted on various receivers and transmitters of differing construction. Horrie and Perce would welcome any members willing to assist the Committees with this interesting study. Don 2ASW, who has recently returned from the U.K. and U.S.A., demonstrated his "personal portable" t.v. rx and answered questions on many aspects of his trip.

Arrangements have been concluded for the issue of car badges modelled on the Institute badge and orders are now being accepted by the Secretary.

Discussion took place on the important question of the growing menace of commercial use of the exclusive Amateur bands. Noel 2AQH has agreed to act as Divisional "clearing house" for reports on commercial interference. Noel requests that all who are able should supply him with information as to frequency, call signs and times of operation of non-Amateur stations operating in the exclusive Amateur bands. Although little can be done with those stations behind the iron curtain, there are many instances of harmonic and parasitic radiations from stations much nearer home, especially between 7 and 7.1 Mc. If you use 7 Mc. at night you will be no stranger to this problem and the gradual insurgence into the 14 Mc. band promises to reach similar proportions, unless action is taken promptly. Noel's address is

R.M.B. 585, Anthony Street, Blacktown, N.S.W. Let's keep him busy and do something constructive about this threat to our very existence.

HUNTER BRANCH

The University of Technology was the location of the October meeting of the Hunter Branch. One film on the construction and testing of t.v. antennae was shown, following which Bill 2XT declared the meeting open and the minutes were read and business dealt with. The affairs of the Blackalls Convention were finalised and the meeting decided that the 1957 Convention would be held at Blackalls Park on October 5 and 6, and that Council be asked to hold this date for the Hunter Branch.

Jim McKay lectured on the construction and erection of antenna masts and gave the meeting some interesting hints on guying and anchoring the masts. The 24 members present showed their interest by the number of questions asked.

Following Jim's lecture two more films, one in colour, were shown, again dealing with t.v. antennae and their construction and testing methods. The meeting closed with the usual ragchew.

Mr. Stewart, father of Ron 2ASJ, has been very ill the last few weeks and all Branch members wish him a speedy recovery. The usual Xmas Party of the Branch will not be held this year, but a present will be purchased for each child of each member and will be distributed by the Social Committee at an appropriate time. This will take the form of a personal visit and ragchew. Stan 2ZDL, Les 2ZCB, Dave 2BZ, Doug 2ADS and Les 2AOR have all been active on 2 mx. Rodney 2CS active at night on 7 and 14 Mc.

Listen for 2AWX, Monday nights, on 14 Mc. at 8 p.m. for official Hunter Branch news.

UPPER HUNTER GROUP

Note with interest that another Ham has appeared in the way of 2ZCB at Scone and to date have not had the opportunity of calling on this gentleman—not 27 miles away. Have no news from 2RC or 2OS, apparently you boys have had to shelve Amateur Radio for a time. The Hunter Branch field day was attended by Geoff 2VU, Tas 2GV and Ken 2ANU. Last heard of Tas was that he was visiting 2APP at Tamworth. Only two stations were heard operating in the V.h.f. Group spring field day—2VU and 2ANU, who were kept busy with messages and finding someone to pass them too. Geoff busy building phased array for 2 mx and Ken building converters.

SOUTH WESTERN ZONE

I think by this time the chaps of this zone will have recovered from the Convention and

are once again either building or using the gear for DX or otherwise. Your scribe had a very welcome visit from Eric 2DY, Peggy and family, who were visiting at Wagga, and forded the Murrumbidgee to come to Coolamon. Les 2ZBJ at Quilty is still very active on 144 Mc. and is experimenting with p.m. and discriminators; has talked your scribe into the stuff, also. However, it is good fun playing around, isn't it Les?

Don 2RS at Albury is active from home QTH after holidays. Don recently had a visit from 2ZBJ and was impressed with the mighty signal from Les' mobile. Art 2EU is also talking about 144 Mc., after the visit. Lyn 2AQE is active occasionally from Wagga. Have not heard 2AID or 2BW. The Tumut gang have not been heard over here, although have heard 2ZAA on 144 Mc.

COALFIELDS AND LAKES

Cec. 2KR and other Woy Woy gang have the arrangements for the field day to be held on the 18th. Major 2RU still the only station heard here from the Gosford area. Doug 2ASA, of Tuggerawong, on 144 Mc. fairly regularly and also can be found on 21 Mc. Nothing heard this month from Bob 2KF, but understand he is active. From Singleton, Geoff 2VU on 144 Mc. most nights and looking for Newcastle-Sydney contacts. Another regular 144 Mc. boy is Ken 2ANU, from Muswellbrook. Duncan 2MC hopes to be active by Xmas. Chris not active at present time, but 2FZ is OK to operate if the need arises. 2YL active most bands when time permits; the highlight of the month at 2YL was the visit of WVAL and his good wife; it was a great thrill to meet Bill in person after over 20 years of Ham contacts.

VICTORIA

At the November general meeting, Maurie Anderson (3AMA) gave a very interesting lecture on his recent trip to Central Australia for the opening of the John Flynn Memorial Church. Firstly he sketched the route of his trip via N.S.W. and Western Queensland, then he showed his large collection of 35 mm. coloured slides, weaving the story of his trip around the subject of each slide. The brilliant colouring of Eyre's Rock, Simpson's Gap, the mountains and scenery of the Centre and the enormous carpets of wild flowers were very amazing and wonderfully portrayed in his very excellent collection of slides. Stan 3TE assisted Maurie with the showing of the slides and Stan, himself, had some very excellent slides of his own which he also showed. Maurie brought in his 40 mx mobile rig which he used on the trip and which is a very neat and compact little unit. Now

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SAMA, he has previously held the call SMA and was one of the original radio crew in the Flying Doctor Service and his name appears on the tablet at the John Flynn Memorial alongside the names of Alf Traeger and Harry Kauper.

The following were welcomed as new members of the Institute—Messrs. R. J. Beames (3ZDM), K. J. McLachlan (3ZDK), H. E. H. Mitchell (3AEM), and J. W. Ballinger (3NKG) as full members, and Messrs. L. F. Beal and A. J. Lyons as Associates.

Owing to the Olympics, the Bi-monthly Scramble will not be held in December. Don't look now, but that stork has been around again. Congratulations are extended to Jack 3WR and Betty Vertigan; they have a brand new little daughter, Karen Lee, who arrived on 18th October. All doing well, especially the father, he's just fine!

STATE CONVENTION

A very successful and enjoyable State Convention was held at Leongatha, a most picturesque country town in the Gippsland area, on the week-end of 3rd and 4th November.

Approximately sixty sat down to the dinner which was held in the Council Chambers. Several XYLs made the trip with their OMs and before the dinner started each was presented with a spray of roses by 3PR's two young harmonics, Bruce and Ronald. Vernie, 3PR's XYL, was responsible for this lovely surprise, which was very much appreciated by the ladies, making them feel really welcome in their OM's world.

Councillor and Mrs. Bond, of Leongatha, were guests of honour at the dinner and were pleased to meet Amateurs and their families from Melbourne and other parts of the State who had travelled to Leongatha for the Convention.

After the dinner the ladies retired and spent the evening at the local picture theatre while the OM's got down to business. Among the subjects discussed were: Alteration of zone boundaries, Amateur interference to communication services using equipment covering Amateur bands, and alteration to the 144 Mc. band.

Unfortunately, because of the weather, which couldn't possibly have been worse, the Sunday activities had to be curtailed slightly, however despite the very cold weather and unceasing rain, it was still a very excellent day. After visits to the shacks of Bon 3PR, Jim 3DI and Gwen and Rex 3US and 3VL, an inspection was made of the Leongatha butter and cheese factory which was most interesting to all.

The picnic lunch which was to have been held at the Moss Vale Park had to be transferred to the Council Chambers, but picnic lunch it was just the same and everyone enjoyed Mrs. 3PR, Vernie Jardine's, S.S.S.C. (Super Special Sponge Cakes), and all the good things baked by the XYLs of the Eastern Zone, a mighty fine effort on their part, baking for sixty hungry wireless folk.

After lunch a tx hunt on 80 mc was run and was won by Laurie 3ALY, second was Ted 3AEH and third Len 3LN, who were all presented with a very nice piece of radio equipment as their prize.

After the hunt the Convention wound up with cheerios, 73 and a wish in everybody's heart to all meet again for this grand get-together next year.

Congratulations to Ron Jardine 3PR and the boys of the Eastern Zone for a very well organised and most enjoyable Convention.

80 METRE TRANSMITTER HUNT

The luck of the 80 metre transmitter hunters is almost unbelievable; after that dreadful week of continuous rain, the sun came out and shone, and once again we had a lovely sunny day for our hunt. A good crowd turned up, approx. 40. Reg 3ZAD and Barry 3JB hid the tx and they chose a very excellent spot. It was at Coate Park, a particularly scenic park situated on the banks of the Yarra in Alphington and the tx was hidden under bushes down at one end of the park. Reg and Barry had fine wire strung up all over the park, giving signals in all directions, but the thing that baffled the hunters most was the entrance to the park itself. It looked exactly like the entrance to a private home and although the signal definitely appeared to be coming from within this entrance, the hunters were very wary of intruding.

The result of the hunt was a dead-heat between 3LN's son and 3EM's daughter. What's all this about, what's going on between our teenage harmonics. You'd better look out Len or you'll have Ed chasing you with a gun. Second place was also a dead-heat, between 3ALY and 3AOG, and third place went to 3ADU. And would all please note that Noel 3ANS definitely did not come last this time, no of course he didn't, he came second last! The hunt concluded with the usual picnic tea.

SOUTH WESTERN ZONE

The zone activities this month have been good and the half-yearly convention being held has added to the activities. Gordon 3AGV at Colac is busy getting everything fixed up at his new QTH, and also busy with t.v. Harry 3K1 is giving 21 Mc. a belting, has had some nice contacts. Norm 3EQ is also 21 Mc. happy, so is John 3ARJ who has a good signal on that band. 3ARJ's mate, Bill Bell, has followed 3UT's footsteps and is the proud owner of an 80 mc vertical, also made of downpipe—working out quite well.

Well now for the convention. The usual mobiles were on the job whilst travelling to Ballarat, they comprised 3ADV, 3AKR, 3AGD, 3BV, 3AAH, 3ALQ, 3AID, 3ACE, 3IC, 3AGV, 3XI and 3ARJ. The usual mighty dinner was held at one of Ballarat's local tea rooms, this being arranged by Bob 3GR, he also was M.C. of the whole thing. At the official table were Bob 3GR, Cedric 3EQ, Bob 3IC (acting as Vice-President in the absence of Jack 3JA, who was unable to be with us because of illness in the family), also Ted 3AEH, Zone Secretary, was unable to attend on the Saturday, but came along on the Sunday. Bill Wines, a past Secretary, acted as Secretary. The Kinnear Trophy was displayed on the official table.

After the dinner there was a film night which was very good and was enjoyed by all. There was also a very good display of Ham gear including a complete 144 Mc. tx, Bill 3BL's rx, and a complete band-switched tx and rx displayed by Bill Bell (how about an article on this Bill—Ed.); this was operated mobile by 3ARJ travelling to the convention.

Sunday was started off by a visit to the local b.c. station 3BA; we were shown the new live-artist studio. This visit was arranged by Mr. J. H. Davey, and Keith 3IV acted as guide. We owe a very big thank-you to these gentlemen. The first tx hunt started off at 11.15 a.m. and was found by 3AGD. Bill Bell and Bill Wines were within 100 yards but were not sure of where the track to it was. The next tx hunt (after lunch) was won by 3LN, followed by 3AGD and 3AEH. As this hunt finished before the time was up, we held another and this was won by 3AAH-3ALQ-3AID, all in the one car.

We take this opportunity to thank Bob 3GR, who did a marvellous job in every way, also 3VA on the tx hunts with 3XJ and 3ACE. There was one thing that was very unfortunate, Vic. Clarke broke his gear box in the tx hunt. Well as these are the last notes for 1956, I take this opportunity to wish you all a very happy Xmas and prosperous new year, to all members and XYLs, YLs and harmonics.—Bill Wines.

NORTH EASTERN ZONE

Bruce 3AGG and XYL are being congratulated on the addition of a daughter to the family. Jim has been active on 10 mc, Des 3CO is also on this band. Vern 3AXW has a brand new v.l.o.; Brian 3ASF is in hospital. Ken 3KR is still on the seedy list owing to his recent illness. Andy 3FD is still the stalwart of the zone hook-ups; Howard 3YV is up to his eyes in movie equipment, also John 3ACK finds time to climb out of the emulsion and get on the air. Ted 3AOB has his mobile antenna mounted on the Dodge ute now; Ray 3FT is still unpacking his gear.

Recently Murray 3HZ was found hard at it in the new garden and Alex 3AT still can't find time to spend on his hobbies. Harvey 3ZG is spending some time in this area and contemplates 2 mc operation from his car. Ray 3ZAK is still experimenting with his 2 mc gear, and George 3GD has been heard on 20 mc. Earl Scoones has found his locality is bad for reception; Nat Bloums has been sighted and is still cheerful, all other personnel in the zone haven't been heard from. Come on spies, let's hear from you, the time has arrived when you can blow the gaff on what the fellows are doing. A half-yearly convention is contemplated fellows, let's have your opinions.

EASTERN ZONE

The State Convention held at Leongatha proved a great success, mainly due to the very capable organising by Ron 3PR and XYL. A total of 55 sat down for the dinner after which the YLs and XYLs and harmonics went to the pictures, while the OMs got on with the business of the evening.

Rex 3VL and Gwen 3US have some nice v.h.f. gear for 2 mc and sport a t.v. set. Jim 3DI has some nice equipment from 80 to 2 mc, also a partly built t.v. set. Ron 3PR has quite a studio carpet on the floor, mainly interested in the lower bands.

A note of thanks and appreciation go to Ron 3PR and his XYL, who both looked after the arrangements.

Sympathy is extended to Ron 3PR upon the sudden passing of his father who has not enjoyed good health for some time.

GEELONG AMATEUR RADIO CLUB

Recently Cyril Ham entertained members with Mr. J. Firth at a slide lecture—the topic was "A Journey into Central Australia." The speaker told the audience of experiences of his journey by truck over some picturesque country between Mildura, Adelaide and northwards.

Many members visited the convention at Ballarat and a great time was had by all. The location was most enjoyable. It was pleasing to see S.W. Zone members in the person of 3AKR, 3ADY and 3ADG well in the placings of prizes in the events held. Vic Clark and Bill 3AWZ ran into trouble during the tx hunt, losing a few gears in transit, however all was repaired satisfactorily. The organiser, 3GR, and his friends are indeed to be thanked for a most enjoyable time. At the convention we met 3AGV, 3II, 3AEH, 3LN, 3ALY, 3FO and many others.

Chas 3XH delivered an interesting talk with gear to match on transceivers. Chas spoke on his experiences with the tx and rx he constructed for 40 and 80 mc. The rx is also compact enough for mobile operation.

Many of the boys visited the Leongatha Convention but as this goes to press insufficient reports are to hand—details next month.

The t.v. is being well received in Geelong and Bill 3BU entertained members at his QTH on the opening of HSV7. We hope he won't be too ardent a supporter of this new medium. We wish all friends our best wishes for the Xmas Season.

QUEENSLAND

BRISBANE AND DISTRICT

Some months ago Council decided that a re-building project was due and set an unofficial target of 200 members for the Division by the end of the year. A lot of "high pressure" sales talk on the air and off started to bear fruit. Apart from the renewed interest in Ham Radio co-inciding with sunspot cycle 19, one thing that helped more than anything in getting the membership up was the excellent work of Federal Council in bringing to the notice of Federal Parliament the case of "those" t.v. receivers. On that point, we "dips our lids" to F.E. Now, if the present number of applications for membership keeps up the target will be reached. The only dismal point is the present state of world affairs; we hope it will "cool down" and the R.I. won't have to send another batch of telegrams like he did back in September, '39.

The authorities seem to be becoming more sympathetic to the needs of the fraternity. Senator Hannan suggested that all licensed Amateurs should be exempted from both excise and sales tax. Later, in the House of Representatives, Mr. Pearce, the member for Capricornia, made a similar suggestion and also advocated an increase of power to 250 watts. On the first point there will be hearty approval, because that 25 per cent. can make a big dent in your bankroll, but on the increase of power quite a few of us will differ in our opinions. Anyone who has been in areas where a kilowatt is the legal power limit will know what a hopeless mess can occur when a few high power rigs get on the band together. After all, a rig with 250 watts input feeding a dipole will give less than one 'S' unit increase over 100 watts with the same antenna. When you look through the W.I.A. DX.C.C. listings you will find really high scores and from experience we know some of the boys are running less than 100 watts. Tibby 4HR with a "over 200 countries" score uses a pair of 807s and runs less than 100 watts. Remember, also, that as your power goes up, the cost goes up in the initial outlay. Possibly there will be a lot of opposition to our opinions, but use your heads, gentlemen; you will see that there is a lot of sense in what we say. You can't look a gift horse in the mouth, so let's just wait and see what happens.

By now all Hams in Queensland have received the procedure to follow in case of an emergency. Vince 4VJ, and the Emergency Network, put a lot of work into compiling the procedure and information from all sources has made the plan almost foolproof. One important point we stress, if an emergency occurs, don't clutter up the emergency frequencies trying to "get into the act." If you aren't at the locale of the emergency or are not in the Emergency Committee, listen, but don't call. If the Emergency boys want help, they will call for it and that will be your cue to call in.

Don't forget the Christmas Get-together this year. It will be held at Anzac House on the second Saturday of December at 8 p.m. With the increased membership and attendance at general meetings, this should be well attended, so roll up, one and all, for a really first class evening. There will be no general meeting in

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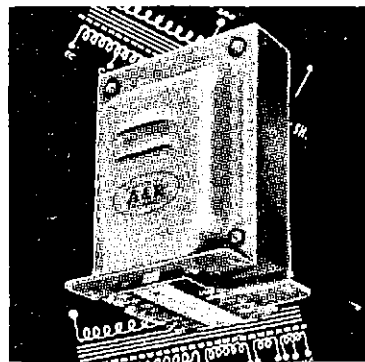
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December as the fourth Friday is right in the middle of the festive season so you can make the Get-together do instead.

Well, all the very best wishes to you and yours for a Merry Christmas and a successful 1957.

TOWNSVILLE

Before going to the monthly meeting, went along to pay Eddie 4WH the usual weekly visit in hospital. Very glad to report to all his well-wishers that Ed's fourth operation was successful. Ed, hope you are soon home and get amongst the DX during convalescence.

Again the meeting just managed to scrape up a quorum plus two associates who are anxiously awaiting results of last examination. Great plans were made to increase roll up in the New Year. The Emergency procedure pamphlet was very hotly discussed and it was agreed that not enough information was given and no mention of local police and postmasters being informed re their part in co-operating in times of emergency.

John 4DK is putting up tower; said to have nice crow's nest complete with hand rail. Vern 4LK in throes of anticipation of breakthrough on 144 Mc., now that t.v. has broken through from Sydney to Brisbane; also 144 Mc. from Maryborough to Warwick. John 4DD putting up four element on 28 Mc. that did yeoman service in VK6 land. Alan 4BE grateful to return home again as family dogged with bad luck while down south. The ether whispers that Norm 4NT is shortly leaving for long spell in the south and has arranged for emergency gear to be available in Mareeba while he is away.

Visitor to my shack this month was Ed 4EW, mobile on transfer to Darwin, and promised to meet Danny Well on his arrival in Darwin. Now Danny's back again in Port Moresby after losing yacht "Yasme"—still undaunted and looking for another boat to complete his journey.

MARYBOROUGH

First result of the 60 foot tower at 4CB was a 2 mx contact over 180 miles to 4ZAF at Warwick. This is a new State record. Next on the mast will be a 10 mx quad which is ready to go up. 4BG re-built his power supplies and the increased power of 65 watts blew two by-passes and a 5R4GY before settling down. Ron has been climbing out of bed at dawn to work Africans on 14 Mc. and reckons the new countries worked have been worth it. 4HZ, of Gympie, paid a flying visit to Maryborough, bought up the remains of a windmill tower and went on his way rejoicing.

SOUTH AUSTRALIA

Our T.v.I. Committee should be pleased with the excellent reception they obtained at the October meeting, when they provided the lectures for the evening. The vast attendance of members and associates, together with 15 visitors, brought the assembly to over 140 which was a clear demonstration of the confidence members have in the Committee to provide some really good information to enable us to keep clear of the "one-eyed monster." The VKs really intend doing something about it to enable us to keep on the air and not let this new medium of entertainment restrict our activities.

Ray Tuck introduced the two speakers, Rob Gurr (5RG) and Ian Wall (5IW) and gave an outline of what we were to expect. Rob got right into it and outlined the efforts that went into the assembly of references, from where they had been received, and how (Rob's KYL was a great help here—acting as secretary to him), and then indicated equipment built and under construction, some of which was on display.

The information available was assembled from all over the world, with particular reference to U.S.A. where A.R.R.L. led the field and a great number of manufacturers who had had years of experience in t.v. activities and t.v.I. problems assisted by supplying their angles of approach.

It is apparent that a careful study of the A.R.R.L. handbook and the Remington Rand T.v.I. book will be the main source of inspiration and will provide nearly all the answers, so go to it chaps, we all have to learn.

Rob quote some statistics obtained from the British P.M.G. on the number of t.v.I. complaints recorded and investigated in U.K. and it will cheer you up to learn that Ham t.v.I. represented but 1 per cent. of the total, all of which were cured. The greatest offender being domestic appliances, including those with universal motors and vibrators (shades of razors here). He concluded by giving acknowledgment to the VK2 boys who were rendering co-operation on their present activities and were keeping VK5 posted.

This was followed by Ian who had previously set up two t.v. rx's, a pattern generator and a

small tx loaned by Les SAX, amongst other items of interest including a g.d.o. that we all wanted to take home. He outlined the equipment on demonstration and then went straight to the practical show when we all saw what could happen, to the screen, when a tx was in use nearby that had not been completely proofed. The effect of "swamping", harmonic radiation, and spurious, were shown to good effect and made some of us wonder what volume of trade would be offering next "tender" night. Ian was also able to show the effect of incorrect i.f. frequencies and how disastrous such could be, and concluded by offering suggestions for cure of all apparent troubles. It is very interesting to note that the T.v.I. Committee are to build a tabletopper from which all bugs have been removed, and some time in the future that will be the subject of another demonstration (and article for the magazine, I hope.—Ed.)

A short practical talk was given by Bob Langfeld (G3IHC) on how he got over t.v.I. and lived alongside t.v. in a fringe area, most interesting Bob, and thanks.

The main thoughts left with us all was that in future we will have to box within a box, within a screen, to keep those harmonics in their places, and by-pass all power leads to the greatest extent, and then for luck another screen and a few more r.f. chokes and puffs here and there.

Many thanks go to Ray, Rob, and Ian for assembling such a wealth of information and delivering such interesting lectures, and to Ian and Les for the gear used in the demonstrations.

It is up to us now to make use of both the information they have obtained and the test gear they are to make available to keep our houses in order. If you are not sure of the approach a stamped addressed envelope sent to the Committee with your enquiry will bring a prompt reply. They even have all the dope on B. & W. coils, so don't let B. & W. 3002 ever toss you again.

The general business of the evening was followed after QSL cards had been handed out, which included the confirmation of nine new associate members, J. E. Barker, K. L. Metcalf, J. Talet-Kelps, B. A. Endersbee, J. E. S. Ellis, R. J. Cook, J. S. Aabech, N. Grey, and R. C. Grivell, whilst E. S. Whittington (5ZAG) was raised to full membership, and Vic Taylor (GW3LKM/MM) on M.V. "Agamemnon" was granted honorary membership for one month.

A sub-committee under the joint control of "Doc" 5MD and Les 5LC has been formed to look after the exhibit in the 1957 Manufacturers' Exhibition. They will be on the lookout for equipment, operators, helpers, and yet more helpers, to get organised, for although there appears a lot of time ahead there is a lot to do and no one will be able to give full time to it, so don't be backward. Join in the project and further the Institute's efforts; it's good publicity, helps membership and promotes good public relations.

Welcome back to the bands goes to Chas 5ON this month; very pleased to hear you on again and hope you find the new QTH to your liking. Bert 5KG is doing well with 10 mx DX these days, uses a vertical with single wire feed. The A.O.C.P. Classes have started with 29 members to try their luck. In fact the opening meeting was so good a larger room had to be hired to accommodate them, all—so there is now more room for any extras. A YL is joining the ranks, all the best to her.

NORTH WESTERN

Not much heard from the gibber country this month, so presume they are on the DX bands with their various rhombics. The Fort Lincoln spy advised Pat 5LT is back from hospital and doing well on the 20 mx DX band. Jack 5VJ is shifting his QTH and by the time these notes are read he should be settled down near the "Best city in the Commonwealth." We wish him well in his new place of abode; don't forget the Lincoln boys Jack, 40 mx will get over to them quite well. Wally 5DF is still active particularly on Sunday mornings on 40 mx; has plans for a re-build to get on to other bands. Alf Mack is swatting hard for A.O.C.P.; stick to it Alf, and those questions will lose their punch for you. George 5GA still busy, but not yet on to our bands, hopes to soon.

SOUTH EAST

Leo 5ZAG provided a lecture for last meeting based on carrier telephony (P.M.G. style), most interesting and all looking forward to a continuance at some future meeting. Claude 5CH had a lot to say about his caravan trip to VK2 which kept him away from the bands for the month. Col 5CJ not on much these days, nor Stewart 5MS, who is getting his rig in order for Special Europe contacts when Maxine goes there soon to the Gulde camp as representative for Mount Gambler. Dave 5ZAM doing well on 2 mx but finds his sigs won't penetrate the

300 ft. mast at the b.c. station, preventing a Remark hook-up—put it on top, Dave! Erg 5KU manages a few DX on 20 c.w. to keep his hand in, but is spending most of his spare time making ribs for the sailplane—make a few spares, Erg, for they do crack you know.

WESTERN AUSTRALIA

At the October Divisional meeting Mr. Archie Strickland gave a most interesting lecture on "Astronomy." He pointed out, however, that as the stars are thousands of "light" years away it would be useless to send radio messages. 6MK was heard to remark that they probably would not QSL anyway.

A visitor to the meeting was Keith Smith from ZS, who is radio op. on a boat that was visiting Fremantle. I heard that some country members who were unable to attend appreciated the recording of the lecture put over by Wally 6AG on the W.I.A. news broadcast on Sunday. It came through very well and was very interesting. Congratulations to Tom 6TH on winning the 40 mx scramble. Understand that Tom is in trouble—his YL is taking a Ham Radio course! Tom is doing some boating when the boat stays above water. Your scribe (6EJ) has been missing on the phone bands for a month, but the new modulator (5JU model) was completed during the month and is working very well according to reports received.

6RU was heard pounding the key during the "CQ" Contest. At the time of writing the final R.D. results are not to hand, but we understand VK6 won by a good majority.

The December Council meeting will be held at 8AG's QTH at Darlington. (Does the mast need painting, Wally?)

The next Divisional meeting will be held on 17th December, and as usual being near Xmas, will take the form of a social evening—visitors welcome, especially all those who have given lectures during the year, to whom we offer our thanks and appreciation.

That's about all for 1956 excepting to wish all readers a Happy Xmas and good DX during the coming year.

TASMANIA

As usual, no scandal been passed on this way, so in desperation will have to fill and pad with news of the newly formed Highlands Radio Society. This Society has been launched successfully with Reg TWN President, Harry 7BR Secretary; Committee: Jim 7ZAM, Mick Davis and Tas Pitman. Committee have arranged Morse instruction at Bronte Park under Tas., and Radio Theory by Harry 7BR. At Tarraleah, Reg TWN is brass pounding and Jim 7ZAM directing theory. Some pupils indicate early QRM, to wit, an ex-wartime op. in the 15 w.p.m. group. Group have resolved to operate as a unit of the W.I.A. and function likewise with monthly social evening. First social night has been held with a lecture and demonstration of high fidelity equipment. Reg gave a masterful lecture on the subject and followed with a demonstration with the assistance of Bob Wade whose equipment was made available. The possibilities of hi-fi was clearly shown by the use of change over networks where speakers were cut in and out. Result, radiograms are to be obtained cheaply in this area.

Next month a lecture has been arranged on archery with practical demonstration—both competitive and the art applied to hunting with the bow. Ted Burns, who is most able in this direction, will do the necessary. Future lectures arranged are navigation aids and communications, and photography with an associated showing of slides, etc.

Only note heard from other areas is that belated congrats are due to Bill 7YO with a family addition, but as yet no one will let us in on the type. The new scribe in the North West is noted to be burning up the paper to no order in his usual style, good work Lennie. Harry 7BR anticipates another QTH in near future, but any reports of the final move will be reasonably accurate. The last scribe moved Len and I all over the State on our last walkabouts.

NORTHERN ZONE

A good attendance of members attended the Transport Commission (Railway Branch) offices to hear a lecture and demonstration on "Super-sonic Fault Detection," given by associate Geoff Crompton. This was followed by an inspection of the new diesel electric locomotive workshops, where they saw two locomotives in the course of re-construction after a fatal derailment several years ago.

At the last meeting members discussed the question of hidden tx hunts again, and a programme of events will be drawn up at the next meeting. Hi, there, Chris, don't you wish you could be in it?

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The general activity is down to a low level, but may brighten up with the summer months ahead. Perc ZAW has settled in at his new QTH; they say there is no room for the gear, better find a good samaritan Perc if you have not already done so. Heard the other day Henry's eldest harmonic is off to Mawson with the next relief party, must have been too hot for him in VK6. Maybe we will see some good photographs or slides when he returns. "What say young fellow?" George 7GC has his full ticket now, so let's hear you soon on all bands. Things are very quiet in VK4 land; how about a few lines 7LX, or have you changed your call sign? We are all so curious.

NORTH WESTERN ZONE

The monthly meeting of the zone was held at my QTH in Wynyard on Oct. 23 and was well attended with 18 present, including two new associates. A hearty welcome to you both. As the zone numbers are increasing, it was decided to continue holding two monthly meetings with lectures to be given by members. "Guess the resonant frequency" was a little thing cooked up by our President, Jim 7JO, and consisted of a coil and variable condenser combination; formula was supplied and calculations went on everywhere, I even found one effort on the wall above the mantelpiece. First prize was a lovely 807, brand new, with crinkly plates, won by Denis 7DR.

After this an auction was held, and it was terrible to see fairly normal human beings rapidly degenerate into things who elbowed their neighbours, shouted bids, fondly stroked various pieces of junk, and generally came under the hypnotic spell of the auctioneer, Ted 7EJ. Glad to see you've got your voice back. Incidentally, we're missing a small mantle model; what did that bring Ted?

How's that rx coming along, Johnny Lee? Believe the g.d.o. that associate Max Ives built makes a good signal source. George 7KL, and his tape recorder, have not been sighted this month, you were out when I called. George Denis 7DR has a fine ground plane adorning his garage roof and seems well pleased with the DX on 20 mx. The radiator is cut for 15 mx by the way. Roy 7RN is conspicuous by his absent signal, although he was present at the meeting; appeared to be engrossed in earnest conversation with Aihol 7LR who is currently experimenting with the reception of t.v. at Devonport. How are those t.v. beams going there Aihol? Put one up over the shop, it's sure to bring customers. Leon 7JP, at Queens-town has an antenna farm on the hill, and appears to be having good DX hunting with the cubical quad. In closing, did anyone hear the wrap-up given to the Hams on a Parliamentary broadcast early in October?

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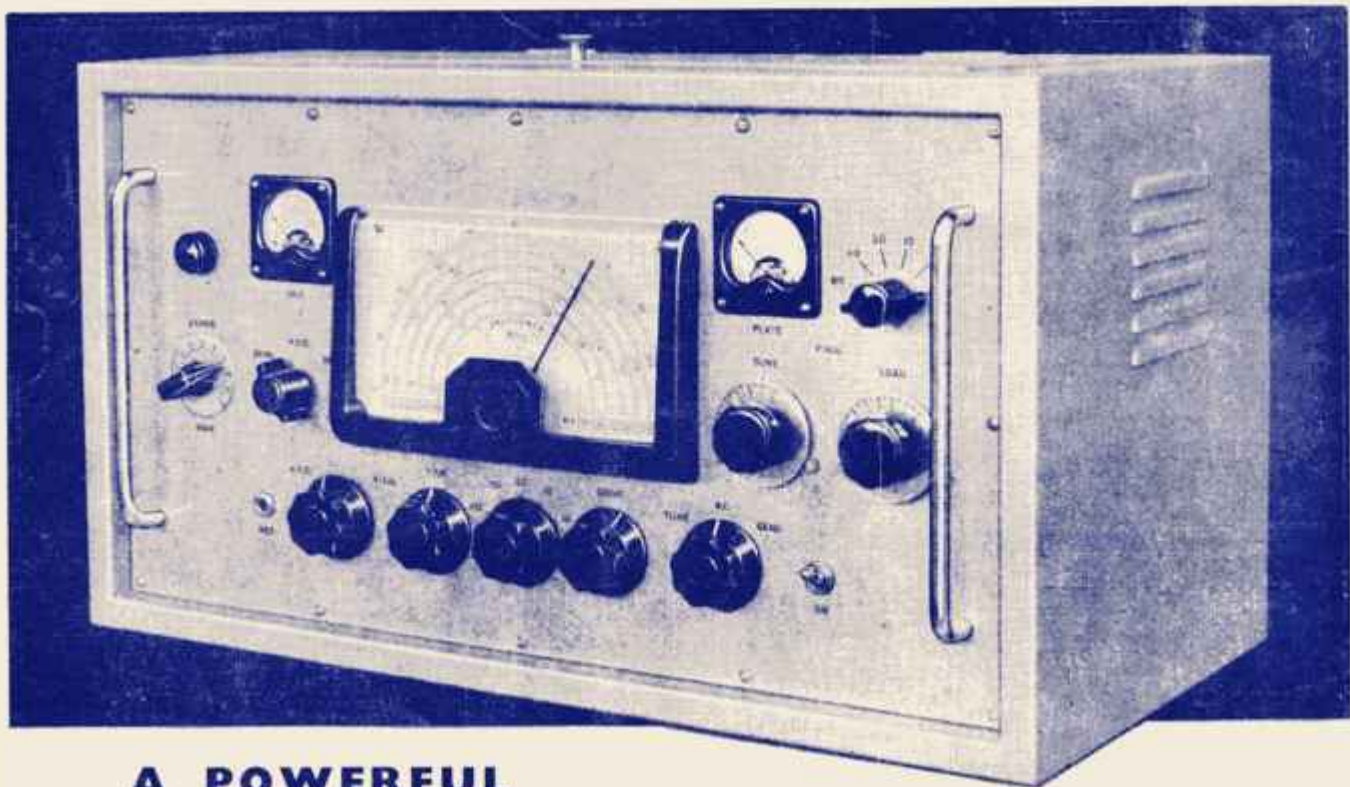
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