

JANUARY, 1958

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2443 Kc.	5700 Kc.	6325 Kc.	6925 Kc.	7250 Kc.
2732 Kc.	5722.222 Kc.	6350 Kc.	6950 Kc.	7275 Kc.
2760 Kc.	5725 Kc.	6375 Kc.	6975 Kc.	7300 Kc.
2979 Kc.	5744 Kc.	6400 Kc.	7000 Kc.	7325 Kc.
2990 Kc.	5750 Kc.	6425 Kc.	7002.5 Kc.	7350 Kc.
3380 Kc.	5775 Kc.	6450 Kc.	7003 Kc.	7375 Kc.
3500 Kc.	5825 Kc.	6475 Kc.	7005 Kc.	7400 Kc.
3533 Kc.	5850 Kc.	6497.9 Kc.	7010 Kc.	7425 Kc.
3535 Kc.	5852.5 Kc.	6500 Kc.	7011.75 Kc.	7450 Kc.
3537 Kc.	5875 Kc.	6522.9 Kc.	7012 Kc.	7475 Kc.
3892 Kc.	5900 Kc.	6525 Kc.	7018 Kc.	7500 Kc.
3925 Kc.	5925 Kc.	6547.9 Kc.	7021.7 Kc.	7525 Kc.
4096 Kc.	5950 Kc.	6550 Kc.	7025 Kc.	7550 Kc.
4172 Kc.	5975 Kc.	6561.111 Kc.	7032 Kc.	7575 Kc.
4205 Kc.	6000 Kc.	6575 Kc.	7032.6 Kc.	7600 Kc.
4285 Kc.	6025 Kc.	6600 Kc.	7050 Kc.	7625 Kc.
4445 Kc.	6050 Kc.	6625 Kc.	7075 Kc.	7650 Kc.
4445 Kc.	6075 Kc.	6650 Kc.	7100 Kc.	7675 Kc.
4600 Kc.	6083.3 Kc.	6675 Kc.	7125 Kc.	7700 Kc.
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EDITORIAL



INTERNATIONAL CONFERENCE

At the commencement of a New Year it is usual to consider plans for the future after having viewed the past in retrospect. Such inspection will inevitably result in steering a future course to avoid the pitfalls of the past. The Institute is no exception on this theme and believes it is always possible to improve on past performances.

A case in point was representation at the 1947 Atlantic City Conference when some ground was lost. There the Amateur had little say—in fact, he only obtained official recognition there and became part of the Amateur Service, a just reward for years of usefulness to the community at large. Although this gain in status gave the Amateur more weight throughout the world, other communication interests have become stronger and more demanding in the interim to offset this initial advantage.

It is quite obvious that the Amateur voice raised at the next Conference must be "loud and clear"—it must be a united voice and not one spoken through Government proxies who have so many other interests to defend. There are several preparatory steps which must be taken before even a delegate can proceed. The first is Government accreditation, the second is a clear and concise brief of Amateur requirements to the official delegate for Australia, and the next is parallel purpose with other Amateur delegates from overseas societies. When actually at the Conference, the Amateur representative must keep a close watching brief on matters affecting him and be in a position to

answer queries or give advice to the official Government delegates.

A "loose man" (the Amateur representative) could be very usefully employed in the communications "field" at the Conference. He would be in a position to listen in to many of the plenary and technical discussions that may preclude an official delegate because of other duties. He could thus become a beneficial adjunct to the Australian delegation as a whole on all matters which concern them.

The first two points raised above will be important matters your Executive have as priority tasks for this year. The Federal Secretary is later this year going overseas on a world tour, and it is his intention to hold discussions with the larger overseas societies on all the aspects of co-ordination of requirements and a unanimity of effort by those attending.

The important matter of whether to send an Amateur delegate or not is left to you, the members. It does not appear easy to find the necessary £1,500 to £2,000 for a delegate, but when this amount is spread over 3,000 odd Amateurs it does not look nearly so formidable.

You can see that the preliminary steps are in hand to see that your interests are guarded and properly represented, but this cannot be brought to fruition without your help. At the appropriate time, the Divisions will be asked for their support—can you afford NOT to support your Division and your hobby and the whole future of the Amateur in Australia?

FEDERAL EXECUTIVE.

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Harmonics and Selectivity of Transmitters

PART TWO

BY HANS RUCKERT,* VK2AOU

SELECTIVITY OF TUNED CIRCUITS WITH DIFFERENT Q VALUES

John L. Reinartz published some interesting figures giving us the attenuation of harmonics achieved with a single tuned circuit and with two coupled circuits depending upon the Q. The ratio figures are in db. comparing the power of the harmonic with that of the fundamental. Each 10 db. represents an attenuation of the harmonic to one-tenth. Minus 40 db. is, therefore, equal to one-ten thousandth of the power level and is the same as a voltage ratio or a current ratio of one-hundredth. In other words, if the fundamental was 100 volts of r.f., the harmonic would now be 1 volt. We see that we have a long way to go before the harmonics are down to microvolt strength.

Q	2nd Harm.	3rd Harm.	4th Harm.
For a single tuned circuit—			
5	-23.5	-32.0	-37.5
10	-29.6	-38.1	-43.5
15	-33.0	-41.6	-47.0
20	-35.6	-44.1	-49.6

Q	2nd Harm.	3rd Harm.	4th Harm.
For two coupled tuned circuits—			
5	-38.2	-54.4	-76.8
10	-50.2	-67.4	-88.8
15	-57.3	-75.1	-98.2
20	-62.3	-79.4	-100.8

These figures show us clearly that a tank circuit alone has no chance. If we do not couple very tightly, an antenna coupler will help a good deal (compare values in two tuned coupled circuits above). The same author mentions some interesting calculations. Up to a distance of 650 feet, the field strength of a horizontal dipole can be calculated as:

$$E \text{ (volts/metre)} = \sqrt{P} \div d$$

where p = power in watts
d = distance in feet.

Or the power in microwatts is:

$$P = 1880 (E \times d)^2$$

The minimum picture carrier field strength for a good picture is 500 $\mu\text{v/m}$. On the picture carrier we can only tolerate an interfering signal if it has a field strength of 1/100 or 5 $\mu\text{v/m}$. With the abovementioned formula we arrive at 0.012 μwatt for the interfering signal. This means that with a transmitter of 100 watts fundamental power, we need about -100 db. power reduction for the harmonics, which is a power ratio of 10⁻¹⁰, or 1/10,000,000,000 if the distance between the transmitter and the receiver is 500 feet. Your neighbour's t.v. antenna may be only 50 feet from your beam. Fortunately the case is seldom so bad because our harmonics may not fall on the picture carrier frequency. If the harmonic is about three megacycles away from the carrier and outside of the receiver pass-band, we may get away with a 100 times stronger interfering signal.

IS THE PI-COUPLER THE ANSWER?

On page 63 of February '56 "QST" we read: "Checking of harmonics at output important. One of the simplest ways to invite an F.C.C. citation is to assume that any new rig with a pi-coupler is absolutely foolproof on the A.R.R.L. Official Observer. The 7.6 to 8 Mc. (7.15 to 7.6 Mc. in VK) range is much more filled with harmonic emissions than ever in the past."

U.S. manufacturers build pi-network tank circuits in their transmitters to make bandswitching of shielded transmitters easy and to allow various antennae to be used. Also low-pass filters can easily be connected in this

A pi-coupler was then placed between the generator and the receiver (Fig. 5, centre). A matching voltage set-up capacitor chain had to be used on the generator side. This has nothing to do with selectivity provided by the pi-coupler. The two pi-coupler capacitors were fully shielded and had air dielectric. Care was taken so that practically no signal could get around the pi-coupler. We were disappointed. The second harmonic was only attenuated 30 db. and the 4th harmonic only 18 db. Nothing was changed on the generator or receiver, the additional attenuation being read on the calibrated S meter to reduce the chance of error.

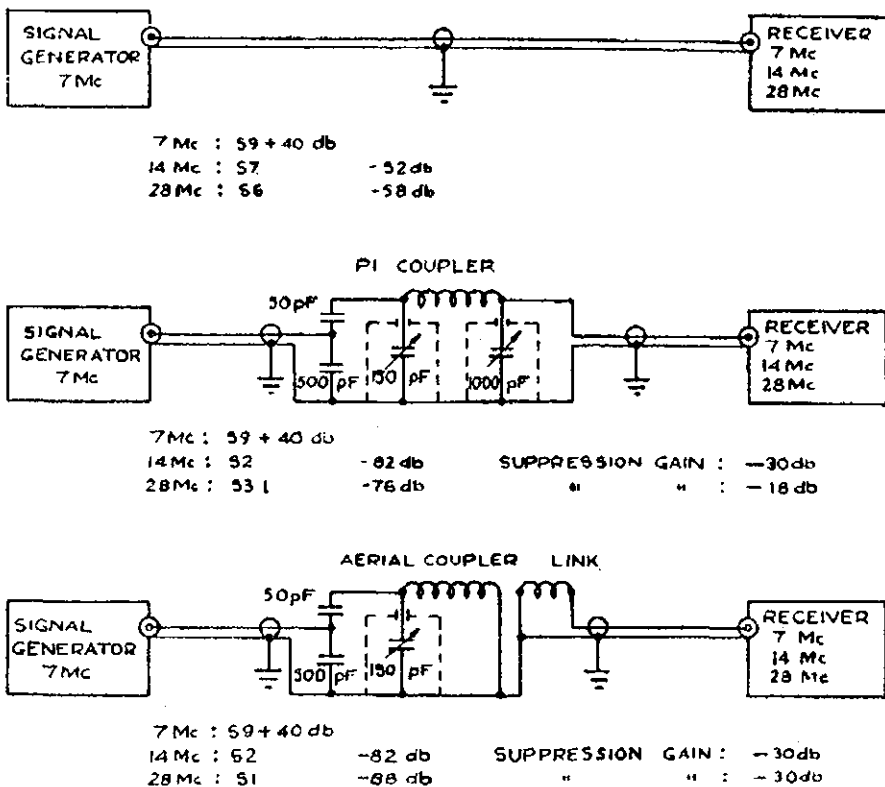


Fig. 5.

case. The advertising claim is "t.v.i. suppressed" and not t.v.i. proof!

Test.—The writer was very interested to see just how good a pi-coupler is in regard to harmonic suppression. We suspected that many of the authors of book and magazine articles who recommend the pi-coupler as "the shot" against the radiation of harmonics may not have actually tested it fully.

A signal generator was tuned to 7 Mc. and a 10 mV. output was selected to ensure that some harmonics could be detected from the generator. A coaxial cable was directly connected to a well shielded highly selective double conversion receiver. Fig. 5 (top) shows the set-up. The 14 and 28 Mc. harmonics were compared with the S9 plus 40 db. signal on the 7 Mc. fundamental.

Fig. 5 (lower) gives the result of the last test, where the pi-coupler was replaced by an ordinary antenna coupler with a link to the receiver. Although this test was repeated several times, the result was always the same—the 2nd and 4th harmonics were both down -30 db. Connecting the receiver link direct to a tap on the coupler coil resulted in a lower attenuation than with the pi-coupler.

After this, the pi-coupler does not seem to be "too hot!" Theoretically, the pi-coupler looks like a low-pass filter, but at these frequencies we cannot say that a 0.001 μF (1,000 pF) capacitor with leads and rotor contacts is free of inductance and so we do not get

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

the full benefit of a large by-pass capacitor across the output.

It appears that the inductively coupled link is a better separating method. The difference is not so serious that we must condemn the pi-coupler and go to a lot of trouble to make the p.a. tank and antenna coupler coils bandswitching, but we must not expect the pi-coupler to provide the answer to all the harmonic radiation and selectivity problems.

CONCLUSION

We have seen where the harmonics come from and that there is just as much a selectivity problem as with receivers. Harmonics generated in the class C p.a. appear just as strongly in the aerial with the best shielding applied to our transmitter construction as with no shielding whatsoever, because they can go along the "honest way", amplified in the valves and in the not-too-selective tuned circuits.

Harmonics reaching the aerial are more likely to cause t.v.i. and b.c.i. because from this point they have a better chance of being radiated over considerable distances.

If a not-too-well shielded chassis is radiating, it may not be so bad as the harmonics may not even reach our back fence, but this statement is not quite correct because with an r.f.-hot chassis we have less chance to reduce harmonics with a low-pass filter or even an antenna coupler, so shielding is still highly recommended.

Max Seybold described in August '47 "QST" an open-built transmitter which was t.v.i. proofed. This transmitter had no shielding, an r.f.-cold chassis, and no low-pass filter, but several wave traps to draw the most dangerous harmonics out of the tuned circuits and then this energy was fed back (like negative feed back) with the correct phase neutralising the harmonics to a very high degree. Similar wave traps are now used in t.v. receivers. Modern transmitter designers found it difficult to adjust this neutralisation of harmonics and preferred shielding, filtering, aerial coupler and low-pass filter.

Shielding without enough selectivity can never give a transmitter a low output in harmonics if a class C stage is used as the driver and final.

In certain cases it may be possible that fairly strong harmonics can be tolerated and will not cause t.v.i. if the t.v. signal is very strong (10 mV. or more) and no harmonics appear near any t.v. channel, but this speculation is not a safe way.

ACKNOWLEDGMENT

Acknowledgment is given R.C.A. and A.W.V. Co. Pty. Ltd. for reprinting data published by L. Reinartz in "Radiotronics" No. 137, May-June, 1949.

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
VK4RR	4 2	VK3ZD	16 1
VK5LC	1 1	VK2HO	17 1
VK8DW	3 1	VK2ABC	8
VK3RR	6 1	VK2WH	15
VK3HT	7 1		

Getting the 1155A Going

A. G. LOVEDAY* (Assoc. VK4 Div.)

THERE seems to be quite a lack of information available to short wave listeners and associate members on 1155A receivers. My efforts to obtain such information have been in vain. The aim was to alter minor portions of the receiver to suit requirements at this location. My power comes from a lighting plant of 24/32 volts d.c.

The 1155A type receiver originally is a 10 valve superhetrodyne receiver and provides reception of c.w., m.c.w., and r.t., and also gives both visual and aural d.f. with sense determination.

The circuit features r.f. stage (6U7), mixer (X66), two i.f. stages (6U7s) at 560 Kc., giving a bandwidth of 5 Kc. The high frequency osc. is set on the high side. Diode detection is used. This and the output are in one tube, a MHL6. Another such tube is used for b.f.o. and a.v.c. A tuning indicator is also used.

The d.f. units are VR99s (V1 and V2) as aerial switch valves, V9 is a VR102 (a double triode) as meter switch.

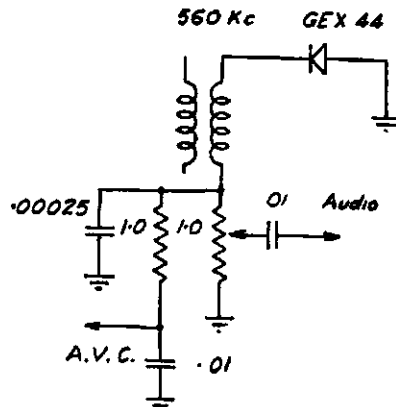


Fig. 1.—Detector and a.v.c. circuit after modification.

I removed the valves associated with the d.f. unit, namely V1, V2 and V9. A little examination will locate the aerial input which can be soldered to appropriate lug of aerial section of band switch.

I also removed the cumbersome switch marked "a.v.c., balance" etc. In its place I have fitted the Q multiplier, as featured in "CQ" of Jan. 1955. Also fitted the a.v.c. on/off switch to the original "filter" switch, having removed the "high pass" filter transformers. Other parts removed were meter balance, meter deflection, and aural sense controls.

For r.f. gain, I use a 5,000 ohms carbon potentiometer, which is placed under the tuning knobs with the tone control to balance the appearance.

Having struck trouble with the b.f.o. coil (which is 280 Kc.—the second harmonic being used), I substituted a

455 Kc. oscillator coil with 500 pF. across the grid and tuned the slug to get the beat note.

V6 (2nd i.f.) was also replaced with a 6J8, using the triode section as the b.f.o. "tube", coupling being taken care of automatically (remember I am on low volts d.c.). A germanium diode (type GEX44) is used as detector. The audio is a 12SQ7 and 12A6 placed at opposite end of chassis and occupying positions of V1 and V2. For 6v. chaps a 6J7 and 6V6 is the best.

The tuning indicator was replaced with an 0-10 Ma. meter in the plate circuit of the i.f. tubes.

No noise limiter is fitted as it is not required at this location.

High tension should be limited to a maximum of 200 volts.

The a.v.c. is very simple and allows me to change bands without having to turn the volume up or down as the case may be. I do not use delayed a.v.c. so overcome any primary loading as is so often done by taking it to a diode. No a.v.c. is on the converter tube.

I will be pleased to answer any queries on the above receiver.

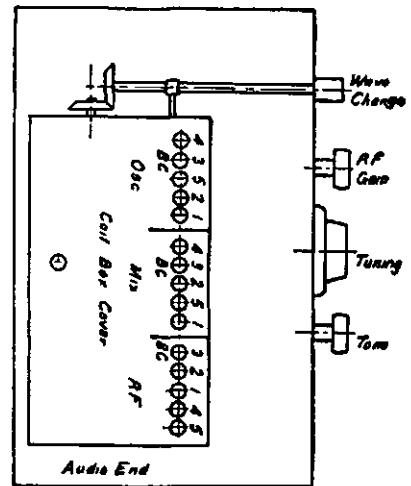


Fig. 2.—Plan of Coil Box of 1155A. Tuning Range

Position 1	7.5 Mc. to 18 Mc.
" 2	3.0 Mc. to 7.5 Mc.
" 3	800 Kc. to 1500 Kc.
" 4	200 Kc. to 500 Kc.
" 5	75 Kc. to 200 Kc.

SUBSCRIPTIONS

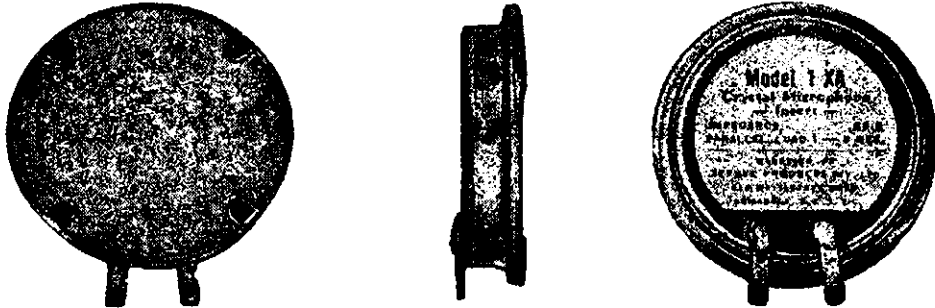
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* Ellmbah, Queensland.

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 "Zephyrifil" 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 "Zephyrifil" filter, their frequency response may be adjusted to suit any application or requirement.

This crystal microphone requires to be terminated with a high value parallel load of the order of 1 to 5 megohms for best results.

The mass of the moving parts is small, hence the sensitivity is high and a high efficiency is achieved.

Light gauge solder lugs are provided so that excessive heat in soldering will not be transmitted to the crystal element.

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

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

All crystal elements are mounted on high grade suspension pillars, being fixed thereto with a good quality cement, thus ensuring stability and long life.

Case $1\frac{1}{2}$ " diameter (rear), $\frac{3}{8}$ " thickness, 1-13/16" overall diameter (front) with filter fitted.

Frequency Response = 60-6,500 c.p.s.
 Output Level = -45 db (0 db = 1 volt/dyne/cm²)
 Impedance = Model 1XA Grid 1 — 5 megohms.



Approximate Frequency Response Curve

AVAILABLE FROM ALL LEADING TRADE HOUSES

ZEPHYR PRODUCTS PTY. LTD.

58 HIGH STREET, GLEN IRIS, S.E.6, VIC.
 Phone: BL 1300

HOW'S YOUR SOLDERING?*

PRACTICAL POINTERS ON MAKING GOODS JOINTS

BY JOHN E. MAGNUSSON, W0AGD

UNDERSTANDING the art of soldering always has been necessary for the radio constructor, and since the introduction of kits for the Amateur, the need is more apparent than ever because of the more complex equipment being put together by beginners. We hope that the following may be of as much interest to the old timer as to the new member of the club excitedly unpacking his first kit of electronic parts.

In order to understand some of the difficulties encountered in soldering it is necessary to appreciate exactly what it is that we are attempting to accomplish. Soldering is the bonding together of two similar (or dissimilar) metals by means of a third metal which exhibits the property of adhesion when in the molten state. The melting temperature of solder, a mixture of tin and lead, is determined by the percentage of tin. The proportions of tin and lead are usually indicated by the manufacturer, 50-50 being a common mixture for electrical work.

The principal obstacle to good soldering is oxidation. The rate at which a metal oxidizes is a measure of its resistance to the adhesive property of the solder. Aluminium will oxidize at a rate practically equal to that at which the melting solder is applied, so regardless of the size of the soldering iron or the melting temperature of the solder, attempting to solder aluminium turns out to be an exasperating ordeal as long as the oxygen ever present in the air is in contact with the aluminium. The thin coating of aluminium oxide that forms will not allow the solder to adhere to the clean metal directly below.

You say you can't construct a vacuum chamber in order to solder two pieces of aluminium together? No need to, since the application of high viscosity oil or grease immediately on cleaning the surface to be soldered will protect it from the atmosphere and allow the melted solder to gain access to a clean surface. Even so, the amount of energy expended in the preparation of the surface before applying the flux will be reflected in the degree of success obtained. This also holds true for other metals than aluminium; stubbornness to the adhesion of solder with any metal merely indicates the presence of oxidation in varying degrees. Soldering two new and shiny pieces of copper together is a real pleasure. So the first rule is that the two surfaces to be soldered must be clean and bright.

THE IMPORTANCE OF PROPER HEAT

Contrary to the general impression, there is a great deal more to soldering than merely melting the solder with an adequate amount of heat and piling

• Everybody knows how to solder—or so they think. It will pay to read this, just in case you may have missed one or two of the fine points.

it neatly (or otherwise!) on the junction to be bonded. Surprisingly, there are more people soldering poorly than there are doing an adequate job of soldering. Manufacturers selling equipment in kit form will concur that the largest percentage of trouble experienced by customers is directly traceable to the inability to solder properly.

Take the example of the too-common "rosin joint" or "cold joint." When several connections have to be made to a single tie point the result will often be a cold or rosin connection unless proper precautions are observed. As heat is applied to the solder and the connection, the rosin flows around each individual conductor connected to this particular tie point in order to keep the metal clean and free from oxidation for the solder to follow. If an inadequate amount of heat is applied the rosin will not be displaced by the solder, and as the connection cools a thin coating of rosin actually insulates each connection from the other and the tie point. In a circuit where an appreciable amount of voltage is applied the rosin film may break down and may never become evident to the builder. However, the connection might be for the grid of the first audio stage, where we are dealing with a few hundredths of a volt, and in that case we could just as well have left the connection out of the equipment for all the good it will do.

By the same token, excessive heating of a connection will have the same unhappy effects. The solder itself will oxidize when overheated. All of us have had the experience of picking up a soldering iron after a long period of heating on the stand and finding it practically useless. The grey and granular-looking appearance of the tip indicates oxidized solder. Eventually this gives way to a crusted black copper oxide which makes the iron useless until retinned.

Overheating of the connections may also have more serious consequences than a poor connection electrically. The values of composition resistors will change very appreciably with excessive heating, and the semi-conductor devices employed in some circuits may be destroyed. A little common sense goes a far in soldering as it does in any other endeavour; use enough heat to make the solder flow freely but don't apply the iron any longer than is necessary to make a good joint.

APPLYING THE IRON AND SOLDER

The old saying about the craftsman and the condition of his tools certainly applies when one considers the tip of the soldering iron—called, more correctly, the "soldering copper." This copper tip will oxidize at an alarming rate when heated unless it, too, is protected from the atmosphere with a thin coating of solder. During an evening session of soldering it is advisable to wipe the tip clean occasionally with a dry cloth and replace the excess solder just removed with a fresh supply. A heat-regulating stand also will add greatly to the life and usefulness of the instrument.

With the tip of the soldering iron in top condition, and using a good grade of solder with a rosin core, one should be able to place the tip on one side of the connection to be soldered and the solder on the opposite side and actually pull the melting solder through the junction as it becomes heated to the proper temperature.

In order to provide maximum heat transfer from the tip to the connections to be soldered, it is usually desirable to melt a small amount of solder between the tip and the connection before moving the supply of solder to the other side. But don't attempt to solder by melting the solder against the tip and letting it run onto the work. This will burn up the rosin before it gets a chance to do its job of cleaning the way for the solder itself.

Once the solder is flowing smoothly through the connection there is no need to pile on an excessive amount of solder since it will add little, either electrically or mechanically, to the connection. When in doubt as to the reliability of a given connection merely reheat it, adding the minimum possible amount of solder, and see whether there is any evidence of rosin boiling up through the melted solder. Again keep in mind that prolonged heating of a connection may have the same ill effects as inadequate heating.

It is generally safe to say that the ease with which the connection takes the solder is a good indication of the reliability of the joint. Connections that seem to take twice as long and twice as much solder as normally expected should be examined closely; the possibility that the solder has flowed away from the joint to nearby connections is ever present. This form of short circuiting is quite common in the crowded areas around tube socket terminals and the terminals of multiple tie points. Such a difficulty is usually indicative of excessive oxidation of the leads or terminals, and usually a small amount of scraping is necessary in order to achieve the proper electrical connection. Patience is a very rewarding virtue in soldering, since tracking

(Continued on Page 9)

* Reprinted from "QST," September, 1957.

1957 REMEMBRANCE DAY CONTEST RESULTS

Western Australia Wins Again

STATE TROPHY

Western Australia 972 points

CALL AREA AWARDS

Phone:	Points
VK1PM—R. E. W. May	777
3ATR—T. B. Rodda	854
4FP—J. F. Pickles	834
5MG—J. McG. Moffatt	726
*5LJ—R. Lewis	88
6TH—T. H. Talbot	697
7PM—P. D. Mulligan	583
9HO—H. T. Overend	314
C.W.:	Points
VK2QL—F. T. Hine	471
3XB—I. Stafford	409
4JF—J. G. Files	196
5MY—H. M. Roberts	299
*5TL—T. Laidler	127
6VK—V. J. Kitney	96
7CH—C. Harrison	401
9WP—W. A. P. Luke	35
0AB—A. C. Hawker	402

Open:	Points
VK2RS—D. C. Haberecht	969
3ATN—T. R. Naughton	1228
4DP—D. M. Portley	731
5WO—A. Condon	1003
*5FM—H. Bowman	129
6RU—J. E. Rumble	1146
7KA—K. E. Millen	479
9DB—D. Beadel	883

Listeners:	Points
VK2—N. L. Dash	477
VK3—A. C. Stebbing	736
VK4—C. H. Thorpe	850
VK5—F. W. Aslin	921
VK6—C. J. Anderson	407
VK7—R. R. de Balfour	1035
VK9—R. Clark	314

* Northern Territory.

NEW SOUTH WALES

VK2RS Open	969	Average	690.3
1PM Phone	777	Licenses	1156
2AHH Open	638	Logs	59
2PN Open	611		
2XQ Open	597	Total Pts.	725.5
2AHM Open	552		

Phone:			
VK2ASZ 471	VK2GI 127	VK2AJA 40	
2JS 328	2AIM 108	2VW 40	
2AWN 298	2PL 90	2NV 39	
2ACD 204	2JF 82	2HK 38	
2AJL 175	2ABO 78	2AVI 38	
2AAJ 160	2XT 53	2RU 34	
2AIA 154	2APQ 47	2CN 23	
2AGJ 154	2ADL 45	2ACS 18	
2SR 148	2AOU 44	2AQR 13	
2FM 144	2AJY 40	2AHA 10	

Open:			
VK2BO 538	VK2ADT 222	VK2GW 80	
2AGH 388	2AJQ 178	2ANU 76	
2AJO 379	2HC 172	2VN 75	
2ARV 375	2AWQ 142	2HZ 59	
2AFA 233		2ZC 20	

C.W.:			
VK2QL 471	VK2BA 163	VK2EG 111	
2EL 380	2HO 135	2OW 47	
2YB 258	2EO 115	2PV 43	

VICTORIA

VK3ATN Open	1228	Average	789.6
3HG Open	888	Licenses	1093
3ATR Phone	854	Logs	70
3DQ Phone	631		
3ADW Phone	588	Total Pts.	840.1
3AGG Phone	549		

Phone:			
VK3IZ 511	VK3AUG 185	VK3QZ 61	
3AIT 496	3AKF 182	3TX 58	
3ZU 448	3KR 175	3AWF 54	
3BB 444	3AXW 173	3II 49	
3ADV 386	3WY 154	3AXU 48	
3APQ 377	3ADU 134	3ZZ 46	
3ALP 344	3ALE 122	3HL 43	
3ABT 325	3YQ 121	3ALD 38	
3SX 299	3ATS 105	3VQ 34	
3AQK 266	3AOM 92	3AGP 28	
3ARJ 264	3ALL 84	3APJ 26	
3FY 257	3AZR 75	3RN 22	
3LR 243	3DG 72	3HC 20	
3AN 219	3DY 65	3AVM 16	

QUEENSLAND

VK4DP Open	731	Average	470.3
4FP Phone	634	Licenses	367
4WJ Phone	381	Logs	50
4OV Phone	365		
4DI Open	358	Total Pts.	534.4
4DJ Phone	353		

Phone:			
VK4NG 265	VK4BW 65	VK4ZZ 23	
4DK 237	4SN 64	4JE 17	
4TF 180	4EF 60	4AF 17	
4BB 156	4RH 56	4BJ 16	
4PW 151	4ZV 55	4CB 15	
4VS 134	4ZP 50	4NJ 15	
4RJ 121	4XR 48	4XJ 15	
4ER 116	4CN 46	4ZM 14	
4LN 108	4RW 31	4HA 13	
4JA 104	4GC 29	4PR 11	
4LE 74	4EC 23	4RE 10	
	4HD 23		

Open:			
VK4FH 228	VK4DO 184	VK4NU 167	
	4FE 170		

C.W.:			
VK4JF 196	VK4AQ 32	VK4AW 13	
4CJ 51	4KK 18	4XY 10	

Check Logs: VKs 4BI and 4SH.

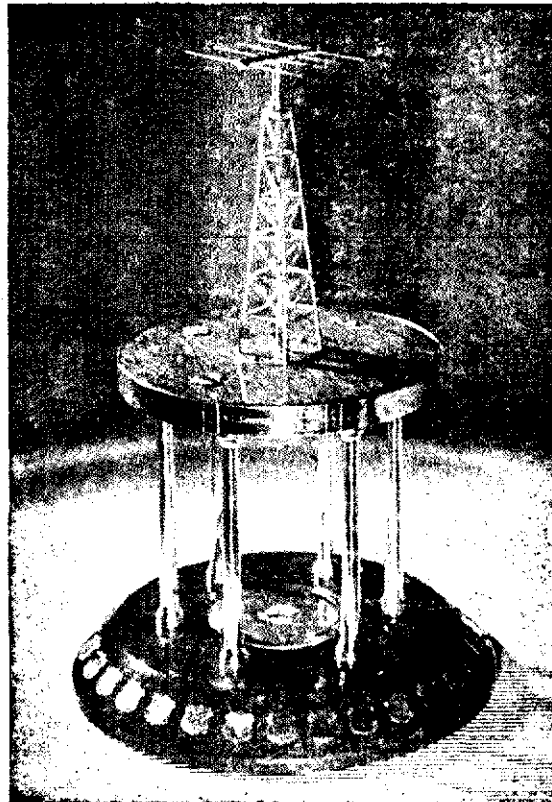
SOUTH AUSTRALIA

VK5WO Open	1003
5AF Open	843
5MG Phone	726
5KM Phone	715
5DK Phone	634
5EF Phone	498

Average	736.5
Licenses	416
Logs	86
Total Pts.	888.7

Phone:			
VK5QW 469	VK5PM 57		
5ZB 407	5FT 55		
5GM 397	5CJ 53		
5XV 369	5ON 48		
5BH 362	5XA 47		
5JC 338	5CY 47		
5FY 298	5CH 45		
5LT 271	5AB 41		
5CO 256	5SX 41		
5HN 253	5LB 40		
5LC 224	5FO 39		
5OC 208	5PS 37		
5FQ 194	5WH 33		
5AX 189	5LN 31		
5FJ 161	5WM 31		
5KD 147	5XU 31		
5OK 122	5JO 30		
5TJ 115	5RG/P 25		
5AP 110	5MA 24		
5GP 105	5WI 22		
5KY 103	5ZL 18		
5IW 92	5DF 18		
5SS 92	5MK 17		
5RR 83	5CA 16		
5KX 71	5DH 18		
5BG 68	5DO 14		
5LQ 67	5MS 11		
5RK 63	5EC 8		

Open:			
VK5KE 338	VK5TW 42		
5JT 316	5HM 39		
5JG 77	5GW 6		
5QR 71			



Remembrance Day Trophy retained by West. Australia

Open:			
VK3HE 285	VK3YS 116	VK3JE 102	
3PR 169	3JI 112	3OH 70	
C.W.:			
VK3XB 409	VK3NK 93	VK3KB 24	
3ZA 179	3AMD 83	3KS 24	
3ZC 174	3ARV 65	3PG 16	
3ZO 161	3CX 49	3PL 13	
3AHQ 124	3JF 40	3OJ 11	
	3XH 36		

Check Logs: VKs 3BQ, 3GE, 3UM.
Disqualified Log: VK3JO, valid contacts 4.

C.W.:			
VK5MY 299	VK5AK 75	VK5EA 37	
5XK 287	5OR 72	5RX 30	
5JN 219	5BZ 54	5BY 26	
8MZ 125	5KU 52	5BO 22	
	5HQ 52		

Check Log: VK5LL.

NORTHERN TERRITORY

Phone:		Open:		C.W.:	
VK5LJ 88	VK5FM 129	VK5TL 127		5UM 25	

WESTERN AUSTRALIA

VK6RU Open	1146	Average	700.5
6FD Open	880	Licenseses	219
6TH Phone	697	Logs	85
6BE Open	624		
6MO Phone	576	Total Pts.	972.4
6NF Phone	280		

Phone:

VK8CL	271	VK6AD	30	VK8MR	18
6ZZ	260	6CC	30	8SR	18
6EZ	100	6TK	29	8MB	18
6TB	95	6WI	29	8RO	18
6CP	84	6FL	28	8WS	18
6RH	84	6FB	27	8VM	17
8AV	83	6OR	26	6JG	16
8RW	82	6LU	25	8MM	15
6CN	79	6TL	24	6JK	15
6WZ	77	6EW	23	6FW	15
6KE	77	6HK	23	6TP	15
6DX	70	6KW	23	6KU	14
8MG	64	6GB	22	8TR	14
6BO	51	6RK	21	6TY	14
6LL	43	6PT	20	6MK	13
6LM	43	6BA	20	6JP	13
6HS	36	6AL	20	6GY	13
6GX	34	6MY	20	6GH	13
6KJ	33	6SJ	20	6AG	13
6HR	32	6EF	19	6BS	13
6TR	31	6WM	19	6AH	11
		6XI	19		

Open:

VK6WG	71	VK6GA	25	VK6GU	18
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C.W.:

VK6VK	96	VK6AJ	35	VK6CR	19
6EJ	92	6KX	25	6WV	18
6UF	73	6JA	20	6WT	16
6RS	42	6WH	20	6JB	10

Insufficient valid contacts: VKs 6TX, 6WU, and 6ZI.

TASMANIA

VK7PM Phone	583	Average	489
7RL Phone	571	Licenseses	121
7SM Phone	530	Logs	50
7KA Open	479		
7CH C.W.	401	Total Pts.	691
7JP Phone	370		

Phone:

VK7GC	381	VK7AB	107	VK7DR	30
7MC	355	7GA	99	7WI	29
7WA	334	7BI	83	7RK	26
7BT	293	7FJ	82	7AL	27
7AI	288	7RM	62	7LE	26
7SF	263	7BQ	53	7CK	26
7LS	237	7KC	52	7CT	26
7BR	227	7CP	47	7FF	13
7RN	208	7JD	31	7LL	12
7FC	200	7DW	31	7FJ	9

Open:

VK7JO	387	VK7QM	180	VK7AC	133
7FM	248	7SD	154	7LZ	95
7BJ	194			7AG	17

C.W.:

VK7YY	87	VK7LJ	29	VK7DS	13
7RY	48	7GB	17	7ST/P	11

PAPUA-NEW GUINEA

VK9DB Open	833	Average	449.5
9XK Open	649	Licenseses	48
9NT Open	330	Logs	8
9HO Phone	314		
9BW Phone	271	Total Pts.	524.4
9FN Phone	250		

Phone: 22 C.W.: 35
VK9WG

ANTARCTICA

C.W.:

VK0AB	402
0AS	222

LISTENERS' SECTION

NEW SOUTH WALES

N. L. Dash	477	D. W. Shephard	238
D. Gantley	379	VK2ZDM	229
Disqualified Logs: B. J. Foster, E. Harwood.			

VICTORIA

A. C. Stebbing,		I. R. Woodman,	
WIA-L3050	736	WIA-L3006	571
G. R. Morris	605	C. T. Taylor	491
I. Drysdale	631	H. M. Hilliard	388
I. J. Hunt,		R. J. Dempster	331
WIA-L3007	622	E. W. Trebilcock,	
		BERS195	282

QUEENSLAND

C. H. Thorpe	850	L. O. Tully	235
A. G. Loveday	409		

SOUTH AUSTRALIA

F. W. Aslin,		W. J. Clayson,	
WIA-L5020	921	WIA-L5015	250
J. S. Crawford,			
WIA-L5001	441		

WESTERN AUSTRALIA

C. J. Anderson	407
Disqualified Logs: B. Prosser, F. H. Price, F. W. L. Hardwick.	

TASMANIA

R. A. de Balfour	1035
Disqualified Log: J. P. Wilson.	

PAPUA-NEW GUINEA

R. Clark,	WIA-L9001	314
Disqualified Log: F. B. Lea.		

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1956-57

Station	Points	QSOs	Multip.
VK2GW	15129	180	169 41
VK4FJ	1710	47	43 19
ZL1MQ	1180	55	39 20
ZL2GS	8388	129	104 36
ZLAGA	3672	83	70 24

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CERAMIC-INSULATED
SILVER-PLATED
CONDENSERS**

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TRANSMITTING AND NEUTRALISING
CONDENSERS**

481 Midget Neutralising Condenser, 1.5 to 4 pF.	8 0
815 Single Section 80 pF., one end plate, 2 in. square	1 13 11
816 Single Section, 175 pF.	1 17 1
817 Single Section 250 pF., one end plate, 2 in. square	2 2 5
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
Plus 12 1/2 % Sales Tax	

MICROCONDENSERS

476 Split Stator 15 x 15 pF.	17 7
580 Single Section 12.5 pF.	15 6
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
684 Butterfly 34 x 34 pF.	19 5
535 Single Section 100 pF.	1 5 8
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
718 Differential 25 x 25 pF.	18 4
738 Single Section 100 pF.	1 16 7
739 Butterfly 8 x 8 pF.	1 2 2
Plus 25 % Sales Tax	

MINIATURE MICROCONDENSERS

551 Butterfly 25 x 25 pF., 90 degree rotation	1 10 0
552 Split Stator 25 x 25 pF., 180 degree rotation	1 10 6
553 Single Section 50 pF., 180 degree rotation	1 7 9
Plus 25 % Sales Tax	

EDDYSTONE R.F. CHOKES

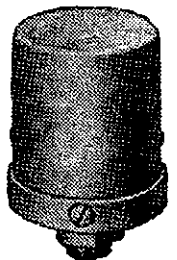
That Really Work

737 Choke, 2.5 millihen. induct.	6 11
776 Choke, " "	9 0
1010 Choke, 1.25 " "	4 9
1011 Choke, 4.6 microhen. " "	3 8
1022 Choke, 1.5 millihen. " "	7 5
1066 Choke, 13 " "	9 0
Plus 12 1/2 % Sales Tax	

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MIKE TRANSFORMERS**

Excellent for compact mobile or portable equipment. One hole mounting provides for simple hum balancing when used near a.c. fields. Ratio 50:1 overall.

Type MT101A
Mu-Metal Screened
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There's no substitute for practical experience—the "KNOW-HOW" of manufacture—the FACTS gained by research. That's why the originators and pioneers of T.V. Aerial manufacture, the "Belling-Lee" organisation, is producing in Australia a Double-V Aerial that is YEARS AHEAD of others in its performance, construction and quality.

FACTS ABOUT 'BELLING-LEE' DOUBLE-V TV AERIALS

- Brilliant, unequalled performance—PROVED BY FIELD TESTS BY INDEPENDENT LABORATORIES.
- MEASURED RELATIVE GAIN compared with that of half wavelength folded dipoles is: Chan. 2, 1.5 db.; Chan. 7 and 9, between 6 db. and 7 db. Compare these results with any other published figures and you will appreciate "Belling-Lee" superiority.
- They are easy and fast to erect. Made of high-tensile aluminium alloy, they are EXTRA STRONG; they go straight up and stay up straight. They are corrosion-resistant, withstanding all climatic conditions.
- Available in four alternative mountings—wall, chimney, flat roof, or inside roof.
- Every aerial is individually tested and GUARANTEED in writing for 12 months, your assurance that when you install "Belling-Lee" your first cost is your last.

*'BELLING-LEE' IS
the Proved
DOUBLE V!*

"BELLING-LEE" DOUBLE-V T.V. AERIAL SYSTEMS

SOLE AUSTRALIAN AGENTS:

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JB 1614

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MEADOWBANK, N.S.W.
WY 0316

WARNING!*

BY ZLIWI

Last Field Day I learned a little about batteries, the hard way, so I am passing on my experiences.

Two 6 volt batteries were being charged from a motor generator for about two hours, and were gassing vigorously. I went to take them off charge and to charge two more. I was removing the first clip when there was a loud report and something grazed the side of my face. The battery caps had been loosened, but not taken out prior to charging. One of these caps was missing. Later half of it was found.

When a battery is being charged, hydrogen is given off. Mixed in certain proportions with air, an explosive gas is formed. Presumably when I lifted off the clip and broke the charging circuit, a spark ignited the gas, blowing off the cap.

It needs little imagination to think of what might have been the result, had the cap hit me in the eye instead of a glancing blow, or had acid been blown out of the cell.

The following precautions are suggested when changing batteries:

1. Either stop the motor generator or break the charging circuit by disconnecting one of the leads at the generator, where a spark does not matter. It is assumed that the generator is a few feet away from the batteries.

2. Do not bend over the batteries when changing clips, but stand to one side, keeping the face clear.

3. No smoking!!!

2 and 3 also apply when testing batteries with a hydrometer, as acid can easily be splashed when emptying the hydrometer.

Should acid be splashed into an eye it should be immediately washed out with water. Every second's delay increases the damage done.

Where does one get water from in a hurry on a field day? Before the field day starts, several clean bottles should be filled with clean water and kept handy to the batteries during changing, and not used for anything else.

I also felt that the charging of batteries could be improved. Charged batteries were getting short on Sunday and the charging rate was increased to 20 amps. After some of the batteries had been charging for two or three hours the cases were getting very warm to touch. If the outside of a battery is warm, then the inside must be a lot hotter, and heat is one of the things that damages a battery.

It would seem that 10 amps. for 6 volt and 5 to 6 amps. for 12 volt batteries is the maximum continuous charge if the batteries are not to get unduly hot.

HOW'S YOUR SOLDERING?

(Continued from Page 5)

down a poor or intermittent connection later can be as frustrating as trying to put a raw oyster in a parking meter.

SOLDERING IRONS

The selection of equipment is more or less a matter of personal choice. The present-day market displays a wide variety of soldering pens, guns, and irons of all shapes and sizes, with and without thermostatic control. Experience dictates that at least two sizes are almost an absolute must. Perhaps the most generally useful soldering iron for general building, as well as repair work, is the 60-watt size. This size is small enough to get into fairly tight spots, but still has enough capacity for the heavier connections that are typical of transmitter tank circuits. A fine follow-up for occasional heavy work is the fast-acting two-speed 200-250-watt soldering gun.

A reasonable amount of care should also be used in the selection of solder. Never use reclaimed solder in the con-

struction of electronic equipment of any kind. (If the solder is reclaimed it should be clearly marked on the end of the spool.) By the same token, avoid bargain solders and you'll avoid bargain connections. And always use rosin flux on radio gear.

As is true in all pursuits, experience is the best teacher. The knack of being able to solder almost anything at will comes after exposure to several discouraging defeats. One cannot expect to master soldering in a few easy lessons, but one can improve upon his present ability, regardless of experience, by assuming that there is possibly a little more to learn about it.

PERMITS GRANTED FOR TELEVISION EXPERIMENTS

VK— New South Wales
2IT/T—W. R. Beveridge, 18 Murdoch St., Turramurra.
2ZF/T—N. L. Southwell, 80 Dutton St., Yagoona.
2ARY/T—H. G. Hine, 13 Kelvin Ave., Panania.
2AWZ/T—D. Andrews, 21 Warwick Ave., North Ryde.
2ZBQ/T—N. R. Fenton, 500 Cabramatta Rd., Cabramatta.

Victoria
3TQ/T—A. Simmons, 45 Simmons St., South Yarra.
3YR/T—W. D. Robb, 11 Derry St., Essendon West.
3AAK/T—C. S. Rann, 2 Georgianna St., Sandringham.
3AMN/T—I. D. McNabb, Lot 62 Paton Rd., Boronia.
3AUX/T—G. R. Hughes, 2 McMillan St., Elsternwick.

South Australia
5GL/T—C. D. L. Tilbrook, 10 Corunna Ave., Colonel Light Gardens.

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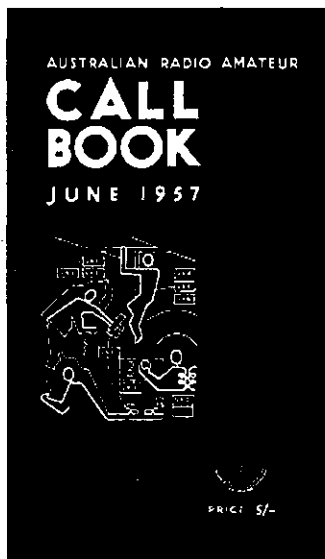
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- DX Countries, Prefixes and their Zones.



VALVE DATA

6U8

MEDIUM-MU TRIODE, SHARP CUT-OFF PENTODE

The Radiotron 6U8 is a 9-pin miniature valve containing a medium-mu triode and a sharp cut-off pentode in one envelope. It is designed primarily for use as a combined oscillator and mixer valve in f.m. and television receivers using intermediate frequencies up to 40 Mc.

The pentode mixer unit of the 6U8 provides low grid No. 1 to plate capacitance as compared with a triode mixer and also has a low output capacitance. The low value of capacitance between grid No. 1 and plate minimises feedback problems often encountered in mixer circuits operating with intermediate frequencies between 30 and 40 Mc.

Base: 9-pin miniature.

Socket connections:

- Pin 1—Triode plate.
- Pin 2—Pentode grid No. 1.
- Pin 3—Pentode grid No. 2.
- Pin 4—Heater.
- Pin 5—Heater.
- Pin 6—Pentode plate.
- Pin 7—Pentode cathode, pentode grid No. 3, internal shield.
- Pin 8—Triode cathode.
- Pin 9—Triode grid.

Electrical Data

Heater voltage 6.3 volts
Heater current 0.45 amp.

Characteristics:

	Triode	Pentode
Plate voltage	150	250
Grid No. 2 voltage	—	110
Cathode-bias resistor	56	68
Amplification factor	40	—
Plate resistance	5000	400000
Transconductance	8500	5200
Grid No. 1 bias for plate current of 10 μ A	—12	—10
Plate current	18	10
Grid No. 2 current	—	3.5

CONVERTER SERVICE

Maximum Ratings:

Plate voltage 300* 300* volts
Grid No. 2 (screen) supply voltage — 300* volts
Grid No. 2 voltage — 125 volts
Grid No. 1 (control-grid) voltage; positive bias value 0* 0* volts
Plate dissipation 2.7* 2.8* watts
Grid No. 2 input: For grid No. 2 voltages up to 150 volts — 0.5* watt
Peak heater-cathode voltage:
Heater negative with respect to cathode 90* 90* volts
Heater positive with respect to cathode 90* 90* volts

* Maximum.

12BY7

SHARP CUT-OFF PENTODE

The Radiotron 12BY7 is a high trans-conductance pentode designed for use as a wide band video amplifier where the plate supply voltage is low and large output voltages are required with low values of plate load resistors. Such an application is the video output stage of a television receiver.

The valve has a 9-pin miniature base and has a centre-tapped heater to permit operation from either a 6.3 volt or 12.6 volt supply.

Base: 9-pin miniature.

Socket connections:

- Pin 1—Cathode.
- Pin 2—Grid No. 1.
- Pin 3—Grid No. 3, Internal Shield.
- Pin 4—Heater.
- Pin 5—Heater.
- Pin 6—Heater Centre-Tap.
- Pin 7—Plate.
- Pin 8—Grid No. 2.
- Pin 9—Grid No. 3, Internal Shield.

Electrical Data

	Series	Parallel
Heater voltage	12.6	6.3
Heater current	0.3	0.6

CLASS A1 AMPLIFIER

Maximum Ratings:
Plate supply voltage 300* volts
Grid No. 3 (suppressor) voltage 0* volts
Grid No. 2 (screen) voltage 175* volts

Grid No. 1 (control-grid) voltage:

Negative bias value	50* volts
Positive bias value	0* volts
Grid No. 2 input	1* watt
Plate dissipation	6.25* watts
Peak heater-cathode voltage:	
Heater negative with respect to cathode	200* volts
Heater positive with respect to cathode	200*+ volts

Characteristics:

Plate voltage	250	volts
Grid No. 3	connected to cathode at socket.	
Grid No. 2 voltage	150	volts
Cathode-bias resistor	68	ohms
Plate resistance (approx.)	90000	ohms
Transconductance	12000	μ mhos
Plate current	25	Ma.
Grid No. 2 current	6	Ma.
Grid No. 1 bias for plate current of 20 μ A	—10	volts

Maximum Circuit Value:

Grid No. 1 circuit resistance:
For cathode-bias 1.00* megohm
For fixed-bias 0.25* megohm
* Maximum.
† The d.c. component must not exceed 100 volts.

W.I.C.E.N. NOTES

Because it is necessary to submit January Notes early we are restricting these notes to first ten rules in Section Two of Instruction to W.I.C.E.N. Operators.

2.0 OPERATING PROCEDURE

- 2.1 ALL procedure used shall comply with the requirements of the "Handbook for Guidance of Operators of Amateur Wireless Stations".
- 2.2 Time System: Local time shall be used by all stations unless requested to do otherwise by appropriate authority.
- 2.3 When transmitting time, each digit shall be pronounced separately.
- 2.4 A signal log shall be maintained at each station. NOTE: In an emergency, a log would not be maintained by stations in the emergency area.
- 2.5 Frequencies to be used will be as assigned from time to time.
- 2.6 When a net frequency is in use a station desirous of carrying out tests shall first listen on the frequency to ensure that it will not cause harmful interference to other stations in the net. Further, the test call shall be limited to ten seconds; in the case of telephony, the test shall consist of spoken numerals, followed by the call sign of the station transmitting the test signals. C.w. transmission will consist of a series of Vees followed by the call sign of the station.
- 2.7 General Call. Control stations requiring to transmit information to all stations likely to intercept, shall preface such transmissions by the General Call—"All Stations" or "All Stations Emergency Net"—followed by "This is" and the identification of the calling station.
- 2.8 Stations replying to a general call shall answer in the order previously laid down. If any station does not answer within five seconds the next station in order shall carry on.
- 2.9 Before transmitting, every station shall listen for a period long enough to satisfy itself that it will not cause harmful interference. If such interference is likely, the station shall await the first break.
- 2.10 When a station hears a call without being certain that the call is intended for it, it shall not reply until the call has been repeated and understood.

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. rics	Call	Cer. C'tnt- No. rics
VK4FJ	21 262	VK9DB	31 181
VK3ATN	26 183	VK3JD	1 155
VK4HR	12 192	VK4KS	9 152
VK6RU	2 191	VK6KW	4 150
VK3BZ	3 176	VK4RW	23 147
VK3EE	10 163	VK3LN	11 141

New Members

VK3TE	37 115	VK7LZ	36 101
VK5HW	38 111	VK3ACN	39 101

C.W.

Call	Cer. C'tnt- No. rics	Call	Cer. C'tnt- No. rics
VK4FJ	29 234	VK3CX	28 210
VK3FH	15 228	VK3BY	45 202
VK3KB	10 225	VK2EO	2 191
VK3BZ	6 222	VK3YL	39 178
VK4HR	8 218	VK6RU	18 176
VK3XU	48 213	VK4EL	9 175

Amendments

VK3BO	33 171	VK3JT	34 125
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New Members

VK3ARV	59 105	VK2OW	58 101
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OPEN

Call	Cer. C'tnt- No. rics	Call	Cer. C'tnt- No. rics
VK2ACK	6 239	VK3JE	12 210
VK4FJ	32 238	VK3HG	3 201
VK4HR	7 233	VK2NS	16 195
VK3BZ	4 231	VK9DB	59 182
VK6RU	8 221	VK4EL	10 175
VK3XU	61 221	VK6KW	13 171

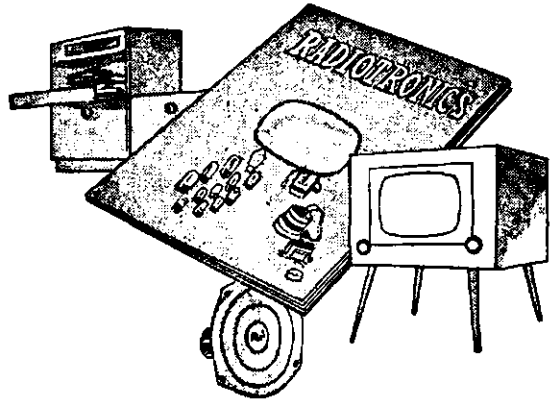
Amendments

VK3JT	63 131
-------	--------

New Members

VK3ARV	68 107
--------	--------

REACH



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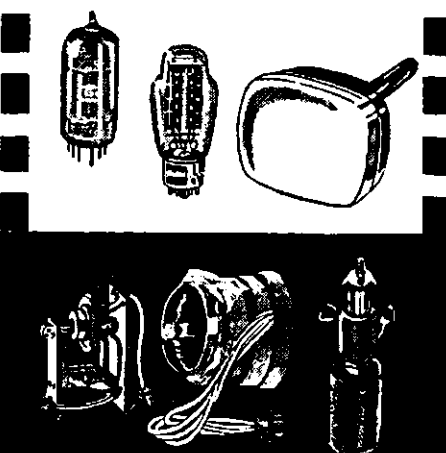
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Australian DX C.C. Alphabetical List of Countries by Prefix

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

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

AC3—Sikkim	(22)	HBI, 9—Switzerland	(14)	PK1, 2, 3—Java	(28)	VR1—Gilbert, Ellis and	
AC4—Tibet	(23)	HC—Ecuador	(10)	PK4—Sumatra	(28)	Ocean Islands	(31)
AP—Pakistan	(21, 22)	HC8—Galapagos Island	(10)	PK5—Neth'land Borneo	(28)	VR3—Fanning Is. Group	(31)
BV (C3)—Formosa	(24)	HE—Liechtenstein	(14)	PK6—Celebes & Mol-		VR4—Solomon Islands	(28)
C (unofficial)—China (23, 24)		HH—Haiti	(8)	ucca Islands	(28)	VR5—Tonga (Friendly)	
C3—See BV.		HI—Domin. Republic	(8)	PX—Andorra	(14)	Island	(32)
C9—Manchuria	(24)	HK—Colombia	(9)	PY—Brazil	(11)	VR6—Pitcairn Island	(32)
CE—Chile	(12)	HK0—Archipelago of San		PZ1—Neth. Guiana	(9)	VS1—Singapore Island	(28)
CE7Z, LU-Z, VK0, VP8—		Andres & Providencia	(9)	SM—Sweden	(14)	VS2—Malaya	(28)
Antarctica	(13, 29, 30)	HL—Korea	(25)	SP—Poland	(15)	VS5—Brunei	(28)
CE0—Easter Island	(12)	HP—Panama	(7)	ST—Anglo-Egyptian		VS6—Hong Kong	(24)
CM, CO—Cuba	(8)	HR—Honduras	(7)	Sudan	(34)	VS9—Aden and Socotra	(21)
CN2, KT1—Tangier Zone	(33)	HS—Siam	(26)	SU—Egypt	(34)	VS9—Maldiv Island	(22)
CN8—French Morocco	(33)	HV—Vatican City	(15)	SV—Greece	(20)	VS9—Sultan. of Oman	(21)
CP—Bolivia	(10)	HZ—Saudi Arabia	(21)	SV—Crete	(20)	VU2—India	(22)
CR4—Cape Verde Is.	(35)	I1—Italy	(15)	SV—Dodecanese	(20)	VU4—Laccadive Island	(22)
CR5—Port. Guinea	(35)	I1—Trieste	(15)	TA—Turkey	(20)	VU5—Andaman and	
CR5—Principe, Sao		I5, MS4—Ital. Soma'land	(37)	TF—Iceland	(40)	Nicobar Islands	(26)
Thome	(36)	IS1—Sardinia	(15)	TG—Guatemala	(7)	XE—Mexico	(6)
CR6—Angola	(36)	JA, KA—Japan	(25)	TI—Costa Rica	(7)	XW8—Laos	(28)
CR7—Mozambique	(37)	JY, ZC7—Jordan	(20)	T19—Cocos Island	(7)	XZ—Burma	(28)
CR8—Goa (Port. India)	(22)	JZ0—Neth. New Guinea	(28)	UA1, 3, 4, 6—European		YA—Afghanistan	(21)
CR9—Macau	(24)	K, W—United States of		R.S.F.S.R.	(15, 16, 17)	YI—Iraq	(21)
CR10—Port. Timor	(28)	America	(3, 4, 5)	UA9, 0—Asiatic		YJ—See FU8.	
CT1—Portugal	(14)	KA—See JA.		R.S.F.S.R.	(17, 18, 19, 25)	YK—Syria	(20)
CT2—Azores Island	(14)	KA0—Bonin and Vol-		UB5—Ukraine	(16)	YN—Nicaragua	(7)
CT3—Madeira Island	(33)	cano Islands	(27)	UC2—White Russia		YO—Roumania	(20)
CX—Uruguay	(13)	KB6—Baker, Howland		S.S.R.	(16)	YS—Salvador	(7)
DJ, DL, DM—Germany		& Amer. Phoenix Is.	(31)	UD6—Azerbaijan	(21)	YU—Yugoslavia	(15)
(14, 15)		KC4—Navassa Island	(8)	UF6—Georgia	(21)	YV—Venezuela	(9)
DU—Phillipine Islands	(27)	KC6—East. Caroline Is.	(27)	UG6—Armenia	(21)	ZA—Albania	(15)
EA—Spain	(14)	KC6—West Caroline Is.	(27)	UH6—Turkoman	(17)	ZB1—Malta	(15)
EA6—Balearic Is.	(14)	KG1—See OX.		UI8—Uzbek	(17)	ZB2—Gibraltar	(14)
EA8—Canary Is.	(33)	KG4—Guantanamo Bay	(8)	UJ8—Tadzhik	(17)	ZC3—Christmas Islands	(29)
EA9—Itni	(33)	KG6—Mariana Islands	(27)	UL7—Kazakh	(17)	ZC4—Cyprus	(20)
EA9—Rio de Oro	(33)	KH6—Hawaiian Islands	(31)	UM8—Kirghiz	(17)	ZC5—Brit. Nth. Borneo	(28)
EA9—Spanish Morocco	(33)	KJ6—Johnston Island	(31)	UN1—Karelo-Finnish		ZC6—Palestine	(20)
EA0—Spanish Guinea	(35)	KL7—Alaska	(1)	Rep.	(16)	ZC7—See JY.	
EI—Eire	(14)	KM6—Midway Island	(31)	UO5—Moldavia	(16)	ZD1—Sierra Leone	(35)
EL—Liberia	(35)	KP4—Puerto Rico	(8)	UP2—Lithuania	(15)	ZD2—Nigeria	(35, 36)
EQ—Iran	(21)	KP6—Palmyra Group,		UQ2—Latvia	(15)	ZD3—Gambia	(35)
ET2—Eritrea	(37)	Jarvis Island	(31)	UR2—Estonia	(15)	ZD4—Gold Coast, Brit.	
ET3—Ethiopia	(37)	KR6—Ryukyu Island	(25)	VE, VO—Canada	(2, 3, 4, 5)	Togoland	(35)
F—France	(14)	KS4—Swan Island	(7)	VK—Australia	(29, 30)	ZD6—Nyasaland	(37)
FA—Algeria	(33)	KS6—American Samoa	(32)	VK0—See CE7Z, LU-Z,		ZD7—St. Helena	(36)
FB8—Amsterdam and		KT1—See CN2.		VP8.		ZD8—Ascension Island	(36)
St. Paul Is.	(39)	KV4—Virgin Islands	(8)	VK0—Heard Island	(39)	ZD9—Tristan da Cunha	
FB8—Kerguelen Is.	(39)	KW6—Wake Island	(31)	VK0—Macquarie Island	(30)	and Gough Island	(38)
FB8—Madagascar	(39)	KX6—Marshall Islands	(31)	VK9—Cocos Island	(29)	ZE—Sth. Rhodesia	(38)
FC—Corsica	(15)	KZ5—Canal Zone	(7)	VK9—Nauru Island	(28)	ZK1—Cook Island	(32)
FD—French Togoland	(35)	LA, LB—Jan Mayen	(40)	VK9—Norfolk Island	(32)	ZK2—Niue	(32)
FE8—Fren. Cameroons	(38)	LA, LB—Norway	(14)	VK9—Papua Territory	(28)	ZL—New Zealand	(32)
FE8—Fren. West Africa	(35)	LA, LB—Svalbard	(40)	VK9—Ter. of New Guin.	(28)	ZM6—British Samoa	(32)
FG—Guadeloupe	(8)	LU—Argentina	(13)	VO—See VE.		ZM7—Tokelau (Union)	
FG—Saint Martin Is.	(8)	LU-Z—See CE7Z, VK0.		VP1—British Honduras	(7)	Island	(31)
FI8—Vietnam	(26)	LX—Luxembourg	(14)	VP2—Leeward Island	(8)	ZP—Paraguay	(11)
FK8—New Caledonia	(32)	LZ—Bulgaria	(20)	VP2—Windward Island	(8, 9)	ZS1, 2, 4, 5, 6—Union of	
FL8—Fren. Somaliland	(37)	M1—San Marino	(15)	VP3—British Guiana	(9)	Sth. Africa	(38)
FM—Martinique	(8)	MB9—See OE.		VP4—Trinidad and		ZS2—Marion Island	(38)
FO8—Clipperton Is.	(7)	MP4—Bahrein Island	(21)	Tobago	(9)	ZS3—Sth. West Africa	(38)
FO8—French Oceania	(32)	MP4—Kuwait	(21)	VP5—Cayman Island	(8)	ZS7—Swaziland	(38)
FP8—St. Pierre and		MP4—Qatar	(21)	VP5—Jamaica	(8)	ZS8—Basutoland	(38)
Miquelon Is.	(5)	MP4—Trucial Oman	(21)	VP5—Turks, Caicos Is.	(8)	ZS9—Bechuanaland	(38)
FQ8—Fren. Equatorial		MS4—See 15.		VP6—Barbados	(8)	3A—Monaco	(14)
Africa	(36)	OA—Peru	(10)	VP7—Bahama Island	(8)	3V8—Tunisia	(33)
FR7—Reunion Island	(39)	OD5—Lebanon	(20)	VP8—See CE7Z, LU-Z, VK0.		3W8—Cambodia	(26)
FU8, YJ—New Hebrides	(32)	OE, MB9—Austria	(15)	VP8—Falkland Islands	(13)	4S7—Ceylon	(22)
FW8—Wallis and Futuna		OH—Finland	(15)	VP8—South Georgia	(13)	4W1—Yemen	(21)
Islands	(32)	OK—Czechoslovakia	(15)	VP8—Sth. Orkney Is.	(13)	4X4—Israel	(20)
FY7—Fr. Guiana & Inini		ON4—Belgium	(14)	VP8—Sth. Sandwich Is.	(13)	5A—Libya	(34)
G—England	(14)	OQ5, 0—Belgian Congo	(36)	VP8—Sth. Shetland Is.	(13)	9S4—Saar	(15)
GC—Channel Islands	(14)	OX, KG1—Greenland	(40)	VP9—Bermuda Island	(5)	—Aldabra Island	(39)
GD—Isle of Man	(14)	OY—Faeroes	(14)	VQ1—Zanzibar	(37)	—Bhutan	(22)
GI—Northern Ireland	(14)	OZ—Denmark	(14)	VQ2—Nth. Rhodesia	(36)	—Comoro Island	(39)
GM—Scotland	(14)	PA0—Netherlands	(14)	VQ3—Tanganyika Ter.	(37)	—Fridtjof Nansen	
GW—Wales	(14)	PJ2—Neth. West Indies	(9)	VQ4—Kenya	(37)	Land	(40)
HA—Hungary	(15)	PJ2M—Sint Marteen Is.	(9)	VQ5—Uganda	(37)	—Kermadec Island	(32)
				VQ6—Brit. Somaliland	(37)	—Mongolia	(23)
				VQ8—Chagos Island	(39)	—Nepal	(22)
				VQ8—Mauritius	(39)	—Tromelin Island	(37)
				VQ9—Seychelles	(39)	—Wrangel Island	(19)
				VR2—Fiji Islands	(32)		

DX

Frank T. Hine, VK2QL
30 Abbotsford Road,
Homebush, N.S.W.

I have not been able to follow the bands personally this month due to being very QRL, but any time I did get a listen things did not seem very impressive for working DX and this has been confirmed by others. After 4th December, one of the millstones that have been round my neck and gradually getting heavier, will no longer exist, and I may be able to concentrate a little more on watching the bands. It was tough and go whether I could make this issue with Notes, but I felt duty bound to those who had sent in copy, so here we are but very briefly. The QTHs sent in will be held over until next month.

NEWS AND NOTES

VQ8AS has been active and his low power is getting out very well. He can be heard from about 1130z. He is not interested in the "gooday-goodbye" contact but will carry on lengthy conversations, so don't get on the black list by trying to bust in on a QSO with continually calling on the other station's frequency.

SV0WQ5/Crete QSLs may be sent via the Grecian Bureau. Quite a few are held there for him, but at the time of writing these notes, his location is not known. Apparently no cards have as yet been sent out by SV0WQ.

VF2VG. If you still need a QSL from here, try W4CG, C/o. C.A.A., Fort Meyers, Fla. (2AIR).

F2BR is ex-FB8BR (3CX)
PYOCV should have been active from Trinidad Is. during Dec. (3CX)

Danny Weil is expected to be afloat again soon as FO8AN/MM and first port of call is the Virgin Is. and then into the Pacific again. (3CX)

For the V.h.f. DXers, keep a watch on 50 Mc. during January from 0200z to 0700z. The m.u.f. indicates good possibilities.

JT1AA is an operator from OK1KAA. He will be in his present location for one year. The station is xtal controlled on 7010, 7030.8, 14004, 14061, 14093 Kc. Power is 150w. to an antenna between two 100 ft. masts. Is normally active on 14061 Kc. between 1000z-1800z and will not answer calls on his own frequency. The foregoing from Amaterske Radio.

ACTIVITIES

7 Mc.: 2AIR: W. KR6AK*, 2AMB: KH6AVX (phone), 2QL: ZE4IM, BERS195, G4NF, HB-9JJ, DJ2OC, JASAI, KR6AK, SP8HU, UA1DZ, UA3KAA, UA3RM, ZE4JM, ZL5AA (1130z). Don Grantley: JAINI.

14 Mc. C.W.: 0AB: EA8BF*, YOSFT*, CR-6CV*, OX3DL*, ITIAGA*, VP8AO*, LZIKSZ*, UR2KAA*, 2AGH: UJ8KAA, U18KB*, ZM7AC, FU8AD, UQ2KAE. 2AIR: XW8AG*, HH2CL*, VQ4KRL*, VQ8AM, VQ8AS*, HL2AE*, CT-3AB*, UL7HB*, VPSY*, XZ2TH*, HC1HL*, O4AFM*, UN1AE*, IS1ZEI, VS9AD, XW8AE, 2AMB: XZ2TH*, VS9AD*, HC1HL*, EA8AF*, CT3AB*, JA1JG, HH2CL, SV0WF, VR6TC, PJ2ME, VP7NM, UJ8AG, UN1AE, VQ8AC.

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

2QL: VQ2EW*, OX3DL*, HH2CL*, VS9AD*, EA8BF*, HE9LAC*, UD6AL*, XZ2TH*, UR-2AR*, SV0WY*, UL7HB, CT3AB, VQ8AS, UN-1AN, SV0WR, CR8AC, VR6TC, 2OW: UA0CD*, KC4USV*, U18KAE*, VF9DL*, HL2AM*, HK-3JC*, HL9KT*, XE1MP*, HA8WZ*, JT1AA*, CE4AD*, 2ZR: LU3EL*, LU8DEP*, LU8NA*, CN8FW*, CT3AB*, U18KAE*, XZ2TH*. 3CX: HK3JC*, FB8BD*, UH8KAA*, CT3AB*, KH-6CEJ/KJ6*, XW8AE*, HS9LAE*, UA0KAR* (Dickson Is.), YKIAT*, OX3DL*, U18KAE*, KG1BB*, W4FCB/KS4*, UO5CA*, CP1CJ*, FP3AS*, FP8AP*, JT1AA. 4DO: UA's*, UL-7HB*, VR2AP*, KR8QW*, KC4USA*, ZL5AA*, I5LY*, ZETJR*, SP8AC, and many Europeans. 5GM: CT1CB*, UB8KAB*, EI7D*, HL2AE*, T2PZ*, LZ1KPC*, OX3DL*, XZ2TH*, LA2IF*, NRK: ZC5CF*, HL2AE, WIA-L3039: UA's, ZM-6AS, CT3AB, KG1BB, EA8BA, K6BAZ/FO8, BERS195: CR8AC, EA8AW, EA8BF, EA8CE, FB8ZZ, HZ1AB, H88E, HC1HL, HE9LAC, HL-2AC, HL2AM, JA1JG, KG4AE, MP4BBL, OD-5AV, OA4AP, OQ0VN, OX3MA, OX3DL, SV-0WR, SV0WY, UQ2AC, VQ3JTW, VS9AC, VS-9AD, YKIAT, ZETJE, ZM6AS, 3V8AU, 5ASTH, Don Grantley: CT1JS, CN8EQ, CO8DL, EA8BA, FY7YF, FA, HE9LAC, HH2CL, KC4USA, KM-6AX, 9S4CE.

14 Mc. Phone: 0AB: ZS8I*, ZS2MI*, ZS3BC*, VP8AO*, 2AMB: EA3JE*, VR2DA*, VR3A*, TG8AD, FA3GZ, OAIK, HL2AM, ZS8AXE, Don Grantley: LS8AF, KS8AX, BVIUS, Barney Smith: ZETJR, I5FL, FB8CF, HK4OP, OQ0BZ, PU8AD, PJ2AL.

21 Mc. C.W.: 0AB: KA0SC*, CR10AA*, TF-5TP*, SV1AB, 3A2BT*, 9S4CM*, SV0WQ*, 2AIR: 4X4BX*, KP4AZ*, KP4AJG*, 2AMB: ZB1DC*, TF5TP, UR2KAA, VS2ER, VS1AF, VR2BC, 2QL: HE9LAC*, SV1AB, 2ZR: Many Europeans plus FY7YC*, 3A2BT*, TF5TP*, CN8FW*, ZP9AY*, UC2AF*, UR2AR*, UA's*. 28 Mc.: 2QL: ZK1BS*, UA0OM.

QTHs OF INTEREST

ET2KY—Via ET2US, U.S. Army Tape Relay Station, Asmara.

YKIAT—Via OKIMB.

FB8CD—Via ZS6ANE, 996 Mondeor, Johannesburg (5WO).

I5FL—Box 90, Mogadiscio (5WO).
FR7ZC—Troisbassins, Reunion Is. (5WO).
CT3AB—Rua de Santa Maria 261, Funchal.

No SV1 calls are listed in my book, but all cards for Greece can go by Box 564, Athens.

QSLs RECEIVED

2AIR: ZC4IP, ZL5AA, PJ2ME, FY7YF, W6UOU/K86, SL7CH, SV0WR, VP8VG, 2AMB: PJ2ME, ZL5AA. 2QL: ZL5AA, UA0OM. 2OW: ZC5AL, SCX: CE0AB, 5RK: ZC5AL, BERS-195: 9S4DG, ET2NG, LU4AN, DL8CI/LX, ST2NG, UA2KAA, UN1AE, VQ2FC.

Well boys I must wind it up for this month. If I receive any late reports, they will appear in next month's issue. By the way, I hope you did not believe the misprint in last month's notes in the ZL5AA par. 50 Mc. of course should have read 5 Mc.

My thanks to 2EG for QSP of 0AB, 2AGH, 2AIR, 2AMB, 2OW. We welcome 2ZR and 3CX, 4DO, 5GW, and 5RK who I hope to see in January, WIA-L3039, BERS195, Don Grantley and Barney Smith.

SILENT KEY

It is with deep regret that we record the passing of:—

VK3BH—Charles R. Whitelaw.

UNIFORMS DUST COATS

for your Office Staff, Factory,
Workshop, Servicemen.

★
Bowls Frocks, Tennis Frocks,
for the retail trade.

★
D. MILBURN & CO.

238 Flinders Lane, Melbourne

PREDICTIONS FOR JANUARY, 1958

Mc.	E. AUSTRALIA	W. EUROPE S.B.	Mc.
0	2	4 6 8 10 12 14 16 18 20 22 24	45
45	GMT		
28	-----		
21	-----		
14	-----		
7	-----		
0	2	4 6 8 10 12 14 16 18 20 22 24	45
45	E. AUSTRALIA -- W. EUROPE L.R.		
28	-----		
21	-----		
14	-----		
7	-----		
0	2	4 6 8 10 12 14 16 18 20 22 24	45
45	E. AUSTRALIA -- MEDITERRANEAN		
28	-----		
21	-----		
14	-----		
7	-----		
0	2	4 6 8 10 12 14 16 18 20 22 24	45
45	E. AUSTRALIA -- N.W. U.S.A.		
28	-----		
21	-----		
14	-----		
7	-----		
0	2	4 6 8 10 12 14 16 18 20 22 24	45
45	E. AUSTRALIA -- N.E. U.S.A. S.R.		
28	-----		
21	-----		
14	-----		
7	-----		
0	2	4 6 8 10 12 14 16 18 20 22 24	45
45	E. AUSTRALIA -- N.E. U.S.A. L.R.		
28	-----		
21	-----		
14	-----		
7	-----		
0	2	4 6 8 10 12 14 16 18 20 22 24	45
45	E. AUSTRALIA -- CENTRAL AMERICA		
28	-----		
21	-----		
14	-----		
7	-----		
0	2	4 6 8 10 12 14 16 18 20 22 24	45
45	E. AUSTRALIA -- S. AFRICA		
28	-----		
21	-----		
14	-----		
7	-----		
0	2	4 6 8 10 12 14 16 18 20 22 24	45
45	E. AUSTRALIA -- FAR EAST		
28	-----		
21	-----		
14	-----		
7	-----		
0	2	4 6 8 10 12 14 16 18 20 22 24	45
45	W. AUSTRALIA -- W. EUROPE		
28	-----		
21	-----		
14	-----		
7	-----		
0	2	4 6 8 10 12 14 16 18 20 22 24	45
45	W. AUSTRALIA -- N.W. U.S.A.		
28	-----		
21	-----		
14	-----		
7	-----		
0	2	4 6 8 10 12 14 16 18 20 22 24	45
45	W. AUSTRALIA -- N.E. U.S.A.		
28	-----		
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0	2	4 6 8 10 12 14 16 18 20 22 24	45
45	W. AUSTRALIA -- S. AFRICA		
28	-----		
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7	-----		
0	2	4 6 8 10 12 14 16 18 20 22 24	45
45	W. AUSTRALIA -- FAR EAST		
28	-----		
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14	-----		
7	-----		

VHF

Frank P. O'Dwyer, VK3OF
190 Thomas Street,
Hampton, Vic.

Farewell the trans-equatorial scatter until the next equinox and with it the regular contacting of JA stations by our northern Hams. That is not to say that F layer reflections shall be missing as well—there is always the chance that conditions may suit that medium of propagation, so during daylight hours keep careful watch for any faint signals from the north. Not that you need any warning—the way VK signals have been popping in from north, south, east and west. Bob 4NG says that trans-equatorial scatter works almost to a timetable, signals commencing and ending much about the same time each night, whereas F layer reflection may happen any time during daylight hours, signals accompanied by the characteristic F layer QSB. And not only the JA stations. One morning 4NG heard an American voice calling CQ DX on the band, but call remained unidentified. So there are more eggs in the basket than one. Who is going to turn in the first KH6 contact for the season? They were not infrequent in the past. KH6UL is setting the pace and giving us something to look for with his automatic transmission on 50.225 Mc. as listed last month.

November opened with a quiet week for Interstate contacts, then satisfied the gang with some lively openings all around the country. The path from VK4 to VK2, 3, 5, 7 was open every evening of the third week with several east west openings (Nov. 18, 22) which brought the first international contacts for the season with ZL stations working VK5 and VK3RR in VK3 western district. All Melbourne stations were inactive, apparently recovering from the field day held on Nov. 17. The ZLs were heard at good strength in Melbourne—not by any Ham but by several enthusiastic listeners who have monitored the band for many years. On Nov. 22 the VK5/VK3 path opened, this time Melbourne stations were there to take advantage of the conditions and over a period of 20 minutes quite a few good contacts were made. One feature of the VK3/VK4 openings during this week was the late hour at which the band remained open, contacts taking place up to 2300 on several nights. The week finished nicely with the band good for VK3/VK4 on Sat., Nov. 23.

The last week of the month let the gang build up their energy for the commencement of the Ross Hull Contest, Dec. 1. Wed. 27 produced a highlight when VK4NG contacted VK6BE, good signals each way, so putting VK6 back into the picture. Same night, Bob was putting a patchy S6 sig into Melb., but no contacts were made. As a prelude to the Ross Hull Contest and an indication of what to expect, the last day of the month brought VK4 well into the picture down south, the band being open from 0800 until 1530.

The lament of the month came from Bill 4WD (Brisbane) at 2237 on Nov. 21 when he complained that he had lost his voice in the hectic rush of working VK2, 3, 5, 7; there were so many signals on the band he didn't know whom to work next. Probably the most pleasing aspect of the openings is the greatly increased number of stations on the band in all States, new call signs belonging to both full and limited licences appearing frequently. Rarely does a CQ go unanswered in Melb., and the same appears to be true of the other Divisions also. And what a kick the Z call chaps are getting out of the Interstate DX, truly whetting their desire for full tickets and the use of all bands.

Vern 4LK, Charters Towers, 350 miles north-west of 4NG Rockhampton, passes comment on the openings. He has had a lean time since the JA run finished, relieved by a good QSO with Sid 3CI, Nagambie, S8 both ways, yet Vern could not hear the Melb. gang, active 80 miles to the south. Frequently 4NG puts S9 plus signals into Melb., while Vern a bit to the north just cannot do it. His most consistent openings are to VK2.

Another station to look for is located at Macquarie Island on 50.190 Mc. Transmission shall probably commence during January '58, possibly before.

The Contest Committee and F.E. are to be commended for the way in which they have revived the 50 Mc. band by altering the Ross

Hull Contest rules. Old voices are there in force now that the "local contact, one point" rule is no longer valid. And who is going to be the first Z call to receive the W.A.S. certificate? Divisional rivalry is keen.

NEW SOUTH WALES

Meeting: The V.h.f. and T.v. Group held its monthly meeting at Gore Hill Technical College on Friday, 6th December, at 8 p.m. After a very smart disposal of formal business, this well attended meeting was treated to a colour film screening of the whaling industry at Byron Bay, N.S.W. We are deeply indebted to Mr. D. P. Shute for bringing and showing us this film.

A lecture by Professor Winch then followed. The Professor, suitably attired in cap and gown, delivered a most learned discourse on the "Infinite Current Aerial," otherwise known as "20A's Two-Bob Spout." Bob demonstrated mathematically that he had been able to achieve a gain of over 2,000 with this type of aerial. He was congratulated on his achievement by Jim 2PM and a vote of thanks was carried by acclamation.

Among the visitors present were Bruce 2ZCM (formerly of Coffs Harbour), Stuart 2ZDF (Newcastle), Ron 2ZBG and Bill 2ZAC.

Monthly Day Fixture was held on Sunday, 10th November, and was a mobile Fox Hunt. It is some time since the Group has had this type of event in daytime and as apparently it succeeded, it is to be regretted that more hounds were not present to participate. The fox (Dick 2ZCF) started from Baulkham Hills and followed a route that led through Kenthurst, Maroota, Sackville, Windsor, and Blacktown, and terminated finally at Carlingford. The fox was intercepted by John 2ANF four times during the day. John, with Bob 2OA as co-pilot, thus became the outright winner of the event with a score of nine points. Second was Jim 2ZBD who scored one point for being first in at the end. The only other hound participating was John 2ZAV.

Monthly Night Fox Hunt was held on 27th November. This event for the first time in some months reverted to a straight out hidden fox hunt. The fox on this occasion was Bob 2OA who was well hidden at Seaforth. First in was Jim 2ZBD who made it in 50 minutes. In second place was Phil 2ZBB with the 2ANF/H combination in third. Other hounds present were 2ZCF, 2ZAV, 2AWZ.

Scramble: A surprise scramble, held after the usual Sunday evening broadcast, resulted in a clear win for John 2ZAV. Many stations tied for second place.

During the Month of November the 2 mx band has been wide open to Newcastle on several occasions, resulting in 2ZDL and 2ZDF working many Sydney stations. Wal 2MZ has been having narrow escapes from bush fires in the Blue Mountains. Neville 2DR (Blayney) has been out of action since his beam was blown down. Jim 2ZBD has now become 2PM.—2ER.

VICTORIA

Group Meeting.—The meeting on Nov. 20 was attended by 20 members. After meeting at the rooms at 8 p.m., the Group moved off to the Radio Maintenance Section of T.A.A. at Essendon. There, Ron 3AHJ gave interesting talks on various bits of modern airborne equipment on display. At the conclusion of the display, the hosts provided coffee for the gang, all of whom had enjoyed themselves thoroughly.

Field Day.—The first field day was reasonably attended despite the overcast weather. Stations in the field included 3VF at the Strezecks, 3ZAI Mt Ridley, 3ZBP/2ZDG at Pretty Sally, 3ZAT Arthur's Seat, 3ZBU Diggers Rest, 3ZCG at Mt. McDonald and 3ZCN in the Pentland Hills. All stations except 3ZAT worked 2 mx (David's gear broke down) and 3ZAT and 3ZAI worked 6 mx, whilst 3VF and 3ZAI had 288 Mc. gear. Results are not to hand at the time of writing. The next field day on the 28th of this month coincides (intentionally) with the National Field Day, so be in it and kill two birds with one stone.

Band Jugglers.—Frank 3ZDW, situated near the top of "3BQ mountain" has an overpowering signal on 288 Mc. now. Ken 3AFJ is fairly active on both 1 and 6 mx, whilst Max 3ATK is having troubles with his 7193 osc. Gordon 3ZEI at East Burwood appears to be the newest station on 2 mx. Welcome, Gordon.

Interstate stations have been coming through on 6 mx frequently enough to keep the gang on their toes. It is heartening to see some of the old-timers coming back on 6; 3PG, 3BW, 3AHL and 3SF are back, whilst newcomers include 3ZDE, 3ZDU and 3ZCG (at Moe). I hear that some fine openings have taken place to the west on 2 mx, but I have no details—perhaps next month when I have more time.

The notes are fairly short this month because I have had exams, for the past three weeks and at the time of writing have another fortnight of the things to endure. Therefore I have had neither time nor energy to devote to "mail reading" or note scrounging. However, if I am able, I will try to do better next month.—3ZAQ.

SOUTH AUSTRALIA

The main item this month is the activity on 6 mx where just about everyone who has (or had) an 8 meg. rock, is back on the job feeding into various arrays ranging from 4 el. Tiltons to 40 mx folded dipoles. Some of the frequencies heard being: 5MT 50.2 and v.f.o., 5GF 5X3, 5KC 50.28, 5RO 50.1 and 51, 5ZAW 50.6, 5VK 50.5, 5QR 50.004, 5ZBA 51, 5XV 52.02, with 5AX, 5ZAX, both active on the band, but frequencies not noted as yet.

Col 5RO using about 40w. into an 829B. John 5ZBA also has an 829B in the final. Neil 5ZAW uses his new 4 el. beam and the 829 final; were you surprised Neil when the indicator gave upward modulation? George 5GB has a converter covering the full range 50 to 60 megs., that will stand looking at. He is a bit of a v.h.f. urger, tried to talk me into 50 megs. "in five minutes", anyway, will get to it some day. George. Ray 5ZBM is building 6 mx gear, so will soon be heard there.

All of these boys have been doing great things when the break-throughs happen, and working all VK areas in turn, in fact one night recently heard them doing it by just listening to channel 1 on a t.v. rx. No, it's not mins, but belongs to a keen type hero who is building one and was at my QTH for a test. Rather an expensive v.h.f. converter, but it worked as such and when on channel 1 with the g.i.o. providing a signal to give the 5.5 meg. beat, brought all the sigs on 6 in at great strength. In fact Col 5RO and Keith 5MT, who were picking off VK2s and VK4s at the time, were followed with great ease, as also were the 2s and 4s they were in contact with, so there is an idea to get on 6 quickly, or at least the rx side of it.

There is a very keen v.h.f. man in Bill Simister who lives at Seaciff, he is another t.v. rx constructor and has had a fair measure of success. More important to us though, is that he has been keeping a very complete log of "conditions" for v.h.f. propagation, weather maps, temperatures, humidity, band noises, etc., etc., with the idea of developing some pattern to enable prediction to be made from day to day.

There is a chance Norm, spot him out with an application form and you are bound to collect, and as far as v.h.f. types are concerned, seek him out for information on this subject, for he is anxious to meet up with the gang.

Two metres has shown a burst of activity, too, in that more sigs are heard here anyway, and is probably due to the cross-band duplex made possible by the use of 50 megs. The Ross Hull Contest will no doubt bring them all out of hiding now, so all old acquaintances will be renewed.

Hughie 5EC heard occasionally with good strength, working Keith 5MT but conditions not at peak by any means as yet, so keep plugging my friend. Eric 5EN heard trying to make it through to Adelaide again, but not very strong. Try 6 mx Ern, and you will be in it again.

288 Mc. has been quiet, most of those boys have been trying for their c.w. and neglecting the bands as a result, but that didn't hold up the activity of 5KY, 5JK, 5ZDY, 5XA and 5ZBX.

5DE (ex 5ZDF by the way) went portable some time back at Sillisbury, and worked 5ZBX at S7 each way, George used a 16 el. beam and a pair of 7193s. Brian 5ZBN is now 3CN, and Keith 5ZBR, Rick 5ZDX, and Ron 5ZDY have all passed the hurdle and awaiting two-letter calls, with Brian 5ZBX awaiting news that he made it also. Congrats fellows, and best of luck to the many others going through the same hoop at present.

Rex 5KY is experimenting with a 5-tube superhet on 288 Mc., hope it works out fellow; if it does, what about an article for the magazine to pass on your ideas and what you found out?—5EF.

WESTERN AUSTRALIA

The V.h.f. Group's Fox Hunt took place on Sat., 9th Nov., starting from King's Park as usual; 6BO was in charge. Rolo took great pains to make everything a success, but unfortunately gremlins crept in, much to Rolo's disgust. The tx was some distance away from the power supplies and mod. etc., on the river bank, in fact there was a stretch of water between, with power lines, etc., running

(Continued on Page 16)

YL

Phyl Manour
235 Union Road
Ascot Vale, Vic.

MEG AND CON.

Meg Ohm and Con Denser are two good old radio gals with terribly clever husbands—Hams, you know. They meet regularly for QSO (Quinces, Sausages and Oranges) and this is how it goes—

"Hello Con, how are you and how's your OM's new rig going?"

"Oh, fine, Meg, just fine, and what's new with you?"

"Well Con, my OM's still trying to get his old one working, he works on 80 metres, you know."

"Gosh, Meg, that must have cost him a packet, 80 meters, but what on earth does he want all that many for. I counted up seven meters in my OM's shack and I'm quite sure he doesn't use half of those even. But do you know what, the other day he went and bought a new one. An 'ome meter, he calls it. Terrible careless he is, always droppin' 'is Halthes."

"Well Con, the next thing my OM is going to build is some gear for 7 megaphones. Your OM told him he ought to go on 576, but if he goes I'll leave him, that's what I'll do. Heavens, 576 megaphones! Just imagine the noise, why we'd have all the neighbours complaining."

"Meg, I want to ask you something personal. Do you know who this fellow CQ is? My OM's always calling him, but I never hear him come back. My belief is he's a female because everytime I creep up and listen at the shack door, my OM stops calling CQ pretty pronto and just goes over to some other OM. He knows very well I don't like him talking to women. I've put my foot down on that ever since the time I heard him telling an American

YL that his resistance was low and that he had too much impedance—meaning me, I suppose."

"No Con, I don't like my OM talking to women either. When we first got married he told me that radio was a safe hobby for a man and that I'd have a lot to be thankful for because I'd always know where my husband was. But I don't know, the other night I heard him asking a YL if she'd change her frequency. Now what do you make of that?"

"Well, I won't know Meg, but it doesn't sound too good, does it? My OM's always talking about changing his frequency; now if only it was his underclothes or his socks, I'd be all for it."

"Then Con, the next thing is, he asks her for her QTH and on top of that he says he will give her a call on phone tomorrow evening, so apparently she's given him her telephone number, too."

"Well Meg, I wouldn't stand for it if I were you, I'd tell him off."

"But Con he doesn't take any notice of me, every time I criticise him he just puts tone on and turns it up as loud as it will go so he can't hear anything I'm saying."

"Yes Meg, I know how it is, my OM is always making the most terrible noises with his wretched wireless sets too. And I say to him: 'What on earth are you doing in there?' And he answers back: 'Just tickling the cat's whisker, Con.' And you know darn well by the awful screech that he's trodden on the poor cat's tail."

"Well what I really object to Con, is all the money he keeps spending on his wireless and wouldn't think of buying me a thing. And the latest is some talk about motor-boating. Well, if he thinks he's going to buy a motor boat as well as all that wireless junk, he's got another think coming."

"Well, what do you think my OM says to me, Meg, when I asked him to buy me a new dress. He says: 'Con, you don't need a new dress, you've got plenty of dresses and besides you'd look beautiful to me in a strip of insulation tape.'"

"There's one thing, Con, I must say for my OM, and that is that he did come good and build me a rotary clothes line. Real modern one it is with four lines for the clothes, but the only trouble is he's gone and put it up on the roof on top of a 40 ft. pole and how

on earth he imagines I'm going to climb up that pole with a basket full of washing under one arm and the bag of pegs under the other, well, I just can't imagine."

"The latest at our place, Meg, is a BC348 receiver, but the OM's having trouble with the oscillator."

"Goodness gracious Con, you amaze me, I never dreamt they would have had receivers back in 348 BC. Well Con, I'll have to go now as I am expecting the OM home soon. He went to town today to buy an AR88. Well, 88 means love and kisses, and AR means end of message, and I'm so excited I can hardly wait for him to pull the big switch tonight."

V H F

(Continued from Page 15)

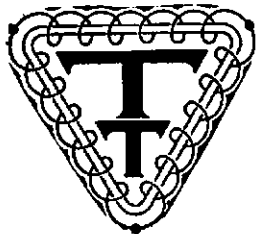
through the water and to make things easier, dry batteries were used for the tx filaments. This is where the gremlin crept in, they started to take the knock and in his checking, changed crystals—forgot to change back; was off the air for 20 mins., causing the hounds much worrying. Never mind, Frank 8CC's super regen., which is not sensitive to frequency change, brought him in first with 6HK second and 6ZAV third. Much fun was had by all.

Don 6HK and his XYL got hitched on 23rd Nov. Leaving for their honeymoon, they were chased by 6TR and 6WJ and many rounds of the Causeway circuit were made before the boys let them go. The best wishes of the Group go to Pat and Don in their venture.

The meeting on Monday 25th at D.C.A. eventually finished up at Rolo 6BO's QTH—the cause? Nobody thought about picking up the keys—"wouldn't it?" Wally Coxon, 6AG, an old-timer, was a welcome visitor and gave a very interesting talk on Tools and Their Uses in Amateur Radio, also photo printing of circuits, etc., from books. Most of the younger members of the Group, especially, were very pleased with the tips and short cuts that Wally gave. Once again, Wally, many thanks.

50 Mc.—No break throughs to the time of writing.

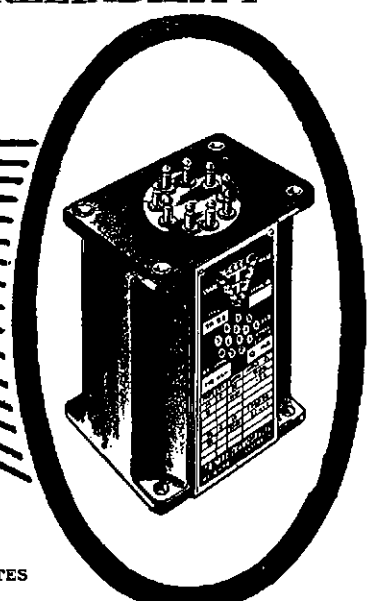
144 Mc.: 6BO and 6WG, Albany, working on phone, 250 miles, most mornings.—6ZAV.



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NOTES

FEDERAL

A WORD OF THANKS

As the Old Year closes and the New Year opens it is again necessary to give some thought to those members who have given time and energy to the job of keeping the Wireless Institute of Australia functioning.

It so happens that many of these duties are of an unspectacular nature and because they do not attract the spotlight of publicity rather tend to be forgotten.

On behalf of members Federal Executive would like to say "thank you" to all who have helped.

THOSE "EI" CALLS

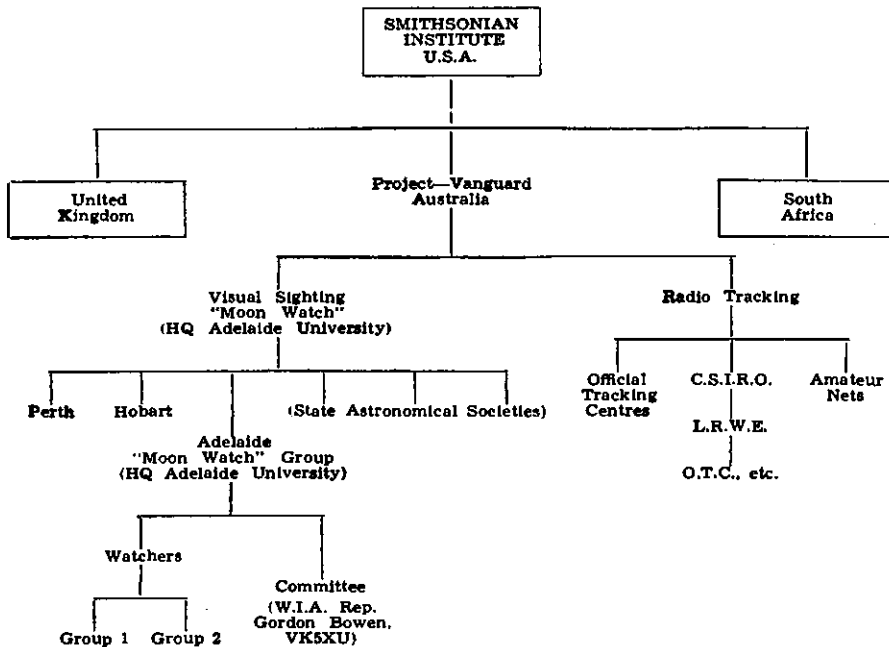
It is interesting to note that the Honorary Secretary of the Irish Radio Transmitters has stated that calls of the series EI have never been issued to Radio Amateurs in Eire. These calls are reserved for the use of commercial stations.

THE I.G.Y. SET-UP

Following on the successful efforts by Amateurs in reporting the recent satellites, some interest has been evinced in the set-up of the reporting organisation.

Here is shown a small portion of a section of interest to Amateurs, and it shows how reports find their way to the Smithsonian Institute.

The Wireless Institute is most fortunate in that it has as its representative on the "Moon-watch" Committee none other than the Federal Councillor for VK5, Gordon Bowen. Those who heard Gordon handling reports on VK5WI during the recent satellite alerts will realise what a splendid job he is doing for the Institute.



FEDERAL QSL BUREAU

The following changes in the W QSL Bureau set-up are notified: W2 and K2—North Jersey DX Association, Box 55, Arlington, New Jersey. W9 and K9—Julian Oberg, W9DSO, 2601 Gordon Drive, Flossmoor, Illinois.

In a QSL to BERS195, Frank Robb, G16TK, mentioned that his eyesight is falling rapidly. Frank has operated in over 50 countries in the past 30 years and must be well known to scores of VK c.w. men. It is understood that

Frank's affliction, which has already claimed the sight of the left eye, is the result of an accident. He intends to continue operating on phone on all DX bands and possibly may continue c.w. as well.

Bill Storer, VK2EG, who is acting as QSL Manager for Chas Hawker, VK0AB, reports that all cards received to mid November have been answered.

The fall off in QSL traffic through this Bureau during October proved, as expected, only a temporary respite, for cards soared again in November. Despite the implications, writer wishes all good hunting in 1958.

—Ray Jones, VK3RJ, Manager.

NEW SOUTH WALES

The November meeting of the New South Wales Division held at Science House, Gloucester Street, Sydney, on Friday evening the 22nd had an attendance of eighty members and visitors.

An excellent lecture was given by Mr. Neville Williams on Techniques in Television Receiver Construction. Mr. Williams covered the design of t.v. antennae indicating that some of the finer points used in construction of antennae for Amateur bands had to be discarded when designing a t.v. antenna. This was necessary to enable multi-band coverage to be obtained.

Points on the construction of the tuner, i.f. strips, the various oscillator circuits, and a.g.c. circuits were also covered, the choice of components for the various stages was discussed.

Comparisons were made between the various disposal type 5 and 6 inch tubes available and many useful hints were given on the use of such tubes. To demonstrate the different types of components a very large range was on display and included a 21 inch receiver which gave very good results under very poor receiving conditions.

This was a very enlightening lecture, both for those who have already built a t.v. receiver and those who are contemplating such a project.

Charlie 2AWQ moved the vote of thanks on member's behalf and was carried by acclamation from those present.

Several matters of business were discussed including the purchasing of a number of the latest text books for the Divisional Library. These have now been procured and will be

CAN YOU HELP?

Federal Executive requires the services of a Federal Secretary during the time that Doug. Bowie, VK3DU, is abroad.

The position is a temporary one and will cover a period of about six months from Easter 1958.

If you live in Melbourne and can help with this interesting job would you phone Fed. Sec., Doug. Bowie, at WF 5504 or write Box 2611W, G.P.O., Melbourne, C.I.

record of all stations and regional groups ready by the New Year.

A report was given by Arthur 2AJA on the progress made with the erection of the poles at Dural, four 60 ft. masts have been erected and soon the antennae will be raised.

The Chairman, 2APQ, gave details of a 25 k.v.a. emergency power supply which has been procured for 2WI at Dural.

The meeting closed at 11 p.m.

A very successful Field Day was held on 17th Nov. at Gosford. For the past few years a joint field day of metropolitan and Hunter Branch members has been held at Woy Woy. The change to Gosford renewed interest in this day. The efforts of the newly formed Central Coast section in organising the day's activities was very commendable. 86 members registered and the total attendance of families and friends brought the number to over 200.

The two main events each carried a 6146 and cup as first prize. The 7 Mc. Scramble was won by Bill 2XT, of Newcastle, and the 144 Mc. Hidden Transmitter Hunt was won by Dick 2ZCF, of Sydney. Great interest was displayed in the disposals gear, all of which was acquired by those present. It is understood that plans are already being made for next year's event. Those who did not attend missed one of the best days held. The Divisional Broadcast was originated at the location using 2ARG's 2 mx mobile gear for a relay to 2RU who re-transmitted on 7146 Kc. Unfortunately, a very high noise level prevented all reports being taken.

Talking of relays, experiments carried out at 2WI and doing a portion of the weekly broadcast via a 2 mx link have been very successful and when all the problems have been cleared, it is hoped that many innovations will be included in the broadcasts and another step in the W.I.C.E.N. organisation completed.

We were very pleased to be host to K6JDK at Dural and give members the opportunity to hear Jerry during our news broadcast. If

CONTEST CALENDAR

Compiled by W.I.A. Fed. Contest Com.

★

ROSS HULL MEMORIAL—

Bands: 50-54, 58-60, 144-148, 288-296 Mc.
Date: 1st December to 31st January.
Rules: As published. * Amendment 50-54 Mc. Scoring on 50-54 Mc. as for 56-60 Mc. Special Award: Greatest distance over 3,000 miles.

B.E.R.U. (C.w. Contest)—

Date: 25th January to 26th January, '58.
Duration: 0001 G.M.T., 25th, to 2359 G.M.T., 26th.
Rules: As for 1957.
* Amendment: Sections: High Power, Low Power (25 watts limit); Receiving Section.

NATIONAL FIELD DAY—

Date: 26th January.
Rules: See "A.R." December, 1957.

W.A.E.D.C.—

Dates: C.w.—3rd Jan.-5th Jan., 1958.
Phone—4th April-6th April, 1958.
Times: 1800 to 2400 G.M.T.
Duration: 54 hours.
Freq.: (a) C.w.—3.5, 7, 14, 21, and 28 Mc.
(b) Phone—14, 21 and 28 Mc.
Rules: Apply F.C.C.

available to members through the library service; watch for details in your Bulletin.

Bob 2ARG, the Divisional W.I.C.E.N. Co-ordinator gave a resume of the replies received from members interested in the W.I.C.E.N. organisation and passed around for members to see an official C.D.O. map on which were marked the locations of stations who have signified their willingness to participate in the scheme. If you have any ideas or queries on W.I.C.E.N. Bob will be very pleased to hear from you, as he hopes to have a complete

BOOKS OF INTEREST TO ALL RADIO AND T.V. ENTHUSIASTS

- ★ "HOW TO MAKE GOOD TAPE RECORDINGS," by C. J. Le Bel 19/3, 9d. postage.
- ★ "HIGH FIDELITY"—Gernsback Library 15/6, 9d. postage
- ★ "HI-FI HANDBOOK," by Wm. F. Boyce £1/12/0, 1/- postage
- ★ "HOW TO INSTALL AND SERVICE INTERCOMMUNICATION SYSTEMS
by Jack Darr £1/14/3, 1/- postage
- ★ "BEAM ANTENNA HANDBOOK," by Wm. I. Orr £1/9/0, 9d. postage
- ★ "RIBBONS OF SOUND," by Karl A. Barleben £1/5/9, 9d. postage
- ★ "UNDERSTANDING HI-FI CIRCUITS," by Norman H. Crowhurst .. £1/11/3, 1/- postage

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at any time you know of visitors to Sydney, let them know they will be very welcome at 2WI Dural to meet members over the weekly broadcast.

Although the formation of a listeners' section has been put before you, very little interest has been shown. However it is felt that there are a number who would be interested but have not heard of such a group or know how to go about contacting the Secretary. As this is so closely allied with Amateur Radio members are urged to advertise the idea and advise those interested to contact the Secretary, Box 1734 G.P.O.

Now that Xmas is over, we trust you all enjoyed the best of good things, and trust that 1958 will be all that you wish for.

The first Divisional event for 1958 will be the 8th Annual Hamfest commencing at the monthly meeting on 24th January and continuing on the afternoon and evening of 25th and Sunday 26th.

Country members intending to attend are requested to advise the Secretary should they require accommodation booked.

The Saturday afternoon and evening rendezvous will be at 2WI Station, Quarry Rd., Dural.

— . . . —

VICTORIA

The December meeting of the Victorian Division, being family night, was easily the best attended meeting for the year. Nearly every seat in the theatre was occupied and this adds up to an attendance of about 120. A very fine muster for President Fred (SYS) and his willing band of helpers who put on a really enjoyable night for all.

The meeting started off with the usual preliminaries, including the admission of new members as listed below, and then settled down to dispose of the vital business of the night. This included a very appropriate selection of films, a visit by Father Christmas (3CW) complete with toys for the harmonics and a supper which left nothing to be desired.

Fred did a very commendable job in arranging the programme and he carried out his duties of host in the true spirit of the occasion. Credit is also due to the team who made this night possible by the donation of food, toys, and time. As far as I could find out those who assisted our President in making this night the success that it was were: Mrs. Mancur, Mrs. Dennis, Mrs. Lancaster, Mrs. Higginbotham, Mrs. Clark, Ken Millbourn, Keith Rogat, Maurie Waters, Gordon Dennis, Len Mancur and George Robertson. No doubt there were others who were hiding their light behind a bushell and to these I offer a vote of thanks and an apology for missing them in my search.

The only visitor for the evening was 2AYE and we hope he enjoyed his stay with us.

You wouldn't read about it! Secretary Jay (3JL) fell off a stationary tram and broke his left elbow. That's his story anyway, and he had his damaged arm along to the meeting to prove it. Don't know the repair time, Jay, but hope it's not too long. Just keep away from the DX while you are home, that's all.

Would anyone like the job of Federal Secretary while Doug 3DU takes a six months' trip overseas next year. If so make your wishes known as soon as possible. Doug assures us that the duties will not be onerous while he is gone. Must be saving up those things, whatever they are, for his return. Here's hoping he is also going to tell us of his experiences whilst overseas at a future lecture. How's about it Doug?

We were very sorry to learn that our Administrative Secretary, Mrs. May, was unable to attend the Christmas meeting due to a

death in the family. Our deepest sympathy, Mrs. May, to you and yours in your time of sorrow.

Full members admitted to the Institute at the meeting were Messrs. I. deG. Macmillan (3ZDG) and R. K. Burbidge (3AVE), and Associates Messrs. C. R. Saunderson, C. J. Buckley and D. J. Goss.

Don't forget. There is no general meeting of the Division in January, so the first meeting for the new year will be on the first Wednesday in February which is the 5th. The lecturer for that night is not yet known but will be announced in these notes prior to the meeting and over the Sunday morning broadcasts. These broadcasts will be given each Sunday morning, commencing at 1130 hours, right throughout the holidays, so listen out for the news and views of the Division at these times.

The South Western Zone has given notice of its next Convention to be held at Warrnambool in March of the new year. Those intending to go along will need to make bookings before the middle of February. Listen to the Sunday morning broadcasts for further details.

SOUTH WESTERN ZONE

The zone is very active on the hook-up each Thursday night. There has been very good attendances and the main topic is preparing for the next Convention to be held at Warrnambool on 22nd and 23rd March, 1958. We do hope to see a good turn up at this gathering. There will be v.h.f. activity, also tx hunts, etc., so let's hope some of the Melbourne chaps turn up, also chaps from all zones. There will be a prize for the chap who travels the longest distance to be at the Convention.

Please note: All who intend coming to the Convention must send a £1 deposit for accommodation and also 10/- for the dinner on Saturday night. This must be forwarded before the second week in February, 1958, as after this date no responsibility will be accepted for bookings. These bookings are to be sent to Bill Wines, 48 Crawley St., Warrnambool, who is the organiser.

A Happy New Year to all from South Western zone members.

EASTERN ZONE

Five cars went down to Colac for the State Convention. Ian 3AAV and George 3ZCG worked some of the stations on 2 mx whilst mobile. Everyone enjoyed themselves and David 3DY and YL were donated a piece of surplus gear for travelling the greatest distance. Jack 3AJK was the winner of the mobile 2 mx hidden tx hunt. We put a fox hunt on for the afternoon. Ian, as usual, was the fox and used stacked halos. Les 3ZCN and Ian 3ZCF were the winners. The Eastern Zone donated them a 2 mx 16 el. phased array. Ian, Jack, George and Geoff had t.v. towering on display and several bods climbed it so that Len 3LN could make a movie record.

On our way home, one of the boys was booked for having a beam on the car. Claimed to be an obstruction to vision, so all fox hunts in the zone are cancelled until further notice pending approval or otherwise of beams by the State Police. The Secretary of the W.I.A. is now attending to this matter.

George 3ZCG and Geoff travelled to the top of Mt. McDonald last month for the field day and had 29 contacts. They had difficulty in getting down the mountain side as they got snowed in overnight.

Ian 3AAV is now back on 40 and 80 mx using his portable gear, until the high power equipment is re-built. We welcome two new zone members on the air, Allan 3ZCP at Hastings, and Steward 3ZDD at Pakenham.

Hope everyone of the zone had a very enjoyable Christmas, and I wish you all a bright and prosperous new year.

WESTERN ZONE

We were sorry that we did not have one of our members at the State Convention which was held in Colac recently, however we were pleased that Leigh 3II, of the South Western Zone, could represent us, so thanks a lot Leigh.

Activity in the zone seems to be increasing. We are expecting some new stations on the air soon. Another two stations are building new or re-modelling their old rigs. Jim SADE, of Hopetown, is on the air again after some months of inactivity caused by the fire which destroyed his home and contents a few months ago. He intends to build a high powered rig around a Geloze v.f.o. unit, but at present they are unobtainable, so he is wondering if any of you chaps have a spare, or one they want to dispose of. He would swap his mobile rig for one if anybody is willing. Jim will

always be pleased to see any Hams who happen to be in his locality. Trev 3ATR has regular skeds with Chas 3AB, of Davis, and a couple of other stations expect to be contacting Chas during the next month or so.

MOORABBIN AND DISTRICT RADIO CLUB

The annual general meeting was held on 15th November with an attendance of 20. The President, Stan Beaton, reviewed the events of the past year, and the annual elections followed, with the following elected as office-bearers for 1958: President, Stan 3ZE; Vice-President, Jack 3ZEF; Sec. and Publicity Officer, Laurie 3CN; Treasurer, Ken 3ACS; Asst. Sec. and Hon. Auditor, Ian 3AXC; Transmitting Officer, Frank 3OF; Committee members: Ed 3EM and Arthur 3AWO.

At the general meeting which followed the annual meeting, the Certificate Officer, Bill Alder, announced with pleasure the award of the Club Certificate of honorary membership to the first German station to qualify, DL1IB. Don't forget to let DX stations know they need only five contacts with member stations to win this handsome certificate. VK stations need fourteen contacts. So go to it, chaps!

Heard recently at natter night complaining about his 20 mx beam was Bob 3NZ. In trying to re-erect his beam at the present QTH, Bob found that, whether he shortened or lengthened the elements, the resonance was always less. Just like a cat chasing its tail. Here's hoping it loads well now, Bob.

Don't forget, if you live anywhere near Moorabbin, our meetings are held on the first and third Fridays of each month at the Library, Moorabbin Town Hall. There is to be no natter night in January, and our next meeting will be on 17th January—a general meeting and members' re-union. Visiting Hams are always made very welcome. So come along—we guarantee you will enjoy yourself!

— . . . —

QUEENSLAND

MARYBOROUGH

4DJ now has an Eddystone "750" and is hearing many more signals. Grahame's quads for 15 and 10 metres were put on a 22 ft. steel pipe, erected and christened. Trimming operations are now in progress.

Archie 4CB is still active on 10 mx and bemoaning poor conditions. Received a TF QSL with four I.R.C. coupons! How lucky can you be?

A four element G4ZU is now on the tower at 4BG and so far has been tried on 15 and 20 metres. It has done well on both bands. Better than the old three element on 20 mx. A small front-to-back ratio on 20 mx is the only thing needing improvement.

4AI is due to come to life again. He has a converter going on 15 mx and should soon be heard there.

TOWNSVILLE

Two new members for next year turned up at the final club meeting for 1957, held at the residence of 4BX. This augurs well for the

Wireless Institute of Australia
Victorian Division

A.O.C.P. CLASS
commences

MONDAY, 3rd FEB., 1958

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.

W.I.A. N.S.W. DIVISION

8th ANNUAL
HAM-FEST

will be held on
25th JANUARY, 1958

at

VK 2 WI
QUARRY ROAD, DURAL

New Year. The three who faced the barrier at the last exam. have been patiently awaiting results. One received his notice of failure by air letter and the other two still keeping their fingers crossed. Better luck next time, Charlie.

As the local R.I. and his Associate have been transferred, it was decided to have a social get-together amongst the boys for the purpose of wishing them "Bon Voyage" and taking the opportunity of meeting the new R.I. The date of 11th Dec. was decided on and all present were to get in touch with other members and non-members interested in Amateur Radio, etc., to be present. Sorry to see you go, Alec, our loss is Hobart's gain.

The doings over the past month have been very poor amongst the locals as 10 mx has not lived up to its reputation. Allan 4FS was heard on this band working into Europe for the first time. He is ready to erect a G4ZU beam, awaiting locating of windmill tower. Bob 4FP has his tower up, lucky enough to get his tower free for the taking away. Interest in 144 Mc. seems to have waned again because the old timers just cannot be interested to give it a go and help the Z boys along. What a pity!

Again no word from the Coalfields, must be busy down there. Most other towns and districts show up on 7 Mc. at least for a ragchew.

Colin 4CE almost finished a t.v. rx and hopes to see and hear Channel 2 from way down south. Vern watching the short skip on 50 Mc. to alert Colin when possible break through. Bob 4TK again helping out with news as follows: Basil 4ZW still re-building, came on one morning recently in the 40 mx hook-up and had audio trouble; not heard since. Andy 4BW giving time ticks at 7 a.m. for the gang to start the session. A strong signal from a Spanish station on usual frequency but goes off the air at 7 a.m. and leaves channel free. Andy also planning new all-band rig. John 4DK very busy and only heard occasionally on the air. Vern 4LK interested in 50 and logging literally hundreds of taps and goes into new QTH soon—free of QRN and has hopes. Alex 4MA, at Mt. Garnett, heard from time to time either in early mornings or late afternoons on the 40 mx. In charge of local exam. in the area, but has been trying out new serials and getting better results. Norm 5NT not heard since he went to Rabaul. His mate 9FN/4, heard portable from Evans Head and Redcliffs. Bob 4TK still playing around with his all-band final and getting dope on G4ZU minibeam. Bert 4BP at Atherton graced the hook-up with his presence and hopes to get on more in the new year. Believe one 4RW fell by the wayside recently and omitted to hang the curtains!! Nick 4WT came in recently operating air/mobile. Vic 4BJ, at Beautiful Bundy, wants to build a rig from an Italian circuit and requires someone to help out with language difficulty.

As these are the first notes to appear for 1958, I wish each and everyone a good year of DXing. 73 Bob.

SOUTH AUSTRALIA

Our last get-together was a clear demonstration that the main body of members handle Amateur Radio work as a hobby and just that. A healthy sign that promotes clear thinking and the placing of our interesting hobby in its right place, from which arises the balanced outlook and behaviour claimed as our motto.

The lecture of the evening was an absorbing one, delivered and illustrated by Dave Hosking, 5DH, with the mechanical help of Norm Colman, and was on Diesel Traction. Dave has the background and knowledge fitting him to put over a talk of this kind, for his employment takes him right into the thick of diesel locomotives and railway gear right at the design level, so of course he knew all the answers to the many questions hurled at him by the would-be engine drivers in the audience.

An exceptionally well attended meeting, with a good sprinkling of visitors, gave eager attention to the whole proceedings and were not behind in seeking further information on the technical details of the machinery described. Dave gave us a brief history of the evolution of railway traction leading to the economical diesels and explained in detail the modern diesel-electric loco in all its complexities and the more simple (1) multiple rail cars now so common on country and suburban lines.

The comparison of costs of running these new jobs compared with even the latest steam driven locos was an eye opener to most and some of the boys were working out how many locos the S.A.R. would need at the annual saving per unit that would wipe out the

national debt and make travel free. We must put that to Dave some day and get his reaction.

Sufficient to say is that with an improvement of availability of over 400 per cent., and with an average operational range of 1,000 miles between fuelling, it is easy to see where these economies arise, which is apart from the fuel cost per miles being less than half of coal.

Very detailed slides were shown, some with dimensional outline and others showing the various stages of manufacture, of each of the classes of locos presently in use here, together with the modern passenger trains that for this State supply our answer to the electric trains used in the more populous areas.

Many thanks Dave for an interesting and instructive lecture, which as Keith 5KH said when moving the vote of thanks, was well received at question time demonstrated. Congrats to the programme committee for organising the evening.

The remainder of the evening was given over to general business, QSL card distribution, providing a smoko between times, new members (9 off) were accepted, and Jim 5JK gave a report on progress of W.I.C.E.N. and practice work.

Brian 5CA called prospective class members together, who retired to an adjoining room to arrange their forthcoming programme, which boiled down to theory on Tuesday nights at 7.30 p.m. to 9 p.m. under the capable guidance of John 5UL, and Morse on Thursday at 7.30 p.m. with Bruce 5OR at the helm. A good start off was noted on their first class night with a good roll up, a lot of enthusiasm, but who was the chap talking to Norm and requesting an entry form? Looked to me like Doc 5MD. Surely he doesn't want to learn c.w. work!

Did you know John 5KK's lawn mover has been upset? Well, it has, because first of all it is not a he as previously reported, but a she, and a 4-tooth, not 2. Furthermore, we are informed that the lawn does not require sulphate of am.

A little bird, or was it the horse's mouth, tells me Brian 5CA is retiring from Secretaryship at the end of this financial year (Feb. 28 to be exact) due to pending changes in marital status, or should it be said assuming that status. Whatever it is, Brian will be doing just that, we will miss him at that post, but of course wish him all the best as Secretary to the new duo.

The W.I.C.E.N. boys had another get-together to thrash out details of procedure on message handling, given by Jim 5FO and Jim 5JK, whilst John 5KK went through the operational set-up of the 122 sets with particular emphasis on netting, a very interesting evening with some of the boys throwing in some ideas on increasing modulation and so on, which all ended up with arranging another test programme that will have been held prior to publication of these notes.

An adjourned meeting was necessary to complete the ratification of items put through the last Federal Conference, so you can see there has been a busy time for all interested in the S.A. Division of late.

Our new town Elizabeth had its second birthday recently, and amongst the many colourful and active stalls set up on the oval was one manned by John 5QL, 5HA, 5JM and some willing helpers, with a mass of gear collectively owned to show the populace how Ham Radio aids in extending goodwill. Some interesting contacts were made and the attendance to view the proceedings were good. Hot weather with the sun belting down on the gear in the open, and on the operators, made the going a bit tough for a while, but it was noted that all the 807s were not hot, in fact one was distinctly cold by the look of relish John displayed when checking its grid drive.

Lee Hitchens, 6HC/P, of Perth, W.A., paid VK5 a visit recently, whilst on his return journey from a round Australia trip, and looked some of the boys over, nice to see you Lee, drop in again some time.

One Sunday recently heard 5JK calling 5MD on 80 mx from O'Halloran Hill. No answer from Doc, but Jim not to be beaten, kept moving closer until he did make it—guess how close—yes, at the big barred gate. Try a 5AX pre-amp Doc, they are good.

On a recent Sunday morning when 7 Mc. short skip was poor, was able from here (Gawler) to make the city on 10, so crank up on 10 sometimes you city slickers and let's keep in touch.

It's not known how many of you heard this, but on a recent Saturday afternoon when on 40 mx heard a very strong modulated carrier playing the A.B.C. programme on 7080 Kc. and simultaneously another one with m.c.w. on 7108 Kc. The music type was switching off his carrier at the end of the item to cover the announcer and switching on

again when the next item started. Then, just to make the game harder, he zero beat his carrier with anyone who called CQ, just made a mess of the band for the whole afternoon. Maybe we should organise a bit and locate these clever boys for there is enough trouble on that band without some smarty deliberately fouling it up. Who has some ideas on this subject?

Finally, the picnic again. The venue has been advised already, the committee are anxious that it be well attended, and have made necessary arrangements to look after you and all the harmonics, so roll along and make a day of it. If you are doubtful on any detail contact Norm Colman or the Secretary and they will put you right. Get some bowling practice in and see if the phone men can do it again.

TASMANIA

NORTH WESTERN ZONE

I trust you have all had a Happy Christmas in the full meaning of the words, and that the XYL gave you the piece of pudding with the £10 note in it! I AM trusting aren't I?

Have been relieving Leon 7JP at Queenstown for most of December. Leon is in the process of changing his QTH in Q'town, so 7JP will not be on the air for some time.

As mentioned last month, Myles McGinnis, on King Island, only had his Morse to do for his full ticket. Myles has now received the call sign of 7MF and has been adding to the QRM on 40 mx with his No. 11 set. Even worked a W on c.w.

Enquiries show that Ken Brown has been frequenting the auction sale in Burnie, he obtained an old 150 Ma. power supply for about 2 db. Just as well I had forgotten about the sale Ken, or I might have run up a few db.

Field Day in Ulverstone very successful. Sid 7SF did a good job by hiding the tx close to Dennis 7DR's place which didn't seem to help Dennis because he was last to find it. First home was Roy 7RN. Jim 7JU apparently had that many accessories there was no room for the kitchen sink. Even a protractor on the d.f. doop, I believe.

All the best for the coming year, and to all our associates—keep trying.

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 or Exchange 2 mx gear:
A. & R. Mod. Trans., 75w., £5. 108 Transceiver, good order, £4. Pr. 809s, new, £1/10/0. 6v. Vibrator P.S., 300v. 150 Ma., relay controlled, £5. R. Fisher, 758a Glenhuntly Rd., Glenhuntly, Vic. Phone: UL 2428.

SELL: Eddystone S750 with S Meter, £100. Zenith Freq. Meter with power supply, £30. I. Lamont, C/o W.I.A., 191 Queen St., Melbourne, C.I.

SELL: New Trsfmrs. for wide-band C.R.O.; Q Max G.D.O., good order; T.V. 10-chan. Turret Tuner; T.V. I.F. Strip; 5" T.V. Kitset; 100w. phone-c.w. Rig, rack and panel, v.f.o., 813 p.a., p.p. 807s Mod, good condition, panels and meters; two 12" C.R.O. Tubes. Write "Stator," C/o. Box 93, Ballarat G.P.O., Vic.

WANTED: Portable Xmitter, 80-40m. with modulation, must be small. 12v. power supply not essential. Price, etc., R.K., C/o. Sec. Vic. Division, 191 Queen Street, Melbourne.

WANTED: 2,600 Kc. Crystal for Bush Fire Brigade Network. J. Muntz, Nathalia, Vic.

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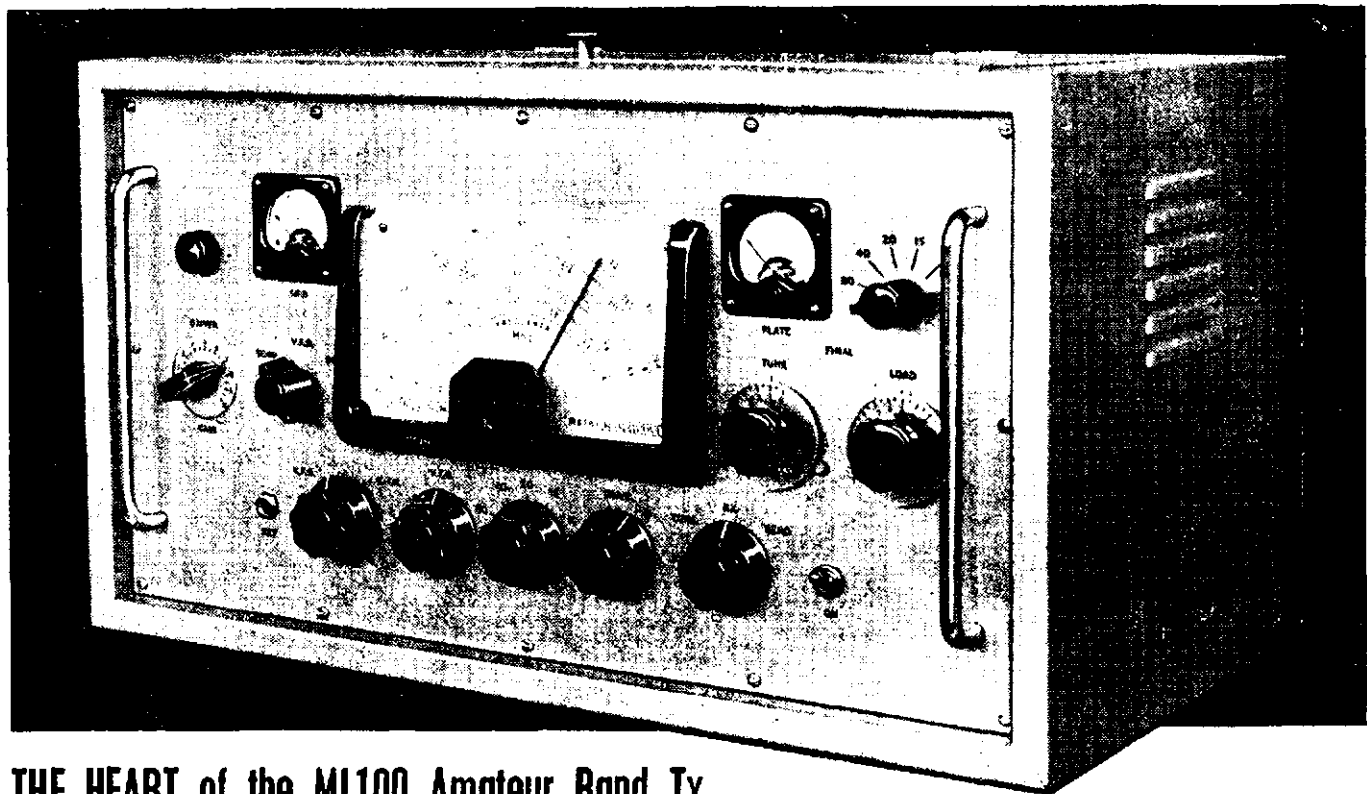
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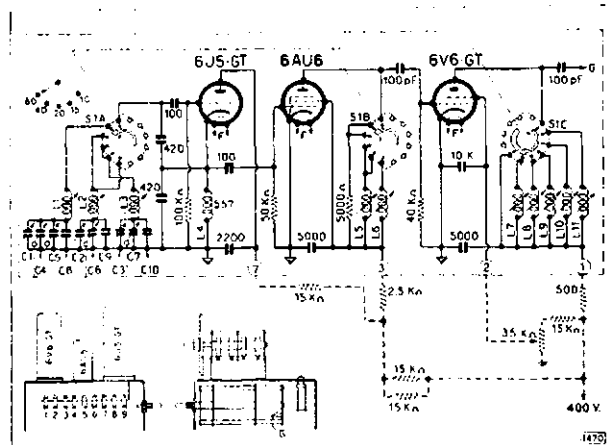
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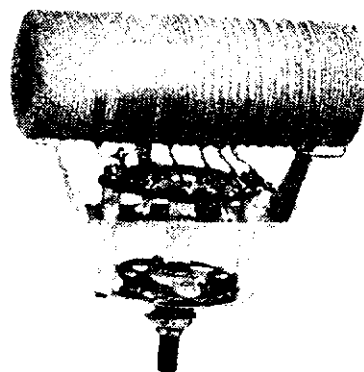
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WI BROADCASTS

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.; 1930 hours EST, 144 Mc. No frequency checks available from VK2WI. Intrastate working frequency, 7050 Kc.

VK3WI: Sundays, 1130 hours EST, simultaneously on 3573 and 7146 Kc., 57.5 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. W.I.A. Country Hook Sunday mornings 0900 hours. Please call VK42M on 20 mx, and VK4WI on 40 mx. Sunday night re-broadcast of the news on 80 mx at 2100 hours, conducted by VK4WI.

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. bands. Individual frequency checks of Amateur Stations given when VK9WI is on the air.

EDITORIAL



MR. MEMBER

History has shown that as mankind develops the necessity arises for organisation. Even early cave-men found that in order to have the requirements for existence and defence from natural enemies, some person or persons had to be entrusted with the task of directing the majority. In this way "civilisation" as we now call this organisation was evolved.

The same manifestation of planning can be found in various sections of life as it presents itself today: Boards have Directors; Trusts have Committees, and so on. Our own Institute has its Divisional Councils charged with multitudinous duties of planning.

But for whom and what is this planning? If the fundamentals are examined, it will be noted that the organisation was for the benefit of the general participant. Thus the duty of the Director, Chairman or what-have-you and his committee is to work for the average individual; in other words, Mr. Member.

However, where does Mr. Member fit in; is he but a silent figure on whom benefits both good and bad are showered?

In the basic set-up, it was the individual who, in co-operation with his fellows, appointed a leader and then accepted his direction. Hence, the individual is the person who has

the right to voice his opinion as to what action should be taken with respect to his welfare.

Mr. Member of the W.I.A., therefore, by speaking at a meeting indicates to his Council his personal thoughts on some matter. If Mr. Member and his fellows discuss some matter freely Council can be guided by a majority decision. Plainly then it is the duty of Mr. Member to state his ideas; to give others the benefit of his opinions, so that through enlightened discussion something can be acted upon.

A postmortem with its trenchant criticism doesn't bring anything to life.

And after voicing his notions and accepting a majority decision, where is Mr. Member now? Because he, together with his fellows, is the Institute, it is his duty to undertake the tasks given him by his leader. Even more than this, it is his privilege to offer to undertake positions and projects which he can give his especial attention.

An Institute consisting of Mr. Member and his fellows banded together, stating their ideas, doing a share of the work and enthusiastically aiming at better things for all is a very worthwhile Institute indeed.

Mr. Member—I salute you.

FEDERAL EXECUTIVE.

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Mathematical Considerations of S.S.B.

BY JOHN ALBERT ADCOCK,* VK3ACA

IN "Amateur Radio," July, 1957, appeared an article on s.s.b. which pointed out that it lacked many of the advantages previously claimed for it. I think that the explanation given in that article was only half the story and a more detailed explanation would create a better understanding of the system. I feel that many Amateurs are not honest about the results they get from s.s.b. reception and think something like this: "It sounds awful, but just because I cannot tune it in properly I cannot blame his transmission. I will tell him it sounds OK." I hope the following explanation will help to clear up the apparent disagreements between different explanations of the system.

First of all let us look at some mathematical relationships. For simplicity, we will assume we are dealing with simple sine waves. A modulated wave can be looked upon from two points of view. Where you are concerned with bandwidth, it can be looked upon as a number of single sine waves, or where you are concerned with amplitude it can be looked upon as an envelope or a product of a carrier wave and a modulating wave. The instantaneous amplitude of the envelope will equal the sum of the instantaneous amplitudes of the individual sine waves in the former case.

Let us call the amplitude of our carrier A and the frequency f_1 , then the instantaneous amplitude of the carrier will be:

$$A \sin 2 \pi f_1 t \dots \dots (i)$$

where t is time in seconds.

Similarly, let the amplitude of the modulating wave be B and its frequency f_2 , then the instantaneous amplitude of this wave will be:

$$B \sin 2 \pi f_2 t \dots \dots (ii)$$

The expression for the resultant wave when (i) is amplitude modulated by (ii) will be:

$$\sin w_1 t (A + B \sin w_2 t) \dots (iii)$$

w_1 and w_2 have been substituted for $2\pi f_1$ and $2\pi f_2$ for simplicity.

This product can be changed into an identical sum and we get the expression:

$$A \sin w_1 t + \frac{B}{2} \cos (w_1 - w_2) t - \frac{B}{2} \cos (w_1 + w_2) t \dots (iv)$$

It will be noted that the two side bands of expression (iv) are of half the amplitude of the original modulating wave expression (ii); one with frequency $f_1 + f_2$, and the other with frequency $f_1 - f_2$.

Now if we remove one side band and double the amplitude of the other side band, we get the expression:

$$A \sin w_1 t + B \sin (w_1 + w_2) t \dots (v)$$

(the change in phase of the remaining sideband will not make any difference after the removal of the other side

band). The expression for the instantaneous amplitude of the resultant wave will be:

$$\sqrt{A^2 + B^2 + 2AB \cos w_2 t} \sin \left[\frac{(2w_1 + w_2)}{2} t + X \right] \dots (vi)$$

where X is a variable depending upon the values of A, B, w_1 and w_2 .

From expression (vi) it is seen that the expression for the instantaneous amplitude of the envelope is:

$$\sqrt{A^2 + B^2 + 2AB \cos w_2 t} \dots (vii)$$

If A is large as compared with B, then the expression is approximately:

$$A + B \cos^2 w_2 t \dots (viii)$$

It can be seen that the frequency of this wave is equal to the difference between the frequencies of the two original sine waves of expression (v) and equal to our original modulating wave frequency. Also, it will be noted that the frequency and amplitude of this approximate envelope is identical to that of the envelope of our original amplitude modulated wave of expression (iii).

For the remainder of this discussion, expressions (iii) and (iv) represent amplitude modulated waves where the modulating frequency is f_2 and expression (v) will represent a single side band of frequency $(f_1 + f_2)$ and an injected carrier of frequency f_1 . The beat frequency in the second case will be f_2 represented by expressions (vii) and (viii). The power of any of these waves in any part of a circuit will be proportional to the square of its amplitude. Since the two side bands (or frequencies) of expression (iv) are half the amplitude of the one of expression (v), then each of these waves of expression (iv) contain one quarter the power of the single sideband of expression (v). The total sideband power of our considered wave in expression (iv) is half that of expression (v).

It will be seen that the audio power extracted from the a.m. signal is the same as that from the s.s.b. For a fully modulated wave (i.e. A = B) the sideband power of our s.s.b. will be equal to the carrier power of the a.m. signal. If the s.s.b. requires double the power of the a.m. signal's sidebands to produce the same audio power in a receiver, what becomes of the other half of the power contained in the square root sign of expression (vii). It can be shown that the envelope of expression (vii) contains twice the power of the envelope of expression (viii). By Fourier's theorem, expression (vii) can be resolved into a fundamental and harmonics.

$$\text{Instantaneous amplitude of envelope} = a + b \cos w_2 t - c \cos 2w_2 t + d \cos 3w_2 t - \text{etc.} \dots (ix)$$

where the values of a, b, c, d, etc., depend upon the ratio of B to A. From this expression it is seen that the extra power in expression (vii) is used up in

producing these extra harmonics and the d.c. component a. As has been pointed out from expression (viii), these harmonics are negligible when A is large as compared with B.

What about signal-to-noise ratio? The noise power at a particular point in the audio circuit of a receiver will be proportional to the bandwidth of the i.f. channel. Therefore when using a receiver of a given bandwidth and when comparing an s.s.b. signal with an a.m. signal of carrier power equal to the peak power of the s.s.b. signal, there will be no advantage in signal-to-noise ratio of s.s.b. compared with a.m. In fact unless the amplitude of the injected carrier in the s.s.b. receiver is much larger than the peak amplitude of the sideband, distortion will result. If a receiver is used which has a bandwidth to take best advantage of the system being received, then the s.s.b. receiver will cut the noise power by half and thus the s.s.b. will have a 3 db. signal-to-noise ratio advantage over a.m.

There are two ways that I know of to improve this situation.

(1) By using a square law detector in which the resulting audio amplitude from expression (vii) would be proportional to $B \cos w_2 t$. A square law detector condition can be approximated to by using a very low signal input to a diode detector. I have not gone into the mathematics involved in this case. Incidentally the effect of a square law detector can be approximated to by using a diode detector with a small signal input.

(2) By using a "product detector" or "converter". This type of detector is used in what is sometimes called a "synchronous receiver". In this type of detection, the injected carrier is actually modulated by the received sideband. The expressions for the instantaneous amplitude of the modulation envelope of this new wave will be:

$$\sin w_1 t [A + \sqrt{2} B \sin (w_1 + w_2) t] \dots \dots (x)$$

$$= A \sin w_1 t + \sqrt{2} \frac{B}{2} \cos w_2 t - \frac{\sqrt{2} B}{2} \cos (2w_1 + w_2) t \dots (xi)$$

$\sqrt{2} \frac{B}{2} \cos w_2 t$ is the only sideband that will be audible and it will be noted to have the same frequency as the original audio we started with in expression (ii).

To study the signal-to-noise ratio in this particular case, it must be realised that comparison of signal and noise powers in a particular receiver is purely relative. It should also be noted that the power in a sine wave will be proportional to the square of its amplitude.

Let the noise power be N and the signal power of the original single sideband or the power of the original a.m. carrier be P. The actual signal power in the expression $[A + B \cos w_2 t]$

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from expression (iii) and (viii) will contain only $P \div 2$, because this expression represents the peak values or envelope of the modulated wave. The $\sqrt{2}$ value in expressions (x) and (xi) was put in to make the sideband signal power equal to P . The signal power will be divided equally between the two sidebands.

In the case of expression (iii) the signal-to-noise ratio will be:

$$\frac{\frac{1}{2} P}{N} = \frac{P}{2N}$$

In the case of expression (viii) the signal-to-noise ratio will be:

$$\frac{\frac{1}{2} P}{N} = \frac{P}{N}$$

In the case of expression (xi) the original noise power will be divided equally between the two sidebands and the signal-to-noise ratio will be:

$$\frac{\frac{1}{2} P}{\frac{1}{2} N} = \frac{2P}{N}$$

Thus it will be seen that there is a 6 db. signal-to-noise ratio improvement using this new system compared with equivalent a.m.

SUMMING UP

1. There is no improvement in signal-to-noise ratio in receiving s.s.b. as compared with a.m. with an equivalent power on an ordinary receiver.

2. If the receiver bandwidth is such as to take best advantage of the system being received, then s.s.b. has a 3 db. signal-to-noise ratio advantage over equivalent a.m.

3. Unless the injected carrier is much stronger than the sideband being received, distortion will result. (20% second harmonic when the sideband amplitude and injected carrier amplitude are equal.)

4. A receiver with a rectifier type detector is actually unsuitable for s.s.b. reception.

5. To extract all the intelligence from the sideband it is necessary to use a product detector.

6. 6 db. is the maximum signal-to-noise ratio advantage of s.s.b. over equivalent a.m. using this system.

7. Some further advantage of s.s.b. can be realised if the average power of the s.s.b. signal is considered, but our licence only allows a peak input of 100 watts.

CONCLUSION

If you have any qualms about accepting this seemingly impractical mathematical method of arriving at these conclusions, ask yourself honestly have you ever heard an s.s.b. signal that really sounded like a.m. I realise that there are many advantages of s.s.b. and I may be a little biased against it. S.s.b. will probably increase in popularity eventually, so that it will be necessary to re-build all our high frequency gear. In any case, c.w. still has the edge on all these systems! Incidentally, articles describing product type detectors appeared in "CQ" for June '57 and "QST" for Sept. '57.

If any person is interested in how expressions (iii), (iv), (v) and (viii) were developed, I would be pleased to supply him with the reasoning.

COMMUNICATIONS KEPT OPEN BY GRIFFITH HAMS

On 22nd December, 1957, Griffith Amateurs were approached by Councillor Murrell, from Hillston, who advised that communications had been lost between Hillston, Mt. Hope and Matakana due to extensive bush fires in the area. He asked that the Amateurs go to Hillston with portable radio equipment to assist the bush fire fighters with communications.

Four stations were set up, one being at Hillston and three were stationed by Cr. Murrell with bush fire fighters.

Stations which operated were VK-2PL, VK2AXD, VK2AEB, and VK2HJ; they were assisted by VK2FS and VK2ZDM. The equipment used was an AT21 and R1155 at Hillston base station, and out-stations were ATR2B, ATR4B and No. 11 set.

7050 Kc. was used throughout as the No. 11 set does not tune 80 metres, however it was considered that 80 metres would have been the better band to operate on that particular night.

Communications were carried out between out-stations and from out-stations to base from 1700 hours on the 22nd to 1200 hours on 23rd December. At this stage it was considered that no further assistance could be given by the Amateurs and they returned to Griffith.

The above report was made available by VK2PL and the N.S.W. Divisional Council of the W.I.A. would be pleased to receive reports from any other members called upon to assist in a like manner.

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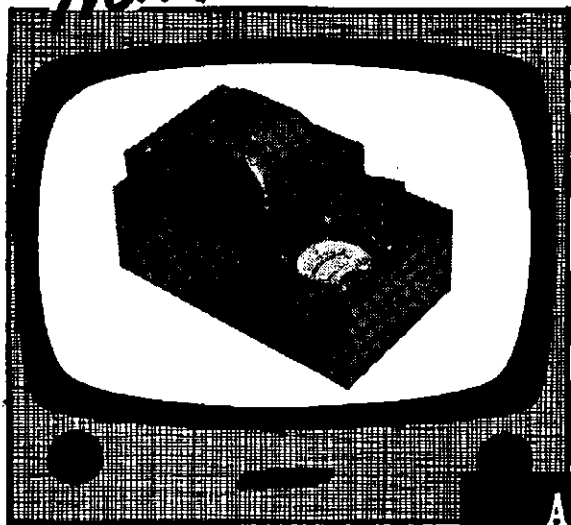
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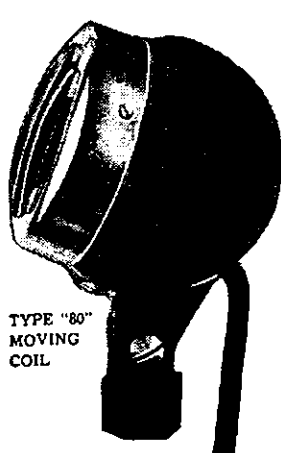


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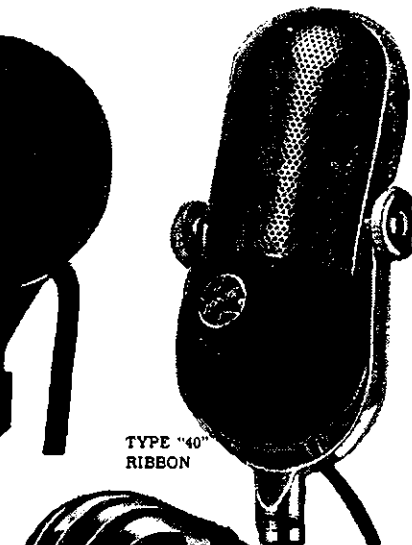
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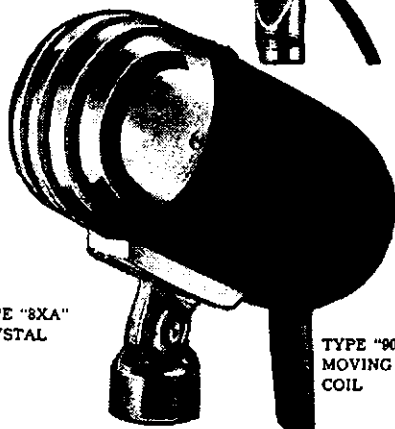


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Test Meters and How to Use Them*

SOME BASIC PRINCIPLES OF TROUBLE SHOOTING

BY LEWIS G. McCOY, WIICP

SOONER or later in Amateur Radio the Ham is going to have to learn how to trouble shoot. By trouble shooting we mean finding what is wrong with a piece of equipment and fixing it. Whether one builds a kit or a homebrew piece of equipment—or even has a store-bought rig—the day is likely to come when something goes wrong and the units needs fixing. In this article we propose to show you a simple method of pinpointing trouble sources.

EQUIPMENT NEEDED

An important piece of test equipment needed by the Ham who wants to do his own servicing is a volt-ohm-milliammeter (v.o.m.). This is a single instrument that is capable of measuring resistances, direct current, and a.c. or d.c. voltages. Such a meter is a sound investment for the Ham because he will find it has many uses in the shack. However, before running out to the store and buying the first unit you see, write some or all of the distributors of Ham equipment and obtain their latest catalogues and sales flyers. Then you'll be in a position to get the best buy for your money.

When you start looking through the catalogues you'll find that the test meters are rated by "ohms-per-volt". The number of ohms-per-volt determines the sensitivity of the instrument. For example, when the 250-volt scale of a 1,000 ohms-per-volt meter is used, the meter has a total resistance of 1,000 times 250 or 250,000 ohms. By Ohm's Law, the current required for full-scale deflection would be 1 Ma., which means the instrument uses a 0-1 Ma. meter. Another common type of test meter is the 20,000 ohms-per-volt unit which uses a 50 microampere meter. Also, you'll see advertisements for vacuum-tube voltmeters (v.t.v.m.) both as kits and completed units. Their advantage lies in their very high resistance (10 megohms or more).

ADVANTAGES AND DISADVANTAGES

Each of the three instruments listed above has certain limitations. The accuracy of any voltage reading will depend on the calibration accuracy of the meter and to what extent the meter "loads" the circuit being tested. A 1,000 ohms-per-volt unit uses less resistance in series with the meter than the other two types, and consequently more current will be drawn from a circuit being checked. However, once you understand this point, you can use the 1,000 ohms-per-volt meter for most transmitter work. The only place in a transmitter where this type of meter may be at a disadvantage is in checking the grid bias across a high-resistance grid leak. If the meter resistance is less than 8 or 10 times the grid-leak resistance, it is better to use the meter as a milliammeter and connect it between the grid resistor and ground.

* Reprinted from "QST", July, 1957.

● A Test Meter is a mighty useful gadget to have around the shack when a piece of gear, for no obvious reason, isn't working properly. In this article WIICP discusses the advantages and disadvantages of some of the various Test Meters and then goes on to show how they are used.

If receiver or high-resistance circuit trouble shooting is contemplated, then purchase either a 20,000 ohms-per-volt v.o.m. or a v.t.v.m.

The v.t.v.m. will measure a.c. and d.c. voltages and also resistance. Most commercial units have an input resistance of 11 megohms and consequently any loading of a circuit being tested is held to a minimum. The v.t.v.m. does not measure current but it is a simple matter to determine the current flow by checking the voltage drop across a known resistor and then using Ohm's Law.

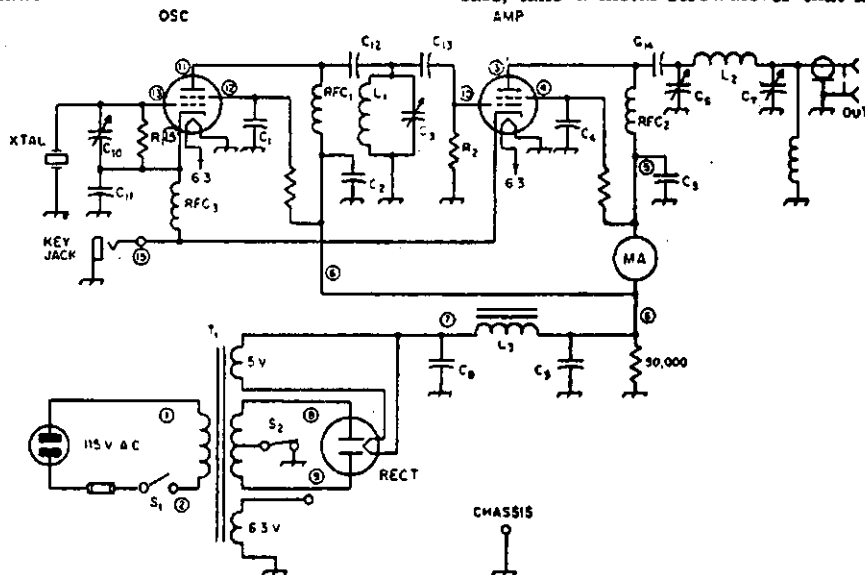


Fig. 1—Circuit diagram of two-tube typical transmitter with power supply.

The v.t.v.m. requires a 115 volt a.c. power source as it does not use batteries for its power supply. Unless the v.t.v.m. is well shielded and the line cord is filtered, it is susceptible to r.f. pick-up when working around an operating transmitter.

USING THE TEST METER

There are a couple of important points to remember when using your test meter. Never, never, use ohmmeter scales to check live circuits. If there are voltages present in a piece of equipment being checked, don't use the ohmmeter scales.

Always use the highest voltage or current scale when checking an un-

known quantity. Otherwise you may have a burned out piece of test equipment or a badly bent meter pointer.

The test meters are usually furnished with insulated leads that have metal probes at the tips. The tips are OK for some tests, but you'll find many instances when it is more convenient to clip the leads to the circuit being tested. There are insulated clips available that will slip over the ends of the probes and at least one should be purchased for your test meter.

SAFETY FIRST

In doing trouble shooting the most important thing to remember is that you are working with dangerous voltages and currents. You cannot permit yourself to be careless at any time you are testing a live circuit. Turning the power off is not always a sure method of removing voltages from a piece of gear. If the bleeder resistor should happen to open up, the capacitors in the power supply may retain their charges for long periods of time. To be safe, take a metal screwdriver that has

a well-insulated handle and short the hot power supply lead to the chassis. This will discharge the capacitors.

Many Amateurs are inclined to be careless around low voltages, believing that only high voltages are dangerous. Whenever you do any trouble shooting always remember that you are working with live circuits—get careless and the circuits may be live but you won't!

WHERE TO START

Fig. 1 is a circuit diagram typical of a rig used by many Amateurs. It consists of a crystal oscillator and an amplifier. We'll use this circuit to illustrate the various check points in trouble shooting.

When something goes wrong in a piece of equipment that has been operating there are a few things the operator should check before doing any voltage testing. Such obvious things as key leads, a.c. power source and plug, fuse, antenna system, etc., should all be checked out. If the tubes are glass, look and see if the heaters are lighting. If the tubes are metal, see if the envelopes are warm to the touch. Should one be hot and the other cold, try another tube in place of the cold one. In other words, try to analyse the problem before actually digging into the equipment.

When a piece of gear fails there are three sign posts that will narrow our trouble shooting area. First, the tubes don't light or aren't warm. Second, there is no plate current present. And last, no grid current shows. In Fig. 1 we don't show meter switching but most transmitters meter both the grid and plate by switching.

We'll start our trouble shooting by taking each of the three visible signs and going through them separately. Table 1 shows the expected meter readings, check points, and trouble spots for the heater circuits, excluding the obvious checking of the a.c. line power, switch S1 and fuse to the power transformer T1. The v.o.m. scale used for each check will depend on the voltage being checked. However, always remember to use the highest scale when checking an unknown voltage point.

You will notice reference to **bad wiring** and this can mean faulty soldering, poor connections, etc. When checking at a terminal point that has several branches, the test probe should be touched to each of the component leads, not just the terminal point. Also, a common wiring error beginners make

is to solder insulated wire ends to terminals—particularly enameled covered wire. Always remove the insulation and clean the ends of the wires before soldering.

In Table 1, the first column gives the check points where the v.o.m. leads are connected. The second column shows the expected meter reading. The last column lists expected trouble spots.

NO PLATE CURRENT

In our checking in Table 1 we had a clear-cut road to follow. However, in finding why there is no plate current our road has several branches which must be checked out. In Table 2 each check point will show us what has happened up to that particular point. Before doing any checking with the test meter there are a few things to look for that may be the cause of trouble. First, be sure that the key leads haven't been disconnected. If the key isn't closing the circuit then the cathodes of the oscillator and amplifier are not being connected to chassis ground and the tubes won't draw current. If there is grid current but not plate current, then it can be assumed that the power supply is working. However, due to a faulty component or wiring, the power supply output may not be reaching the amplifier. Should you have output from the rig and show no plate current, then it is apparent that the meter isn't functioning or the movement is sticking.

With the heater checks we were only concerned with a.c. so voltage polarity was no problem. In Table 2 we will be working with d.c. and the chassis ground is our reference point; the voltages are either positive or negative with respect to chassis. On the test meter, the lead jacks are marked plus

and minus or are red and black. The black is minus or negative, and this lead is connected to chassis ground for all of the checks in Table 2. Our positive lead is the one used for all the checks.

If there is plate voltage present and the tube does not draw current, there are three things to look for. An open cathode circuit will prevent current from flowing. If there is no voltage at the screen grid, very little or no current will flow. And last, if the grid is biased beyond cut off (and there is no grid drive), the tube won't conduct.

In Table 2 we start off at the plate of the tube and work back to the power supply. The first column gives the check point, which is the circled number in Fig. 1. The next two columns indicate the presence of voltage. There are no definite values for voltages given because they would probably be meaningless if applied to your rig. Your instruction manual will give the important voltage and current values and these can be applied in your testing. The last column gives the cause of the trouble.

NO GRID CURRENT

Before making voltage measurements for grid current there are some simple checks that can be tried which may show the trouble spot. Listen to your receiver at the crystal frequency for the oscillator signal. If there is no signal then try another crystal, and don't forget to tune the receiver to the new crystal frequency. Should there be a signal heard from the oscillator, then tune C3 to see if the amplitude of the signal changes. If it does—and gets louder at one point of the tuning—it indicates the oscillator and tuned circuit are operating properly. The trouble

TABLE 1

Heaters Don't Light or Tubes are Cold to the Touch.

Check Points	Normal Reading	If No Reading, Possible Cause
With S1 closed, between 1 and 2.	115 volts a.c.	Faulty power switch. Blown fuse. Faulty wiring in line cord or plug. Blown fuse in house wiring.
Across 6.3 volt heater winding on power transformer.	6.3 volts a.c.	Open heater winding.*
Between the heater pins at tube sockets.	6.3 volts a.c.	Poor ground connection for 6.3 volt winding. Bad connections at tube sockets or terminal soldering points on heater line. Poor ground connections at socket.
Heater pins on tubes. Remove tubes from sockets for this check.	Low resistance †.	Open heater.

* An open heater winding doesn't mean a new power transformer is required. A filament transformer can be installed in the transmitter and the power transformer can be retained.

† Always use the low resistance scales of the test meter for continuity checks, unless it is desired to check the resistance in a circuit or continuity through high-resistance circuits.

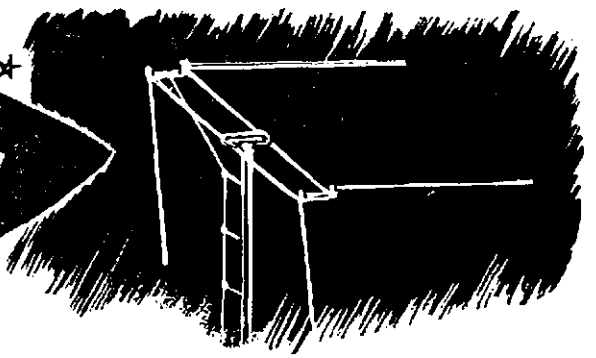
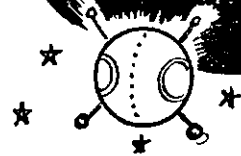
TABLE 2

R.F. Tubes Lit but No Plate Current Indicated

Measure + Voltage between Chassis and Check Point:	Voltage		Cause
	Yes	No	
3	X		See note at bottom of chart.
3 6	X	X	This indicates power supply voltage is OK but there is an open circuit between points 6 and 3.
3 5	X	X	Meter OK, but RFC2 is open.
5 6	X	X	Meter open.
4 5	X	X	Open screen dropping resistor, or C4 shorted.
7		X	Open filament in rectifier tube, wiring error or faulty transformer winding.
8 or 9; close S2. (Use 1,000v. a.c. scale.)	X		Bad rectifier tube. Bad connections at rectifier socket.
		X	Faulty switch at S2. Open winding in high voltage secondary of T1.

If there is voltage at the plate and screen of the amplifier and the circuit being tested uses grid-leak bias (Fig. 1), then the probable reason for no plate current indication would be an open cathode circuit or a defective plate milliammeter.

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no doubts
about THIS Double-V!



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● AS A RESULT

- ★ Brilliant, unequalled performance — PROVED BY FIELD TESTS BY INDEPENDENT LABORATORIES.
- ★ MEASURED RELATIVE GAIN compared with that of half wavelength folded dipoles is: CH2, 1.5 db.; CH7 and 9, between 8 db. and 7 db. Compare these results with any other published figures and you will appreciate "Belling-Lee" superiority.
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- ★ Available in four alternative mountings—wall, chimney, flat roof or inside roof.
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WY 0316

is then likely to be in the meter failing to read and show grid current. On any of the tests mentioned above, don't hold the key down any longer than necessary, as the amplifier tube will draw excessive plate current when no excitation is reaching it.

In Table 3 all voltage measurements are made in the same manner as in Table 2, with the exception of the check at point 10. This is the grid of the amplifier and the voltage will be negative with respect to chassis. The meter leads should be reversed for this test, positive lead to chassis ground and the negative lead for testing. Also, a 2.5 mh. r.f. choke must be connected in series with the test lead when checking at point 10. Otherwise, the test meter will detune the grid circuit and no reading or an incorrect one will result. If your transmitter has an r.f. choke between grid and grid leak (R2), then you won't need to use another r.f. choke; the test probe can be touched to the junction of the r.f. choke and the grid leak for the voltage check. If your test meter is the 1,000 ohms-per-volt type, then use the highest voltage scale for this test. The highest scale puts the most resistance in the voltmeter circuit, and the shunting effect on the grid leak is minimized. If a v.t.v.m. is used for testing, then it usually isn't necessary to use an r.f. choke with the probe.

ADDITIONAL TESTS

If grid and plate current are obtained and the transmitter doesn't work, then the trouble should be in the amplifier tank circuit. Continuity checks should be made to determine if there are any wiring mistakes or bad connections. In the case of a pi network as in Fig. 1, the output capacitor C7 should be set at maximum capacity and C6 tuned for resonance as indicated by the dip in plate current. If the tank circuit resonates, then you can be reasonably sure that the transmitter is working and your problem is one of loading or shorted C7.

If the transmitter is a kit or home-brew job, the most common trouble encountered is short circuits. This can be due to bits of solder or wire getting into spots they shouldn't be in, and it sometimes takes considerable searching to find them. It is a good idea to make a few resistance checks before applying power to a newly built piece of gear. The power supply B+ line is usually above chassis ground by the value of the bleeder resistor. A quick check is to switch your test meter to the high resistance scale and connect one lead to the B+ line and the other to chassis ground. The ohmmeter will quickly show the presence of any shorts.

Once you have the piece of equipment working it is an excellent idea to make a record of voltage readings at different test points. Suitable points would be:

- (1) Output of power supply.
- (2) Plate voltage of amplifier and oscillator stages.
- (3) Screen voltage of amplifier and oscillator stages.
- (4) Grid voltage.

These checks should be made with the transmitter operating into a load. The next time the rig acts up you'll have a record to refer to which will probably make your job easier.

It would be impossible to completely cover the subject of trouble shooting in the space permitted here. Such things as self-oscillation, parasitics, etc., are treated in "The Radio Amateur's Handbook."

TABLE 3

No Grid Current Indicated	
Step 1.—Check for voltage at point 11. If there is none, then check at point 6 to see if the power supply output is present. If the supply is not functioning, refer to Table 2 for trouble shooting. Voltage at point 6 and none at 11 indicates bad wiring or open RFC1.	
Step 2.—Voltage at point 6 and none at point 12 indicates bad wiring, open screen dropping resistor or shorted CI. Check resistor with ohmmeter. Check CI by removing oscillator tube and measuring resistance between point 12 and ground.	
Step 3.—Turn off power and switch test meter to read ohms (high resistance). Connect one test lead to oscillator grid, point 13, and the other lead to the cathode, point 14. Meter should show approximately the same resistance reading as value of R1. If not, it indicates bad wiring, grid to cathode short in oscillator tube, or resistance of R1 has changed.	
Step 4.—Leave one test lead at point 14 and move other lead to point 15. Meter should show continuity. If not, it indicates bad wiring or open RFC3.	
Step 5.—Move lead at point 15 to the grounded terminal of key jack and leave attached at point 14. Open and close key. The meter should read when key is closed, indicating continuity from oscillator cathode to chassis ground. If not, check wiring to key.	
Step 6.—Turn on power, switch meter to read d.c. high voltage, connect positive meter lead to the chassis and make voltage check at point 10, amplifier, with key closed. Failure to obtain reading when C3 is resonated (see text) indicates bad wiring, grid-to-cathode short or faulty components at C12, L1C3, C13, or R2. Depending on the type of test meter used, an r.f. choke may be needed in series with the test probe. (See text.)	

USING MODERN VALVES IN THE TYPE 3 RECEIVER

Editor "A.R."
Dear Sir,

I desire to disassociate myself from the article which appeared under the above heading and my name in the November issue, although it does bear some resemblance to a manuscript submitted by me.

Yours faithfully,
Norman Boase.

PREDICTIONS FOR FEBRUARY, 1958

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E. AUSTRALIA — FAR EAST													
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REMEMBRANCE DAY CONTEST, 1958

MODIFICATION TO RULES

Following the directive given to it at the Federal Convention, the Federal Contest Committee has gathered suggestions from members in the Divisions and from Contest Committees where they exist.

The suggestions which appear below are the results of careful calculations and the discussions on what was really being aimed at in the Contest. These aims seemed to be threefold—

- To provide a lively exchange of contacts;
- To give an incentive for every Amateur in Australia to come into the Contest.
- To have an equitable scoring table and an incentive for each Amateur to contribute towards the winning of the State trophy.

The rules as they stood, gauging from the results and a survey of the stations listed in the logs, fulfilled (a) and (b) but left much to be desired in (c). Only the top six entrants in each Division contributed their score towards the gaining of the trophy. All those others who made more than the qualifying number of contacts gave away points to the top six in the other Divisions.

In response to suggestions by the F.C.C. the VK6 Division has put forward this scheme:—

State score to be calculated by the formula:

$$\text{Average of the top six Logs} + \left(\frac{\text{Logs Entered}}{\text{State Licences}} \times \text{Total of Points from all Entries} \right)$$

It can be seen that all entrants whose scores are not in the top six now contribute to the State effort; thus the larger States like VK3 who, with 70 logs, scored 14,280 points (the best in Australia) will benefit from this scheme.

However, the F.C.C. was still not satisfied that the ratio $\frac{\text{Logs entered}}{\text{State licences}}$ was the best one to use and after working on the table (based on the scores for 1957) and looking at the comments made by the various Divisions during and since the Convention, this formula is suggested:

$$\text{Average of the top six Logs} + \left(\sqrt[3]{\frac{\text{Logs Entered}}{\text{State Licences}}} \times \text{Total of Points from all Entries} \right)$$

State	Total Points	Logs entered State licences	Bonus	Average top six Logs	Points Scored
VK2	12,046	59 ÷ 1,156	615	690	1,305
		$\sqrt[3]{59 \div 1,156} = 0.23$	2,770	690	3,460
VK3	14,280	70 ÷ 1,093	915	790	1,705
		$\sqrt[3]{70 \div 1,093} = 0.253$	3,512	790	4,302
		For 1958? $\sqrt[3]{140 \div 1,093} = 0.357$	5,098	790	5,888
VK5	13,549	86 ÷ 416	2,560	737	3,297
		$\sqrt[3]{86 \div 416} = 0.454$	6,151	737	6,888
VK6	7,347	85 ÷ 219	2,851	701	3,552
		$\sqrt[3]{85 \div 219} = 0.623$	4,577	701	5,278
		1958? 15,000	8,345	701	9,046

This tends to off-set the very low ratio that the larger States find difficult to overcome and provides a further incentive to those States to get busy and win the trophy; this, VK6 had in mind when their suggestion was made.

The Committee wishes the Divisions—and that means each member through his Council—to adopt either of these formulae for 1958 and 1959 and to forward their votes to the F.C.C., Box 1234K, G.P.O., Adelaide, before the 31st March.

Study the table carefully and note the variations, particularly to the VK2, VK3, VK5, and VK6 scores, brought about by the application of the formulae to the 1957 scores and the possible improved log entry for VK3 and the improved scoring for VK6 which could take place in 1958.

The scoring table is considered suitable.

A further amendment is to Rule 2, to which will be added: "Portable/Mobile operation means that the sta-

tion is not connected to any private or public power plants or mains."

Ratification is required for this change.

Can VK3 push their entry up to 200 logs? And what about VK6 to 15,000 points? That's the question—otherwise note how the scores close up the gap between each State on this year's results when that square root ratio is used.

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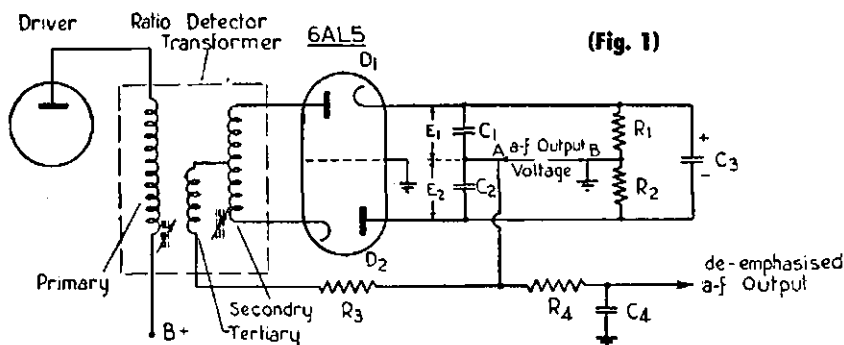
MAXWELL HOWDEN

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CANTERBURY, E.7,
VICTORIA

RADIOTRON TELEVISION VALVE SERIES

THE RATIO DETECTOR

The requirements of the sound detector in a television receiver are rather varied, and amongst the most important is the need to suppress amplitude variations of the frequency modulated 5.5 Mc/s carrier. In an attempt to gain this a-m rejection without the use of a special limiting stage, the ratio detector was developed. The stage driving the ratio detector is now arranged to amplify for low input levels and to act as a limiter (still with considerable gain) when the input rises beyond a predetermined level.



The voltages applied to the two diode circuits (referring to Fig. 1) are each the vector sum of the tertiary winding voltage and the appropriate half secondary voltage. The normal phase relationships existing in coupled circuits result in a phase difference of 90° between the latter two voltages when the incoming signal is at the centre frequency, i.e., in the condition of zero modulation. This phase difference varies as the instantaneous frequency is affected by the degree of modulation and causes a variation in amplitude of the voltage applied to the diode circuits. One increases and the other decreases as the instantaneous frequency increases and vice versa. Thus the frequency deviation of the incoming signal is converted to an amplitude variation of the voltages applied to the diode circuits.

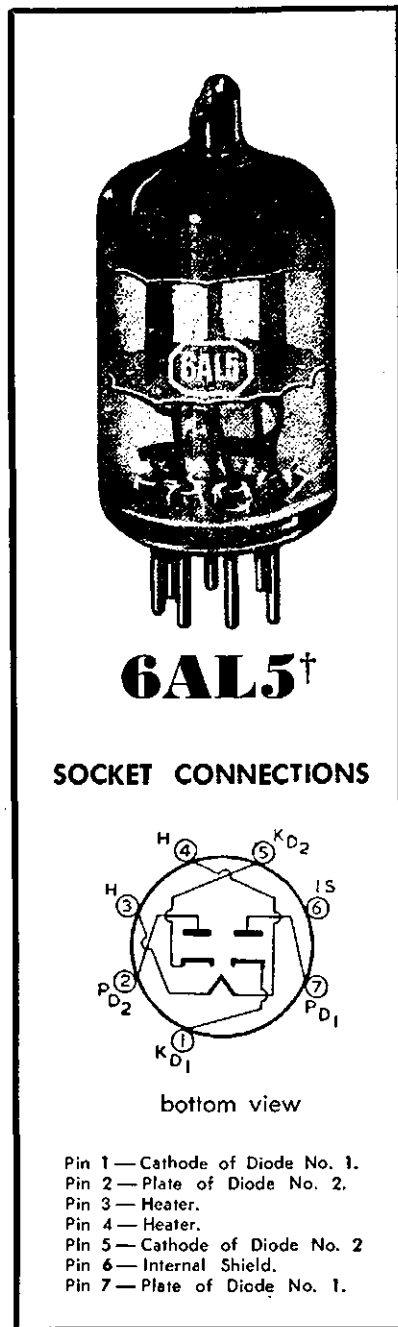
C3 is a large capacitor which becomes charged in the presence of a carrier and plays a major part in the suppression of amplitude modulation of the input signal. The discharging time constant of C3 through R1 and R2, the diode load resistance, is long compared to the period of the lowest audio frequency to be detected (usually about 0.2 seconds). The voltage across C3 is hence maintained constant over short intervals of time.

Consider the operation of the circuit at a time when the frequency of the incoming signal differs from the centre frequency by a deviation, Δf , such that the voltage applied to D1 is greater than that applied to the diode D2. The current flowing in C1 must be greater than that flowing in C2. Hence the voltage developed across C1 (E1) is greater than that developed across C2 (E2). The sum $E1 + E2$ is held constant by C3 and hence point A must be negative relative to point B (earth). So it can be seen that the instantaneous voltage at point A will vary in proportion to the difference between E1 and E2, and hence to the instantaneous value of Δf , and at a rate equal to the rate of change of Δf . Thus the audio output voltage follows the audio modulation of the sound carrier.

R3 is a small resistance which limits the peak diode currents, thus tending to reduce the effects of unbalance in the two halves of the circuit. R4 and C4 form the de-emphasis network which is necessary to correct for the pre-emphasis used at the transmitter to gain an improved signal to noise ratio.

A twin diode ideally suited for use in such a circuit is the Radiotron 6AL5. The performance of a circuit using the 6AL5 is described in Radiotronics, June, 1957. The 6AL5 is also suitable for use as a video detector, a.g.c. clamp and in other applications.

†For further information on the 6AL5 and other Radiotron Television Valves, consult the TV1 Booklet. Additional copies of this advertisement are available free and post free on request.



AMALGAMATED WIRELESS VALVE CO. PTY. LTD.

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VC20.57

CORRESPONDENCE

The opinions expressed in these letters are the individual opinions of the writer, and do not necessarily coincide with those of the publishers.

S.S.B. ACTIVITY

Editor "A.R.," Dear Sir,
Many have the impression that lack of activity on s.s.b. does not justify the effort required to convert to that mode of operation.

As at 0815 hrs. G.M.T., 2nd January, 1958, I have worked the following 100 countries on two-way s.s.b.—

AP2BP	HH	LA	VP7
BV1US	HP	LU	VP9
CE2HV	HR	MP4KAM	VQ4
CN8MM	HS1A	OA	VR2
CO5LF	HZ1AB	OD5BZ	VS1
CP5EK	I1LOV	OH2OJ	VS2
CR9AH	JA	OHONC	VS4JT
CX5AF	KA0SC	ON4	VS5AT
DLS	KB6	OQ5GU	VS6
DU7SV	KC4s	OZ	VU2
EAs	KC6	PA0	W
EA9AR	KG1BO	PJ2MC	XE2JK
Els	KG4AQ	PY	XV5A
Fs	KG6	SM	YA1AA
FP8	KH6	SV0	YU1AD
FQ8	KL7	SV0 Dodec.	YV5FL
FS7RT	KM6	TF2	ZB1CZ
Gs	KP4	TG9AD	ZC4DA
GD3GMH	KR6	TI2HP	ZD4
GI	KS6	UA1DZ	ZE6
GM	KT1DD	VE	ZL
GW	KV4	VK	ZS6
HB9	KW6	VP2 Leew.	ZS3
HC2AGI	KX6	VP2 Wind.	3A2AH
HE	KZ5	VP5	5A2TP

—C. B. Edmonds (VK3AEE)

OBLIQUE STROKE F.O.C.

Editor "A.R.," Dear Sir,
It's about time some reputable organisation such as our own W.I.A. took up either with the I.A.R.U. or at least our own Postmaster-General's Department this growing habit of some self-styled select group who insist on signing "oblique stroke F.O.C." after their call signs.

To me it is quite illegal and why something has not been done already beats me. For 20 years now I have been licensed VK3BG and that is the call I have always signed—nothing more and nothing less.

The F.O.C., I am told, stands for some privately-sponsored "First Operators Club" and to be a member one must be "invited" by a certain number of members. Much the same, perhaps, as any decent club, except that in many cases in Australia I know of potential members who go around the bands canvassing for sponsors and this is where F.O.C. becomes a little hay-wire.

The addition of these three letters—F.O.C.—is perhaps the worst example of snob-value I have seen in our hobby. For anyone to lower himself to be a member of such a clique, I think, shows discredit to the true Australian democratic spirit—to me one of this country's most cherished possessions.

It has become so bad that some of the adherents to this most annoying "I am better than you class" have the cheek to sign "oblique stroke F.O.C." even to their CQs.

I appeal to Federal Executive to take this matter up and stop it immediately. It is most un-Australian, undemocratic

S W L

Ian J. Hunt, WIA-L3007
111 St. George Road,
Northcote, N.16, Vic.

I imagine that as conditions have been fairly good of late everyone is hard at the job of listening for those elusive new countries, as in a period of two months I have received only two letters. Now, come on all you s.w.l.'s, you'll need to do better than that or there will definitely be no s.w.l. section in this magazine. To have notes we must have news, and as I haven't a staff of paid reporters to chase up news for me, I have to depend on your letters. So how about doing the right thing and drop me a line telling of your activities.

First off in my mail box I find a letter from Don Grantley, of Holbrook, N.S.W. Don, in between looking after his XYL, harmonic, cows, garden and auto, manages to squeeze in a little listening. He states that he is lucky in having a good location, QRM free (what a blessing) and that just a wire trolley out of the window for an antenna seems to work out OK. Don has recently logged his 100th country—a KG1.

The acquisition of a new receiver and erection of several beam antennae should assist him in increasing this total. Don has been doing most of his listening on the c.w. portions of the bands. Another of his activities lately has been the dirty job of fighting bush fires. An ex-R.A.A.F. man, Don makes the following suggestion: "In view of the increased interest being shown in s.w.l. groups of late, how about some of the ex-R.A.A.F. wireless unit operators coming into the picture and renewing your acquaintance with radio." I myself think that would be a good idea and would also apply to other ex-service wireless ops. Any of you who may be interested could drop me a line at the address shown above and I'll supply whatever information you require.

Dennis Holmes, of Warrnambool, is my only other correspondent this month. Until recently he has been confined to s.w.l'ing with a dual wave receiver covering only the 40 and 20 metre Ham bands. However, now with an ARB he has been keenly listening till all hours. Recently Dennis has heard HS1B and

and time wasting. I appeal to other members of the W.I.A. who have any Australian democratic spirit to dodge these "oblique stroke F.O.C." calls like the plague. So far as I am concerned they're no different from "scab labour"—nobody wants to work with them.

—Roth Jones (VK3BG).

VR2DA on 15 mx and plenty of VKs and Ws on 15 and 20. He finds listening to the s.s.b. stations real good fun. His antenna at present is a dipole.

To catch up with the doings of the VK3 Group, here are some details of recent events. November Group Meeting.—At this meeting we were pleased to welcome Ian McNabb, of Hight, T. F. Gardiner, of South Yarra, and Mr. L. D. Sykes who is a member of about 30 years' standing of the Institute. At this meeting it was decided that the December meeting would be a social evening. Much time was spent in discussing such interesting things as cream cakes, sandwiches, pies, etc., and everything else to delight the hungry s.w.l. It was also decided to begin several contests for members, the details of which will be published when they have been finally worked out.

December Group Meeting.—Probably due to it being holiday time not many members were present. However, a good time was had by all. The hours flew quickly by while members informally discussed every worthwhile aspect of s.w.l'ing. There was some delay in obtaining access to the soft drinks which were locked in the tx room, but a phone call brought Alan 3AEL to our rescue. We thank you very much Alan for leaving the 2 mx DX to assist us in this way. After the drinks became available the feast was begun. There was food galore, but everyone hopped in with a will and disposed of the major portion of it in quick time. We would like to extend our thanks to the Divisional Council who supplied us with the soft drinks and to Bert Stebbing, WIA-L3050 who although not able to be present supplied a really large box of sandwiches.

Personal Fars.—Recently in Melbourne was Ken Robertson, WIA-L3058, of Fort Albert. Whilst in town he apparently enjoyed himself seeing as much as possible in the time spent here, including some t.v. He has since arrived back home safely with his load of new gear to try out. Bert Stebbing has by all accounts been working hard night and day due to the Christmas-New Year rush, but by now should be enjoying a holiday somewhere up in VK2.

Michael Ide is understood to have obtained a nice long pole, so antennae should soon be smartly erected at his QTH. Nothing much has been heard of the two Group reporters—Frank Nolan and Geoff Morris—of late so we assume they are busy bringing in all the latest DX. Yours truly has now constructed a rotary W8JK beam and hopes soon to have it erected on top of a 40 ft. mast. Higher gain tubes in the r.f. section of the rx has lifted the countries heard total to 167 and the going is becoming tough as far as new ones are concerned.

One interesting station heard was XV5A in Saigon, S.E. Vietnam. This latter station is operated by a member of an American advisory mission to the Vietnam Government and the operator's name is Randy. Details of his prospective operation have been given in recent issues of "CQ" and now he has appeared. He stated that he was running only 20 watts to a ground plane antenna and was transmitting only the upper sideband with carrier. Several VK stations managed to work him including 2FM and 3ACN. He is sure to be in great demand. FB8AH was heard on 15 mx phone.

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Band conditions have been erratic and no two days have been the same as far as Sydney area has been concerned and this seems to be the opinion of DX stations. 14 Mc. has been notable for the rarer DX stations that have been heard calling CQ after CQ with no takers. I call to mind hearing JT1AA, EA8CE, FB8XX and listening to VQ5GJ and VQ3JTW QSO each other because they could not raise DX. My own activity has been on 14 Mc. seeing what QRP—15 watts—and a Windom can do, which was quite fair, so you "young squirts" have no fears about starting off on something small for your DX hunting.

If space permits, I think some details of U.S. Amateur activity, which 2AGH passed on to me, may be of general interest. The number of U.S. Amateur licenses in 1950 was 80,000, at present about 160,000 and the estimated figure for 1965 is 200,000. 49% buy their transmitters. 2% are using inputs under 35 watts, 9% 35-75w., 40% 75-100w., 36% 150-500w., and 13% over 500w. Interesting figures aren't they. 78% use a.m. phone, 62% c.w., 9% s.s.b., 8% n.b.f.m., 3% teletype and 1% t.v. 7 Mc. is most popular with 67%, 28 Mc. 54%, 14 Mc. 48%, 50 Mc. 33%, and 144 Mc. 33%. No figures are given for 21 Mc. Engineers are the greatest number of licensees at 21%, then Students at 19%.

NEWS AND NOTES

Cards are now being returned from the S.A.R.L. marked "non-member" and information to hand shows the Belgian Bureau has adopted the same policy. My own personal opinion is that if this practice becomes a general policy, QSLs will become a thing of the past as Amateurs will not waste time sending a card if there is a possibility of it being returned to him. The certificate hunters will have to send all QSLs direct with I.R.C.'s. to get their cards. Work out how much that is going to cost!

If you worked ZD2AO and still need his card, try again to G2AO.

Cards for FP8AA should go to K2CPR.

ZL1ABO is reported to be active from the Kermadecs on 3844 Kc. (3CX).

Yemen should be represented by the time you read these notes with a phone station using 1kw.—call sign unknown.

For his recent activity, ZM6AV was using the rig of an American YL who happened to be passing through on her way to Fiji.

UI8KAE has a YL operator for those after YLCC.

VQ8AJ is active from Chagos Is.

9K2AN stated he was in Kuwait. I have seen no comment that there has been a change of prefix from MP4K.

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

ACTIVITIES

3.5 Mc.: Nil reports.
7 Mc.: 2AIR: W*, 2QL: W*, Don Grantley: W, KG6FAE, W1A-L3040: JA1AMZ.
14 Mc. C.w.: 2AIR: HPILO*, CN8IF*, 4S7WP*, OA4FA*, XZ2TH*, VU2AJ*, 4X4FA*, SV0WP*, IT1AI*, ZC4IP*, ZK2AD*, CO8DL*, HC1HL*, KP4AZ*, VQ4AQ*, UA0OM*, OD5LX*, VP2LU*, CT3AB*, CN8FQ*, JT1AA*, LUSZ0* (Shetlands), 4X4JU*, CR8AC*, VQ2EW*, FB8XX*, FB8ZZ*, FB8CD, VQ8AJ, PY7AN/0, UO5AA, UO5KAA, 5A5DU, 2AMB: CT3AB*, CN8GZ*, CN8FH*, CO2BM*, XE1H, VSSAC*, XZ2TH*, FL8AB, VP8DO, KR6FC, VU2SS, VQ8AS, JT1AA, 2QL: UP2KCB, FB8XX*, VQ4KRL*, EAGAW*, XW8AE*, UI8KAE*, VQ5GJ*, JT1AA*, OX3LD, HC1JW*, LX2GH, PJ2ME, UM8KAA, 5A5TH, CT2B0, KG1DQ, OY7ML, CR8AC, UO5KAA, VQ8AJ, VR6TC, EA8CE, 9K2AN, VQ3JTW, 2ZR: UA0S*, UA9S*, UA0OM*, XZ2TH*, CO8DL*, CT3AB*, FL8AC*, XW8AE*, PJ2AE*, EA4CS*, OKIKIR*, YU1AG*, PY8YG*, LU5AQ*, LU8NA*, and many of the regular Europeans. SKB: ZC3AC*, VP8BK* (Georgia), VQ8AS*, LUSZ0*, 3CX: ZC3AC*, FL8AB*, FB8CE*, ZK2AD*, CR8AC*, CR10AA*, UI8KAA*, HPILO*, OA4FA*, HK3JC*, FB8BD*, EA9IP*, 4DO: CT3AB*, XW8AG*, HC1HL*, SPIKBT*, FL8AC*, OQ5EW*, FA8CF*, FA3WW*, ZE1JU*, KC8CG*, JT1AA*, VU2GE*, UI8KAE, CN8DJ, ZC5AL, UA0, UBS, UC2KAD, UL7GN, UN1AE, UP2KCB, CR8AC, VS4JT, LZ1KBA, OQ5IE, CN8FQ, SV0WP, VO8GJ, ZSS1Q, ZETJG, ZD6DT, 3V8KS, 5GM: DU3DO*, OE2JZ*, LA6U*, UR2AR*, CO8DL*, KR6RY*, CT3AB*, HH2CL*, ZS6AJS/P5 (don't know this one), 4S7YL*, 5LO: CT3AB*, HH2CL*, EA3JE*, UA0OM*, UBSKAB*, CR8AC*, XW8AE*, 6RK: JA*, VS1G*, 7LZ: CT3AB*, LZ1KAW*, VQ4GT*, CO2BM*, UJ8KAA, UA6KAC, KC6US, JT1AA, UI8KAE, Don Grantley: CO2CR, CN8FH, DU7SV, EA5BA, FA8RJ, HH2LD, HZ1AB, KG6FAE, KG1GY, UL7KBA, UBSKAG, OQ0VN, UN1AE, 4S7WP.

14 Mc. Phone: 2AMB: K56AF, VQ4AQ, 3A0M: DL6QX*, FA8CF*, CO8LS*, HK4DP*, HH2HH*, I1AMU*, G2AMG*, 4S7YL*, 5A1TV*, VS9AJ*, ZM6AV*, VE3AXW*, VR3A*, VR3C*, VR2DF*, VR2DA*, VR4JB*, VK9AD*, W*, 4DO: HK7LX*, FA8CF*, UA0KJA, VQ4AQ, ZD6DT, 6HW: UA0LA*, UA0KFG*, VR6*, 5LQ: VR4JB*, YV5DA*, HK4DB*, 7LZ: HH2LD, CO2QG*, Rod de Balfour: I1SM, I1AMU, EA3JE, CN8IF, SU1ME, VQ4AQ, VU2CK, VU2AK, 4S7YL, HH3DL, CO2QG, VP7NM, CO2OS, CO2CY, VR3C, VR4JB, VR6TC, HC1FG, HC1AE, W1A-L3040: FA2CC, BV1US, KG6AF, ZM6AV, VU2CK, KR6MJ, VU2SG, VU2BK, KZ5AD, ZS2BC, VR4JB, BV1US and on s.s.b. he heard KA7MD, KR8AF, KG6FAE, VS6BE, KR6AF, DU7SV, TI2HP, TI2RC, VS4JU, KR6MD, Barney Smith: VQ2BH, BV1UD, HK4HW, 4X4DK, VK0DC, VU2BY, ZM6AV, EA3KY, OD5AB, I1ZBK, VU2BK, YV5EV, ZD6DT, ZS2FA, VR2DA, EA3LI, PY2CK, EA2BL, I1FVZ.

21 Mc. C.w.: 2AIR: W*, CE*, 2ZR: TI2CAH*, ZS1KD*, SP3AK*, LU5FAV* and many Europeans. 7LZ: HE9LAC*, UBSFJ*, UBSKAB*, SV0WP*, VQ6LQ*.

21 Mc. Phone: 2ASQ: FE8AH*, OQ5RD*, HL2AJ*, UA1GF*, VR3A*, LX1DC*, YN1MF*, VP5RS*, KR8RY*, CE3RC*, VK9AT* and many regular Europeans. Rod de Balfour: MP4KAC, LX1DC, KR6RT, VR2DA, VP5DL, VP5RF, also many regular Europeans.

28 Mc.: 2AIR: W*, JA*. Rod de Balfour: VE4RO, W.

QSLs RECEIVED

Pasteboard is somewhat light on this month. 2AIR: HB1MQ/FL, FB8ZZ, JZ0PA, XZ2TH, 2AMB: HC1HL, FY7YF, FB8ZZ, EA9BK, FM7WT, 2OW: PJ2ME, UA4PL, UA0OM, YV5FT, 2QL: ZK2AD, HK3JC, SKB: VR6TC, ZS2MI, 3CX: FP8AS, 7LZ: K56AF, KB6BH, Rod de Balfour: LU1JL, CX2AX, FS7RT, VP5CM, ET2MZ, W1A-L3040: KX6BQ, KZ5IF.

This month we welcome a number of new contributors to the column, and my thanks to them for their contributions. Thanks to 2AIR who is now thinking in terms of Quad antennae, 2AMB who found conditions erratic. 2ASQ making the most of his holidays back home to get amongst the good ones on 21 Mc., 2ZR who at this stage gets the most QSLs in VK2, 3CX who manages to get amongst the good ones when they pop up, SKB is being reported as one of the most consistent VK c.w. sigs, 3A0M, and 4DO who keeps the VK4 prefix on the band. A special appreciation to 6RK who although he doesn't do much DXing himself, went to the trouble to QSP 5GM, 5LQ and 5HW activities. Rod de Balfour for QSP 7LZ and found conditions in VK7 n.s.g. Don Grantley who has improved his reception by a new antenna, Barney Smith who would like to see a S.w.I. Group in VK2, and last but not least a new S.w.I. contributor in John McEwen W1A-L3040 who is pleased to see the end of his school exams.

One last thought before closing, the erratic conditions on 14 Mc. have forced many of the R.T.T.V. commercials to go to telegraphy and consequently give their calls, and without exception they have all been using "R" as the first letter, which is U.S.S.R. allocation. What pressure are they going to bear at the forthcoming conference? Are we going to have a representative to try to hold our existing allocations?

QTHs OF INTEREST

CN8FQ—Via WAUFQ (2AIR).
CN8IF—Box 50, Navy 214 F.P.O., N.Y. (2AIR).
VQ8AM—Mapou, Mauritius (2AIR).
VP2VG—Via W4CG, ex-KV4BE, C/o. C.A.A. Fort Meyers, Florida (2AIR).
OX3DL—E.D.R.
HE9LAC—Schaan 425.
9K2AN—Box 736, Kuwait.
FB8XX—Via FB8BC.
FL8AC—BP121, Djibouti (4DO).
OQ5EW—Kolwezi, near Elizabethville (4DO).
VQ4AQ—P.O. Box 3268 (4DO).
ZC3RF—Marine Dept., Sandakan (5RK).
KG4AE—Box 12, Navy 115, F.P.O., New York (BERS195).
KG1HL—A.P.O. 121, C/o. P.M. New York (BERS195).



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50 MEGACYCLES

Let overseas news overshadow the local for the time being. In a contact with Arch VK3BW (Jan 9, on 23 Mc.), VE1OD said that he was monitoring 50 Mc. continuously and that at the time of speaking the band was wide open to Europe and Africa. He further said that two W6 Hams had made W.A.C. having worked North and South America, Asia, Africa and Oceania. Congratulations to those two unknown W6s for a mighty fine effort. In a contact with a W3 shortly after, Arch was told that Alaskan stations were "pouring in on 144 Mc." to W3 land, a hop of 2,000 to 2,500 miles.

A check of the distances involved for the U.S. contacts and our own chances for W.A.C. provide an interesting comparison. Based on Great Circle bearing from the centre of the U.S.A., and in approx. figures, we have Europe and the bulge of West Africa just on 4,000 miles, South America 1,750 to 4,000, Japan 4,500 firing over Alaska, and Honolulu 2,000. Compared with our own distances, set alone in the ocean as we are, they are just over the road. Great Circle based on Melbourne, 4,500 miles takes us to the top of Malaya, 5,000 the coast of China, Japan and India, 10,000 Europe, 7,000 the east coast of Africa, 8,000 the west coast of North America as well as South America. Not insurmountable; the lucky break should come one day.

One interesting point about the North American opening is that it is mid winter and the VE1 and the W3 both reported that it was snowing at the time of contact. So disregard any idea you may have that 50 Mc. is a summer band only.

STOP PRESS

Max Hillier, of the S.W.I. Group, reports hearing VK5EF informing VK5WI that on the previous day (11th January) he had heard KH8UL on 50 Mc., and later a couple of very weak unidentified W signals.

GENERAL VK NOTES

December produced a fair crop of Interstate openings and all States appeared to work one another with the possible exception of VK2/6, no news to hand whether that had been accomplished. Details of activity is listed under State headings. Just where have the ZL signals got into? There were several openings from there to VK3, one finding the local gang almost on the outer, the ZL/VK5 path being open at excellent signal strength, same to western VK2, but the ZL/VK3 path was only just fair, signals each way being down.

VK4ZAZ, Mt. Morgan, apologises to the stations who have called him and whom he has failed to answer. Lance is plagued by tremendous QRM, having a 66kv. line virtually passing his door, with a main sub-station with about 20 transformers handling the works from 66kv. down another 50 yards away. Shades of Crieff 2XO who used to be in much the same position. So far Lance, despite his difficulties, has managed to work JA3 and 6, VK2, 3, 4, 6, and has heard VK6. A splendid effort considering his difficulties.

The Ross Hull Contest swung into its stride again with numerous contacts being made. For the number of contacts made to the end of December, 4BT appeared to hold the advantage with about 140, close up Bob 4NG with just on a hundred and Ian 3ALZ in the 80's. Col 7LZ must be well in the running, operating both 50 and 144 Mc.

Conditions on 50 Mc., though the openings are reasonably frequent, are not to be compared with former years. Openings have been neither as long nor as good, and for the first time since Interstate signals first came through, the Christmas-New Year week failed to produce its usual exceptional opening. Normally that period gives either one or two days of all States and ZL break-throughs which lasted from 2 or 3 hours to most of the day. The E layer when present this year does not appear to have its former reflective properties. Apparently quite a fair portion of the signals are being either absorbed or allowed to pass through. Does this indicate that the sunspot maxima produces an unbalanced effect between the northern and southern hemisphere, with a concentration of effective E layer to the north?

Previous band use made it appear that mid-summer with the sun overhead gave the peak in each hemisphere with a minor peak at mid-winter, trans-equatorial scatter being evident during the equinox when the sun is over the equator. But the great let-down occurred this year in our southern latitudes, the normal north-south 1,000/1,500 mile path being poor. Comments from individual Hams or interested parties on this would be most welcome and perhaps we could find out the solution of "where have our good openings gone to."

VICTORIA

Newcomers over the holiday period include 3KF (ex-3BD), 3ZDU, 3ZEK, 3ZBP, 3ZDG, 3ZAV (Geelong), 3ZDP (Sale), and 3ZCW (Ouyen). David 3ZAT operating portable from Maffra has been working VK4, 5 and ZL. Who was the v.h.f. operator located north of the Yarra who got really wound up one night and raved on at some length? His victim even had time to work a VK4 during one of the ear-bashing overs. MAKnificent effort that. Moral: Do not indulge in prolonged ragchewing without tuning between overs if there is a possibility of DX coming through.

Interstate stations may be interested to know that there is a group of frustrated VK3s on the high end of the first megacycle. They include 3ZAQ 50.7, 3ZFP 50.73, 3AFJ 50.81, 3BI 51 Mc. A lot of people evidently do not tune up this far. Ian 3ALZ snapped up the VK6 gang when they came through late at night, his multi-element yagi certainly works out. 3OF is well into stride again of an evening now that his t.v.i. is completely cured.—3ZAQ.

SOUTH AUSTRALIA

V.h.f. boys generally, please send all information regarding any contacts on 50-54 or 56-60 Mc. of distances in excess of 500 miles, direct to Gordon 5XU. This is being collated to ascertain the type of propagation and is being done in collaboration with Mt. Stromlo Ionospheric Prediction Service. This is a most useful part of our work and has a long-range benefit in pre-determining use of bands over long distances.

If you can make a 56 Mc. contact after 50 Mc., so much the better.

Reg 5QR reported recently working a VK4 then immediately afterwards 6BO. Reg is using n.b.i.m. on 50 then as that faded (from 5 x 8) changed to 56 and made a 5 x 7 on that band with 50 dead. So there is something for the experts to work out.

Oh yes, my 50 meg. converter is working at last so now by tx on 2 and "it" on 6 will duplex it with anyone who will talk to me. Made it first with Les 5AX, then Reg 5QR followed by Col 5RO and during the course of the latter two contacts identified the station 18 times. You work out how long they lasted.

A few further frequencies by the way: Les 5AX 51.0, 5ZAX 50.47, 5EF 50.496.

The outstanding achievement for the month is Bill 5ZAX and his mighty structure supporting, and the nest on top. It is a sight that should grace the cover of "QST" no less (or even "A.R."). A four-sided steel tower, hinged at base 70 ft. high, with a G4ZU tri-bander at the top, surmounted by a 4 over 4 on 6 plus a 16 el. on 2 sandwiched between same and then to complete the picture a vertical J on 6 right on top the tip of same, just a bee's whisker short of 100 ft. All done in silver with all elements copper tubing cad. plated, completely motorised and remote controlled and direction indicated. A real Ham's dream, and just to prove it, you should hear a signal from it. Will persuade Bill to get some pictures and details soon and do an article for "A.R." It's outstanding and should not be missed.

KH8UL has 200w. on 50.2 into a ground plane and transmits continuously—who is going to be the first to hear him? Maybe by the time this is read it will have been done, for contacts on the lower frequencies with KH6 indicates others are on the lookout for VK contacts on 6 also, so keep your beam that way.

About the heaviest signals heard here to date are from 2ZAA Tumut with several VK4 stations running a close second, this is apart from the VK5 Adelaide types who just romp in and twist my S meter needle anyway.

Hughie 5BC works Penola on 2 with ease these days and also has entered into the experiments being conducted by Bill 5ZAX, George 5GB and Ken 5KC on the use of 6 for W.I.C.E.N. These boys are working on the idea that 6 should be a push over in areas where 80 and 40 is not a good frequency to use. They are meeting with fair success to date and hope to have something to offer soon.

Col 5RO adds to his achievements by accepting twins into the family for Christmas. Hearty congrats Col, hope all goes well. One thing now is that the floor walking can perhaps be brightened by a remote DX contact.

About the most outstanding article for some time on v.h.f. band usage is to be seen in

"QST" December, page 67, by our old friend, Edward Tilton, WHHDQ. and for those of you who get or have access to that magazine: it will pay you to read it and digest its meaning, for it applies to Australia just as much as to U.S.A., and demonstrates what will happen to us at the next International Conference unless we do something about protecting our bands.

Protection means firstly using them, not just now and then, but all the time, and of course not just some of them, but all of them. Who amongst us for instance can quote what our bands above 288 Mc. are? and what is more, who has used them? Why we have only scratched the first meg. of any of them at any time. So think seriously about it fellows, we want to retain our present bands, use them, get to know them, and in particular support any suggestion for having a representative at that conference even if it does call for a special levy. It's too important not to act now and certainly no good complaining later on, on what we might have done!—5EF.

WESTERN AUSTRALIA

A new station appeared on the band on Dec. 9. Gil 6ZBW. He was duly welcomed by Jack 6ZBU and Don 6ZAV who were his first contacts. Wally 6WG has had about 14 Interstate contacts to date. The first opening to Perth occurred on Dec. 24 at about 1930 hours W.A. time, from VK5. Stations heard and worked were 5RO, 5KC, 5BC, 5ZAN, 5MT. Next break through was on Dec. 27 at 0845 W.A. time with 5ZAW, 5QR, 5MK and 5MT. Following this, 6BO and 6ZAV worked 5QR on 56 Mc. with 5/8 signals. Rolo also worked 5RO. Dec. 29 at 1100 W.A. time, 5QR was heard and worked but was the only signal on the band. Stations on 6 Mc. here are 6BO, 6BE, 6GB, 6ZAV, 6ZBU, 6ZAA (handicapped by antenna troubles at his flat), 6ZAZ at Wagin and 6WG at Albany. Wally has the breaks on us in Perth. We hear from Dave 6WT that 6ZBU is telegenic and puts modulation bars on channel 1 in the commercial rx that Dave is operating. 5QR has also been seen by Dave, does this help our cause for 50 Mc.?—6ZAV.

TASMANIA

7LZ started off well in the Ross Hull Contest with 33 50 Mc. QSOs on Dec. 2, 3, 4, 5 with openings also on Dec. 8, 12, 13, and 14, but since then only stray weak signals heard.—7PF.

144 MEGACYCLES

There have been some very good openings at the south-east corner of the continent and more are to be expected. February usually provides some thrills for the gang.

NEW SOUTH WALES

The next meeting of the V.h.f. and T.v. Group will be held at Gore Hill Technical College on 7th Feb. at 8 p.m. The lecture for the evening will be given by John 2ANF and will be entitled "The design and construction of mobile equipment". The monthly night fox hunt was held on Monday, 14th Dec. This time the hunt was a mobile one, the fox being Jim 2PM who started from Wiley Park. The starting place for the hounds was at Flemington Sale Yards and those present were 2OA, 2ANF, 2ZAV, 2ZBB, 2ZCW, 2ATO/AZO and 2AWZ. The fox was intercepted twice during the time he wended his tortuous way from Wiley Park to Castlereve where he finally went to ground at 8 p.m. First to catch him was Phil 2ZBB and second was Dave 2AWZ. Dave was also first in at Castlereve, so the honours of the evening were shared equally by these two stations with 3 points each.

This being the last mobile event for 1957 and also it being the festive season, all those present then proceeded in convoy to the nearby QTH of 2ER where refreshments were served in place of the usual hot dogs and tea served in the open at the finishing point.

The Christmas Scramble was held following the usual v.h.f. broadcast on Sunday, 22nd Dec. This annual event was well supported and although called a scramble, plenty of time was available for those participating to exchange seasonal greetings as well as score points for contacts. Dick 2ZCF was first with 26 points, second ZZBG and ZZAV with 22 pts., third 2PM and 2ER with 21 pts. each.

The Gang at Work.—During the month of Dec. conditions on 2 mx between Sydney and Newcastle have been good. Stan 2ZDL and Stuart 2ZDF (both Newcastle) have been worked by Sydney stations and SB reports have not been infrequent. Lyle 2ALU has been moved to Tamworth and will be missed by many Sydney stations that were able to work him on 144 Mc. at Wollongong. Bill 2ABZ has been out mobile quite a bit. Roy 2HO was heard working 2ANF after being absent from 144 Mc. for a considerable time. Neville 2DR is having

great difficulty in keeping his beam aloft while Con 2LZ has been heard after an absence of two years or so.—2ER.

VICTORIA

Quite a lot has happened on this band recently. 3ATW has been portable to Echuca, 3ZAT to Maffra and 3ZBP to Turrumbury. All stations have worked into Melbourne, but David 3ZAT and Bill 3ATW have been very consistent. It is significant that both stations were using large beams and running high power. Good break throughs to VK5 and VK7 have taken place a number of times, viz.: Dec. 18 and 19 as well as the 3rd and 4th Jan. Stations audible in Melb. were 7PF, 7LZ, 7BQ, 5ZAG, 5AW and 5CH. The best VK5 signal was easily 3ZAG; 3ZDP in Sale (East Vic.) has heard Leo but no contact yet. George 3ZCG (Moe) has no trouble in working VK5, but has not yet heard a VK7. 3ZCN and other early birds have been working 5AW in the mornings at 0800 E.A.S.T.

New calls on the band include 3ZET, 3ZEO, 3VK, 3AAV (Moe), 3ZFA, 3ZDD (Pakenham) and 3ZER (Ballarat). An old timer in Kevin 3AKR recently re-appeared on the band. Welcome to the newcomers and welcome back Kevin. 3ZCN and 3ZCF claim the first two-way QSO using d.s.b. on 144 Mc. in VK land. Anybody dispute their claim? Les also runs d.s.b. on 50 Mc. 3ZDP Sale on 144.11 Mc. has put an 828B in the final and on his first night with the high power Peter was R5 and S7/8 in Melb., a big improvement on past efforts.

The results of the Field Day held on 17th Nov. were as follows: 1st 3ZAI (portable Craigburn), 50 pts.; 2nd 3ZCF (port. Mt. McDonald), 32 pts.; 3rd, 3ZVF (port. 5th. Strzelecki), 5 pts. Seven stations were again out in the field on Dec. 15. They were 3ZAN (Pretty Sally) using 50, 144, 288 Mc., 3ZE (A'Beckett Park), 144 Mc., 3VF (Kingslake) 144, 288, 576 Mc., 3ADU (Somerton) 288 Mc., 3ZFA (Pentland Hills) 50, 144, 288 Mc., 3ZET (Mt. Macedon) 144 Mc., 3ZCG (Traralgon area) 144 Mc. 3ZCG and 3ZFA had trouble and did not make many contacts. Results of this event are not yet to hand. The 4th Field Day is on March 2. 3ZCG has indicated that he will be operating from Mt. Matlock.

The last V.h.f. Group meeting took place on Dec. 18, 18 members attending. Visitor Ralph 6ZAD passed on greetings to the VK3 gang from VK6. The meeting asked him to reciprocate on his return to VK3. Ralph also told the meeting of v.h.f. activity in the West and pointed out that there were stations operating on both 50 and 56 Mc. over there. The agenda for the meeting was to discuss the rules for the current Ross Hull Contest, and at the request of Council to set down a date for a full scale VK3 discussion on this subject. The date tentatively selected is the 2nd March. This is a Sunday and the idea is to give the country gang a chance to come to Melb. and join the pow-pow. Dates, time and place of this meeting when confirmed will be published over the Sunday broadcast, so keep listening for it chaps.

VKS V.h.f. 100 Award.—Certificate No. 1, 3ABA; No. 2, 3FO; No. 3, 3YS; No. 4, 3ZAK; No. 5, 3AEL.

The last fox hunt for 1957 was held on Dec. 11, Laurie 3ALY being the fox. Hounds included 3VZ, 3LN, 3MS and Ray Price, 3IE, 3AOG, 3ZAD, 3ARY, Jih Shaw and 3ZAM. The route taken went through Richmond, Burnley, Toorak, Hawthorn, Studley Park, Collingwood, Brunswick and Essendon where the final location was at the home of the fox. Bob 3AJ, who has acted as control station for the past few years, was present at the finish of this hunt. The winner was Tom 3AOG with 3ARY and the 3MS/Ray Price combination equal second. Tom will be the fox for the hunt on 12th of this month.

WESTERN AUSTRALIA

The Dec. fox hunt took place on Dec. 7 as usual from Kings Park. Bob 6BE the fox, and by golly what a fox he turned out to be. The hounds went hither and thither after the sigs, but strange to say always finished up back in the park. Eventually Don 6HK and Don 6ZAV with co-driver Roy, converged on a young couple sitting on a seat with a pram alongside them. Roy said to Don 6HK, "I'll bet it is in the pram." "I think so, too," said Don and straight away went over to the couple and said, "pardon me, but may I see the baby?" What a baby it was, a small rig complete with vib. power supply, tone generator and halo, all nicely sitting in the pram and covered with a mosquito net. Bob 6BE said afterwards that at one stage the baby started smoking, "young too" which rather spoiled the programme as they meant to keep walking as much as possible. A power supply upset the applicator so that Bob had to keep an eye on things from a distance, just in case. Never mind Bob, fun was had by all.

The Christmas meeting took the form of fox hunt cum barbecue at the QTH of Sid 6SJ. The attendance can be judged by the fact that everybody appeared to be there. The proceedings started with the fox hunt. Have you ever tried running down a fox. Not like this one, I'll bet. He was strolling aimlessly around with a small rig powered by dry batteries in a shopping bag and the aerial lead ran under the coat to a "halo" under the band of his hat. Being Saturday night nobody took any notice, or not much anyway, of a guy staggering along with his bag and a bottle poking out of his pocket. Unfortunately battery troubles marred an unusually good effort. Proceedings wound up with a picture show and the usual burnt offerings which attend a barbecue. All in all, a really slap up show to end the year.

The Gang at Work.—Sunday morning Dec. 15 saw an f.b. QSO between 6WG at Albany with 6BO and 6ZAV on 144 Mc., sigs were 5/8 on phone. The contact period lasted about 45 minutes. A check on 50 Mc. proved to be futile.

TASMANIA

144 Mc. openings occurred to VK3 on Dec. 8, 17, 18 and 19, though Ian 3ALZ was heard or worked most nights of the month by 7LZ and 7PF. The nights of the 18th and 19th were the better openings. Col 7LZ working 18 stations (including 8 new stations), while Peter 7PF worked about the same number (including 8 new stations also). The stations worked were 3ALZ, 3BQ, 3ZDX, 3BW, 3ZD, 3VL, 3ZDD, 3ZCN, 3ZDI, 3ZE, 3ZBP, 3ZDG, 3ZFP, 3ZBJ, 3US, 3ZES, 3AEL, 3ZBS, 3AGK, 3ZAT, 3AHJ, 3ZFH, 3ZEO, 3KF, 3ZQA, 3ZCH. It was good to find and work so many new calls on the air. 7PF now has a 10 el. yagi which appears to perform about the same as the old 5 over 5.

288 MEGACYCLES

3ALK and 3AHN have put in an appearance on this band lately. Les 3ZCN has a crystal locked converter working well. His attempt to work 3ZAV (Geelong) with mod. osc./super regen. equipment failed. 3AFJ, 3ATK, 3ZAQ and 3AAF (portable Ferntree Gully) have provided most of the activity, but I believe 3ZFA has been working mobile. Bert 3AFJ has had mixed results since starting portable. He has worked 3QO only, but has heard 3ZBN and 3ZQA. Some country stations are becoming interested in this band again so long haul work may be possible again soon.

576 MEGACYCLES

Bruce 3VF has been taking portable gear out on field days but he has had little reward for his efforts to date. Geoff 3AUX took gear to Montrose but had difficulty in working Mac 3QO. Ken 3AFJ is getting gear together for the band but he thinks the allocation should be changed to 470 Mc. His rush box will not work on any other frequency. See what the R.I. says. Ken. Max 3ALK is another pondering the possibilities of becoming active on the band.

T.V. OPERATOR'S CERTIFICATE OF PROFICIENCY EXAMINATION

The Australian Broadcasting Control Board has notified the following candidates that they were successful at the examination for the Television Operator's Certificate of Proficiency held in Sydney and Melbourne on 10th December, 1957:—

Sydney: Frank James Balfour, Dennis John Bonner, John Somerville Innes, Peter George Holloway Martin, Barry Joseph Ryan, Bruce Alfred Valentine.

Melbourne: Thomas Leslie Bail, Lance Frederick Beal, William Kenneth Dougill, Graham Fraser Foster, Allan Clyde Grant, Peter John Jackman, Ian Campbell Leach, John Francis McCrohan, Andrew James McKean, Raymond Francis Miller, Gilbert Charles Moody, Eric Fraser Morrison, Robert Ewen Ness, Oswald Gibbs Price, Lloyd Garland Smith, Stuart Douglas Smith, Arthur James Stewart, Donald Cromble Thomson.

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 sections of the examination on a previous occasion will be exempted from those sections for a period of 12 months. That is two half-yearly examinations succeeding the passing of the sections.

The next examination will be held on 10th June, 1958, and applications for this examination must be lodged with the Secretary of the Board, 487 Collins Street, Melbourne, by 15th May, 1958.

Y L

Phyl Moncur
235 Union Road
Ascot Vale, Vic.

TROUBLES

It started with the evening meal. M. & V. first, no troubles there; but for the second course, I'd tried a new recipe. Well OM took one spoonful and said, "What's this muck," and then with the endurance of a martyr managed to struggle through the rest of it. Not a very good start to an evening, you'll admit, when one already had a guilty conscience.

You see during the day my friend, Loretta, had rung up to say she and Bill would be over for the evening, well he doesn't mind Bill, poor old Bill's a good listener, but he can't stand Loretta. I realise she does talk an awful lot and if only it was about Ham Radio it wouldn't be so bad. As I looked at it company for the evening would be a very pleasant relief from the perpetual dah-dah-dit dah-dah-di-dah which is the normal evening's entertainment at our QTH. Well after the reception the evening meal got, I just didn't have the courage to tell him about Loretta.

After the evening meal, OM retired to the shack, which, by the way, is at one end of the living room. Of course you'll understand that having visitors I'd had to tidy up and this is where the troubles really started. This was missing, that was missing, where's the new trimmer condenser I just bought. At this remark, youngest harmonic makes a wild dive for his bedroom with OM after him and after the sounds of one harmonic being soundly smacked and a succession of sobbing and tears, I learned that youngest harmonic had swooped it to the boy down the street for a bundle of comics. Next thing was "where's my 80 metre coil?" Well, I did remember seeing the dog chewing up something that could possibly have been the said 80 metre coil, but I doubted whether that moment was quite the right one to make such a confession.

Eventually he sat down to tune his rig and more troubles—he can't find the band. "Well don't look at me," snorted I, "what would I want with your silly band" and retired to do the tea dishes, dreading the inevitable—the ring of the front door bell.

Round about 8 the bell rang of course and I very naively said, "I wonder who this could be," and then on opening the door rather stupidly said, "Why Loretta and Bill, what a lovely surprise to see you two." To which Loretta of course replies, "But darling, you knew we were coming, I rang you."

The OM couldn't have given me a dirtier look, but things didn't go too badly for a while, we chatted and the evening was quite pleasant until one other Ham came rang up to say that there was a KL7 coming through on 14 point something or other. At this point the melting pot really started to bubble. He couldn't find the band, Loretta wouldn't stop talking, I tried whispering to give her a hint and she asked what was the matter, to which I replied, "He can't hear" and Loretta, dear soul apparently thought I had said that it was I who couldn't hear and thereby raised her voice another 10 db's.

Of course he missed the KL7, but it's all over now and things have returned to normal at our QTH. I have made a resolution never to tidy up his shack again and have also decided that perhaps it's less strain on the nervous system if I content myself with dah-dah-dit for the evening's entertainment. However, I've searched in drawers, in cupboards, under the mats and even in his pockets, but I still can't find his band.

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."

NOTES

FEDERAL

RESIGNATION FROM FEDERAL EXECUTIVE

It is with regret that Federal Executive notifies members that Bill Falconer, 3AWF, has resigned from his position of Business Manager. During the time Bill has been with Executive, his thoughtful consideration has been a powerful factor in the solution of many problems. His training as an actuary has served good purpose in making many a detailed analysis of various surveys and results.

However, he finds that other commitments will not allow him to continue to give to Executive the time he feels it deserves.

It is certain that all members will be grateful to Bill for his efforts and will await the day when time permits him to return to some official position.

LIST OF PERSONS WHO QUALIFIED FOR AMATEUR OPERATORS' CERTIFICATES

New South Wales

- *R. R. Butler, Black Forest, Bingara.
- *F. J. Cato, 23 Jeffery Ave., North Parramatta.
- *J. E. R. Cleary, 191 Bruce St., Merewether, 2N.
- *A. Cork, 18 Bank St., Molong.
- *J. S. Cuming, 8 Sortie St., Castlecrag.
- *O. F. Dent, 20 N.S.W. Crescent, Forest, Canberra.
- *H. de Zwart, 1/2 Consul Rd., Brookvale.
- *B. K. Hall, 2/76 Melody St., Coogee.
- *W. G. Kirchner, 38 Wallisend St., Kahlban.
- *J. W. Lambert, Kooba St., Barellan.
- *A. J. C. McMahon, 1 Whitton St., Griffith.

Victoria

- *F. A. Auld, 14 Sargood St., Toorak.
- *W. J. Bell, Slaywood Park, Wangoom.
- *R. A. H. Blake, Telangatak East via Horsham.
- *J. E. Brown, 35 Grevillea Rd., West Wendouree.
- *D. McE. Eales, 27 Belle Vue St., Lilydale.
- *E. G. Egan, 4 Edith St., Caulfield.
- *D. J. Goss, 1 Eumeralla Rd., South Caulfield.
- *V. E. Maddern, McDonald St., Murtoa.
- *J. L. Morris, 224 Burwood Rd., Burwood.
- *D. D. Myles, 73 Marley St., Sale.
- *P. B. Nantos, 45 McNamara St., West Preston.
- *A. Parker, Post Office, Tawonga South.
- *W. H. Payne, 40 Park Crescent, Kew, E.4.
- *J. A. Retchford, 9 Summit Rd., Burwood.
- *L. J. Russell, 6 Narracan Ave., Yallourn.
- *G. W. Small, Box 92, Rainbow.
- *R. W. Wilkenson, 25 Lloyd St., Belmont, Geelong.

Queensland

- *N. Bignell, 15 Scarborough St., Scarness.
- *H. E. Brown, 23 Fegan Drive, Moorooka.
- *J. M. Burton, 30 Kelsey St., Camp Hill.
- *R. A. Collins, 150 Ashgrove Ave., Ashgrove.
- *G. W. Houghton, Station Rd., Oxley.
- *A. R. Kruger, 295 Tingle Rd., Wynnum.
- *T. E. Meredith, 69 Thorn St., Ipswich.

CONTEST CALENDAR

Compiled by W.I.A. Fed. Contest Com.



ROSS HULL MEMORIAL—

Note: 50-54, 56-60 Mc. bands now considered separate bands for overseas contacts when compiling scores.
Return of Logs: Postmarked not later than Saturday, 15th March, 1958.

NATIONAL FIELD DAY—

Return of Logs: Postmarked not later than Saturday, 15th February, 1958.

REMEMB. DAY CONTEST—

Dates: Saturday, 16th August—Sunday 17th August, 1958. Duration: 1800 hours E.A.S.T.—1759 E.A.S.T.
Rules: See amendments this issue.
Voting return date: 31st March, 1958.

A.R.R.L. DX COMPETITION—

Dates: Phone—February 7 to 9; March 7 to 9. C.W.—February 21 to 23; March 21 to 23.

- *D. Moller, R.A.A.F. Hdq., Sturt St., Townsville.
 - *W. S. O'Donnell, 24 Yates St., Railway Estate, Townsville.
 - E. J. Parow, P.O. Box 290, Dalby.
 - *V. Tarhanoff, 30 Kelsey St., Camp Hill.
- South Australia
- *C. A. Appleby, 7 Wolseley Tce., Woodlands Park.
 - *M. A. Bone, 1 Dean Grove, Marryatville.
 - M. J. Brunger, 39 Rowland Rd., Hilton.
 - *L. R. Burton, 35 Angus Ave., North Walkerville.
 - R. L. Dyer, 61 Third Ave., Sefton Park.
 - *S. Gaby, Post Office, Nairne.
 - H. W. Hancock, 13 O.G. Road, Klemzig.
 - C. G. Luke, 16 Kennaway St., Tasmore.
 - *P. A. Rowe, 28 Fisher St., Fullarton Estate.
- Western Australia
- B. G. Cook, Magnetic Observatory, Watheroo.
 - *W. F. Duns, Box 15, Hyden.
 - D. J. Lysle, 94 Mackle St., Victoria Park.
 - *L. G. Rock, 38 Essex St., Wembley.
 - M. H. Saw, 28 Auborough St., Double Bay.
 - *C. G. Woods, 190 Margaret St., Ashfield.
- Tasmania
- *M. G. Foster, 22 Married Qtrs., Brighton Camp.
 - M. F. McGinnis, Cable Station, King Island.
- Territory of New Guinea
- R. H. Murphy, C/o, Dept. Posts and Telegraphs, Port Moresby.
- *Qualified for the Limited Certificate.

FEDERAL QSL BUREAU

The Danish Society (E.D.R.) advise that the new QSL Bureau address is Box 335, Aalborg, Denmark. OZ4H, who has been QSL Manager for over 20 years, has now retired and the duties have been undertaken by OZ2NU. The rules for the Third European (W.A.E.) DX Contest for 1958 have just come to hand. As a result it was not possible to publish same prior to the commencement of the Contest. Contest periods: C.W.—1800 G.M.T., 3rd Jan., to 2400 G.M.T., 5th Jan.; Phone—1800 G.M.T., 4th Apr., to 2400 G.M.T., 6th Apr. Some of the rules have been altered slightly and the scoring varied. Entrants are advised to get a full copy of the rules from their Divisional Bureau or from the Federal QSL Manager.

The EI QSL Bureau has a new address which is 39 Booterstown Avenue, Blackrock, Dublin, Eire. They also state that S.w.I. or Listeners' cards will NOT be handled.

An outsize in QSL cards comes from a small island—GD4VH, who works mainly on 7 Mc. c.w. around 1900z. Other call signs held by GD4VH are G5FV from back in 1923, and G3BHE post-war.

Writing on the eve of his departure for Mawson, Doug. Twigg gives some interesting details of the Hams in this year's party, and of some of the objectives of the 1958 expedition. The full list of Hams in the 1958 team is as follows:

- Macquarie Island—
George Heindricks, Radio Supervisor, VK0KT (ex-VK3KT).
Harry Knox, Radio Officer, VK0HK.
Tom Caldwell, Radio Officer, VK0TC.
- Mawson—
Doug Twigg, Radio Supervisor, VK0IJ (ex-VK1IJ Macquarie, ex-VK3IJ, ex-VK7IJ).
Alex Brown, Radio Officer, VK0DA (ex-VK1DA Macquarie).
Bob Oldfield, Radio Officer, VK0RO.
Peter King, Radio Officer, VK0PK (staying for second year).
Roy Arnell, Geophysical Assistant, VK0RA (ex-VK1RR Macquarie, and VK0RR, also staying second year).
Ray Borland, Meteorologist, VK0RB.
Bruce Cook, Geophysicist, VK0BC.

- Davis—
Elliott Trigwell ("Trig"), Radio Supervisor, VK0AT.
Peter Turner, Radio Officer, VK0PT.

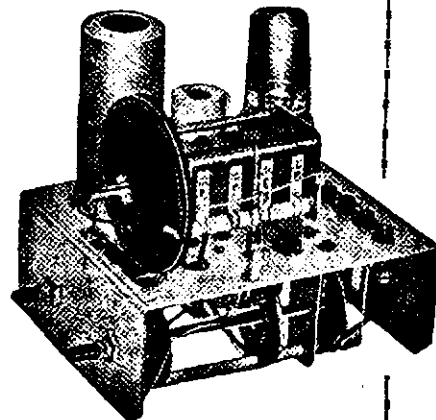
The Macquarie contingent are already there and active, but the Mawson and Davis bunch did not depart until 3rd January and do not expect to be at their stations until mid February. On the way down they are installing

SILENT KEY

It is with deep regret that we record the passing of—

VK2MR—J. E. Stewart.

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an Automatic Weather Station, the location of which is expected to be on a small islet in Davis Bay on the Wilkes Coast about the same longitude as Adelaide. The gear for this station will consist of two transmitters that operate simultaneously from lead acid batteries which are charged by wind driven generators. The transmissions are triggered off by a very accurate clock which puts the transmitters on the air every six hours. The transmissions consist of a call sign "VNX" sent about 14 times, break sign, two letters for barometer, break sign, two letters for thermometer, break sign, one letter for wind speed, one letter for wind direction, break sign. This weather data is repeated three times before the transmission closes. The frequencies of the transmissions are 7315 Kc. and 15845 Kc. Each transmitter has a power output of about 40 watts which is fed into dipoles. The transmissions will be intercepted by Macquarie Island and Davis and then be forwarded to Australia. They are expected to be in operation by the end of January.

A new 1kw. transmitter is being taken to Mawson to supplement the AT20s already there. Tape perforating and transmitting equipment is also to be installed to assist in handling the increasing traffic load. To be erected is a 100 ft. radio tower which is to be a vertical radiator for the m.f. homing beacon. An earth mat for this antenna has also to be laid.

Individual Ham activity at Mawson may have to be curtailed due to the large number of Hams in this year's party and a roster sharing the limited time seems to be the only solution. The main transmitters are in operation for approx. 15 hours daily, which is another factor likely to make inroads into Ham activity. It would appear that the greatest individual Ham activity will therefore come from Davis, where the commitments are less.

Bill Storer, VK2EG, Lot 11, Prince Charles Street, French's Forest, Sydney, N.S.W., has offered to handle the cards for the whole Antarctic bunch this year. His offer, I understand, has been accepted. It certainly has the approbation of the Federal QSL Manager.

Bill, VK2EG, now has the log of VK1GA. Cards are being printed in W land and are expected soon. Bill will then get to work and clean up all outstanding VK1GA QSLs. You deserve to "make" the Honour List, Bill.

Writer has 1956 and 1957 issues of "CQ" practically complete. They are hogging too much space in a small shack, so first in with the postage, cartage or what have you gets them.

Received a visit from Bill Ryan, EI8BC, currently radio officer on "Australind" and signing EI8BC/MM from that vessel when off

duty. Bill has a yen for VK and ZL. Likes our climate, scenery, customs, and way of life and may settle for ZL as a permanent abode later on. He hopes at conclusion of current voyage to get a few trips on one of the Star liners.

Ray Jones, VK3RJ, Manager.

NEW SOUTH WALES

The monthly meeting of the New South Wales Division was held at Science House, Gloucester Street, on Friday, 20th December. As is the practice for our Xmas meeting, a film night was held. A very excellent programme was presented by Mr. Haywood, of the P.M.G.'s. Department, who showed a number of films from their library, included in the programme was "The Overland Telegraph Line", "The Channel Country", "The Olympic Games" together with a comedy "Hurry Harry". These films dealt with the technical as well as the general interest aspect of their subject and provided an excellent evening's entertainment for the members present.

Following the films, Mr. J. Reed, 2JR, gave a lecturette on "Sputnik", illustrating by means of charts and maps, the orbit of the satellite around the earth and many other interesting points relating to transmission of signals from "Sputnik".

Votes of thanks to Mr. Haywood and Mr. Reed were moved by Messrs. Godsall and Cummins.

During the business portion of the meeting, the Chairman reported that the 25 kva. emergency power plant had been despatched to Sydney for installation at 2WI Dural and the log book showed that it had been used 150 hours running. There were also a number of the latest text books on display which had been procured for the Divisional library. These will be held at 2WI Dural until after the Hamfest when they will be available to members through the usual library service.

The meeting was closed at 10.15 p.m. to allow coffee to be served and members to have a final "natter" for 1957.

W.I.C.E.N.—At the invitation of Bill 2HZ a meeting was held at his home in Springwood on 6th December to discuss the formation of W.I.C.E.N. in the Blue Mountain areas. Those present were 2MZ, 2NK, 2ABK, 2QA, 2EV, Divisional W.I.C.E.N. Officer (2ARG) and Divisional President (2APQ).

Following the disastrous fires, the necessity for emergency mobile and portable radio equipment has been made more evident.

Discussion on the type of equipment most suitable and frequencies to be used brought

forward many ideas and it was decided to use the 5 mx band for local point to point operation. Further work in organising this network will be continued in January. All Amateurs in the Blue Mountains area are invited to contact Bill 2HZ.

During the latter part of December members of the Griffith Radio Club were called upon to provide communication links during the bush fires in that section of the State. Members with mobile equipment operated right up to the fire front and greatly assisted the authorities in maintaining communications between parties building fire breaks and with neighbouring towns.

Further progress has been made during December with the v.h.f. links to 2WI at Dural. A 5 mx link from Gosford to Palm Beach and relayed on 2 mx to 2WI Dural was very successful and allowed the members of the Central Coast section of the Division to participate in the Sunday morning broadcast.

The v.h.f. news has also been given over a 2 mx link from 2PM's QTH at Castlecrag. A relay from 2ASA at Wyong (a distance of 40 miles from 2WI at Dural) gave some indication of the possibilities such links have in times of emergency.

Preparations are in hand for the Urunga Convention to be held on the Easter week-end. For those who have not consulted the calendar this is the first week-end in April. Arrangements for the Convention are being handled by Noel 2AHH.

Members are reminded that their annual subscriptions are due on 1st March. Payment by cheque or money order will greatly assist the Treasurer.

VICTORIA

Well, another Christmas has come and gone and is nearly as far away again as ever.

Now that the New Year is well on its way, it is hoped that the usual resolutions have now been made and that they really bear fruit in the way you have planned. Although resolutions are much easier made than done, there is not much achieved without them, so let's pull up the socks, grit the teeth and get cracking. Even a resolve to keep the shack tidier this year is something. Anyway, I hope to do better next year.

No doubt most of you were listening to the Sunday morning broadcast on 22nd December and heard our President, Fred 3YS, give his Christmas broadcast to the Division. If not, then you will be interested to hear that Fred sent seasonal greetings to all city and country members and thanked all who have served the Division in any way whatsoever throughout the year. He especially thanked Jay Lancaster, our very active Secretary, and David Wardlaw, our Federal Councillor, who have given sterling service during 1957. Special thanks were also given to the South Western Zone for their very successful role as hosts to the State Convention, which was held at Colac on this occasion.

Thanks are also due to our worthy President for his guiding influence as the success of the last year's activities of the Division has been due in no small measure to his efforts. Our Institute doesn't run itself but

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Victorian Division

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must be nurtured along by such as Fred, and we are grateful for the time and energy he has expended on our behalf, for believe you me, it has been quite considerable. Through the efforts of our President and his office-bearers the Division is in a very strong position today, and this is some recompense no doubt for the work that has been done in the past. However, much has still to be achieved and the greatest reward we can give any of our office-bearers is active participation in all the activities, either business or social, which they arrange for our benefit. This is very important, for unity is strength and we cannot afford to become lethargic with so much at stake—our hobby. A moment's thought will prove the truth of this statement and every year the going gets tougher, so lend your support.

In addition to the serious side which we must not neglect there are other interests to suit the taste of all such as lectures at our monthly meetings, conventions, contests, tx hunts, field days, visits to places of interest and listeners' group activities to mention just a few, so choose your poison and decide to take an active part this year in your particular field of interest. Don't wait for someone to take your hand and ask you to come along because Ham Radio doesn't function that way. This is our hobby and we the members, are the Institute which safeguards it as such. If we don't look after our interests then it won't be long before the bands which we use to practice our hobby are fished from us. Active use of the bands and a strong Institute are the only means we have of justifying our use of the bands so don't leave it to the other fellow to look after our interests. Take a hand yourself.

The Magazine is another avenue for participation in Institute activities, so when you have something of general interest to communicate in the way of technical articles or the like, put pen to paper and let it be known. Your various scribes and technical people can't ferret out all the doings and news on their own and assistance in this way is always appreciated and very necessary.

It has been decided to have a "Discussion Night" in place of the usual lecture at the first meeting for the year on Wednesday, 5th February, so bring along the subjects most dear to your heart and give them an airing. Please take note that the rooms will be closed from 27th January to the 14th February inclusive, while Mrs. May takes her annual holidays.

EASTERN ZONE

Hoping everybody enjoyed the Christmas break, and had an enjoyable day at the National Field Day which was held over the long week-end, 28th January. Don't forget to come along to the Eastern Zone Convention to be held in March at Sale.

Most activity in the zone is on two metres. Some good openings, when Ian SAAV and George SZCG worked SZAG and SCH in Mount Gambler, and Peter SZDP worked Eric SANQ in Warrnambool. Stewart SZDD at Pakenham East (who is a 24-hour man) and Ron SZD worked a station in Launceston.

No news has been forthcoming from the rest of the zone as no local chaps have low frequency gear in operation at the moment. There also seems to be an increasing interest in six mx throughout the zone.

NORTH EASTERN ZONE

The North Eastern Zone Convention, held at Nalinga on 15th December, was quite a successful occasion with sixteen members and possible members being accounted for in SZU, SAXW, SALE, SPF, SAQG, SAHO, SZAK, SAGG, SFC, SDW and SKR as well as Associates and B.C.I.'s in Jan van Kirkwick, Jim Harrington, Howard McDonald, David Lawrence and Russell Rolls.

We will try holding the zone hook-ups on alternate Sundays and Mondays on 30 mx, the frequency will be about 3580 Kc. at 7.30 p.m. every second Monday evening and on the alternate Sunday mornings at 11 a.m. on a spot about 7100 Kc. The first station on the air is to pick a clear spot and call on 40 mx. It was interesting to hear that Jim Muntz is working hard on the Nathalia R.F.B. radio network. Ian JTS is on deck. It will be remembered that George 3GD was first to hear the Russian Sputnik II when it was launched. Des SCO is keeping busy, as is Murray SHZ and Johnny SACK does not have much spare time now at this time of the year. Alan SUI is well on the way to recovery now and Keith JJC is tied up by his business ventures. Former zone member Doug SJJ sailed with the Antarctic relief party in the Danish ice-breaker Thala Dan early in January for the I.G.Y. operations at Mawson.

Howard SYV is busy in fields of interest other than Amateur Radio, while Henry SHP

is often heard on his R.F.B. radio network and Hugh SAHF is about also. An interesting note appeared in the mail from Associate Bert Brown in Yea. It has been learned with some regret that Jim SJK has been rather seriously ill in hospital. The list of apologies at the Convention included SHP, SAUL, 3GD, SASF, SCO and SCI, all of whom we hope to see at our next Convention, to be held we expect at Benalla on the first Sunday in April, or so we expect at the moment.

SOUTH WESTERN ZONE

The zone members have been very active of late and let's hope that it continues. I think quite a lot of inactivity is caused by the green-eyed monster. Bill SXE is on quite regularly, also John SARJ is very consistent on the Thursday night hook-up. Also Thorb SAFP, Nell SHG and from Geelong Bob SIC, but there are still a lot more who could be on. Jim SABL is on regularly. Well chaps, don't forget to book before the 13th February if you intend coming to the Convention which is to be held in Warrnambool on the week-end 22nd and 23rd March. There is £1 deposit required with all bookings and 10/- for the dinner, so don't hesitate to book as the above date cannot be altered.

Anyone who intends bringing a caravan must let the organiser, W. J. Wines, 48 Cromwell St., Warrnambool, know as soon as possible; so help us to help you. Whilst taking of Conventions, there will be 144 Mc. hunts, hidden tx hunts and we will be on the air to work mobiles coming to the Convention from 12 midday on 22nd on both 7 and 3.5 Mc. You mobile chaps will therefore be well catered for so come along and bring the family and make a holiday week-end of it. Please note, any ladies who want to go to the pictures on the Saturday night must let the organiser know before 14th March so don't forget. Watch for the full programme in the March issue.

WESTERN ZONE

We welcome new members to the Ham ranks in this zone. They are Reg Dalby, of Horsham (who is an ex-Tasmanian), but now we are pleased to say is a permanent resident of Horsham, and Vic Maddern, of Murtosa, who has been busy during the last couple of years doing a correspondence course. Vic passed the exam. at his first try recently. Both these chaps are now waiting on their call signs.

George Small, of Rainbow, has also recently obtained his Limited. George is working on a SCR522 converting it to the 144 Mc. band and will be using a 8 over 5 beam. He will be carrying out tests with Jim SAOE of Hopetoun and Max SZCW of Ouyen in the near future.

QUEENSLAND

Amateur Radio activities have, for the past month or so, really ground to a stop! There has been a long silence from all quarters, as the boys availed themselves of a well-earned break over the Xmas holidays. From what I heard they probably needed it after a really "smashing" Xmas party at Anzac House! Still we'll give them the benefit of the doubt and expect a rejuvenated gang, with plenty of drive and loads of Ideas, at all our 1958 meetings.

All activities other than the Xmas party have been reported, with the result that there was not enough news to warrant the presentation of a column in the January issue of "A.R." However, although the January Tx Hunt was cancelled, Jim 4FP, our Secretary, reports that there are several matters to be dealt with by Council at its next meeting. So doubtless, boys, you won't have to put up with re-hashed news items.

One of our important functions, the Xmas party, was held at Anzac House and perhaps one of the biggest roll-ups we have had for many a long day. Arthur 4AW once again very ably organised the show and is to be congratulated on the fine job he did. The boys, having had all year to look forward to the party, certainly did justice to the well prepared supper. As usual, there was more than enough (although I believe that many won't agree with me) of all things good to eat and drink.

Members from Dalby, Maryborough, Gympie, etc., were really keen. It certainly is a long way for the country boys to come, but as one member put it, "It's good to see all the Hams enjoying themselves—just like one big happy family." In all, 42 members and friends attended, which was, considering the usual absenteeism associated with Xmas holidays, a fine effort on the part of all those who attended—with a special mention for the country boys. Anybody who is willing to travel the long distances that separate town

and country can be assured of a really good time at all the W.I.A. functions because the boys on the spot do realise and appreciate the personal sacrifices that have to be made. However, all said and done, a really excellent evening was had by all.

The only bit of news, regarding disposals, concerns ten surplus bugs. These will go to ballot in the usual manner. I was informed, however, that two of the keys are left-handers! One particular gentleman (himself a left-handed creature) proposed that a special ballot for these two bugs be conducted among left-handed Hams. There must be a catch somewhere.

Brother Bond is still enjoying "well-earned" holidays at Tewantin, with frequent daily visits to the "Royal Mall". Enjoy yourself, Frank, it's later than you think.

Mr. Lloyd McGarry, who for some considerable time has been a Radio Inspector in Brisbane, was recently transferred to Townsville as District Radio Inspector. I'm sure the boys up there will find in him a man who, although he knows the regulations backwards, applies them with common sense and understanding.

As usual the general meetings will be held on the fourth Friday evening of each month. Hidden tx hunts will begin with Mick 4ZAA hiding the tx for the first time in 1958 on the first Friday evening in February at 8 p.m. The hunt will start from 65 Liverpool Road, Clayfield.

TOWNSVILLE

Since penning the last notes I have covered quite a few miles by automobile during my holidays. As promised, I paid a visit to Rockhampton and met the following: Hal 4DC, who kept his eyes very closely on me as I prowled around his beautiful cubicle quad which looked very nice, especially the simple supporting structure. Bob 4NG was next on the list and he introduced me to Lance 4ZAZ, of Mt. Morgan, the only signal on the band, via 59 Mc. hook-up. Bob is now getting deep into the mire of radio controlled aeroplanes. Eric 4EC failed to answer the telephone and missed out. Tom 4ZL was next on the list and proved to be the most accommodating chap of the lot as I walked away with a Kingsley R9er and 50 Mc. converter. Was unable to see any of the other boys as my visit was really to look up the old mining town of Mt. Chalmers of my childhood days.

On the return journey a visit was paid to Harry 4KW at Mackay, an old acquaintance who took me to see John 4PH and his 3 el. beam. Then on to Home Hill where Norm 4ND was looked up at his place of business and I made myself known in person in lieu of voice in the 7 Mc. hook-up. Arrived back in Townsville just in time to be present at the send off to Alec Munro, our local Radio Inspector, to Hobart.

Quite a nice gathering of the local radio club members was present, and the evening went off very nicely. Farewell speeches were made to Alec by all members present and we wished him God Speed and Good Luck in VK7 land. He promised to come on the air occasionally. The President, 4RW, then presented Alec with a pipe as a token of the esteem in which he is held by all in the north. Alec suitably responded and regretted his departure, but promotion can only come by transfers. According to the weather reports he feels he is going from the frying pan into the frigidale. He then asked all the boys to give the same co-operation he has had from them to the new Radio Inspector, L. McGarry, who arrived that day and was also present. Lance was warmly welcomed by the President and others in short speeches. He then suitably responded, mentioned he was glad to see the esteem in which Alec was held by all and would follow his path. He would at all times be glad to give his co-operation and advice when needed.

The following week found me on the highways again. This time travelling north. First port of call was Innisfail where Bob 4TK had a sked made for me with the gang to work out my route and stations to visit. This was duly held. Thence by the Palmerston Highway to Ravenshoe and the Tully Falls. Camp was made at Atherton where Bert 4BP did the honors and got me into hot water with the XY for stopping out late.

Next was visit to Malanda to see Claude 4UX and his string antenna, where I heard the best of the year. Claude claims he has worked 180 countries and never called CQ DX. On to Tinaroo to see the new dam. Unfortunately I did not see Miss Australia (Helen Wood). Next on the list was Mareeba to see Andy 4BW, where we stayed the night and had a real good chinwag on the radio. Missed Alec 4MA from Mount Garnett who pulled in one hour after I left for Cairns.

After travelling up as far as Daintree the car was headed back home with a stay in Cairns for the week-end where once again

I missed Alec 4MA at Basil 4ZW's place. Will meet you yet, Alec. Third time lucky, I hope. Visits were paid to Ken 4XD and a few pieces of gear swiped. Next on the list was Bill 4XM, who has boxes and boxes of disposal gear. He promised to itemise some and forward a list, with small prices, for the gang. Home again for Xmas and a good roll up on 7 Mc. passing the season's good wishes. Next week-end takes me back to Bowen and Mackay where Harry 4ZP from Sarina promises to come to see me. Such is fame?

While I am away Bob 4MF has put up a new G4ZU beam and it seems to be working nicely. Bill O'Donnell is patiently awaiting his Z call sign. Two or three chaps face the barrier on 14th Jan. and we wish you all success. If you miss out remember Robt. Bruce and the spider. Try again.

MARYBOROUGH

4DJ came back from a visit to Sydney with so much gear that the car couldn't hold it, and had to have the rest of it railed. Graham has his 15 and 10 metre quads tuned up now and has worked many new countries. Is building a new final with an 813, and a mobile rig for the Field Day. 4CB still active on 10 and getting through to Europe most nights. Contemplating a three-band beam.

4BG has been on 10 with a borrowed receiver and now building a 3-tube converter. Ron is pleased with the results from his 4 el. tri-band beam, comparing well with separate beams at other stations. The new 15 metre converter at 4AI is working well, and Alan should be on soon.

SOUTH AUSTRALIA

Our Christmas meeting got away to a really good start with formal business being concluded in record time, which included confirmation of three new full members: W. F. Cooper, K. G. Yates and R. L. Dyer, and 14 new associates. Welcome to the Division to you all, we know you will enjoy being a member and derive benefits therefrom.

One of the benefits was, or could have been the "Christmas Do". The opening item being coloured pictures by Gordon 5XU and Brian 5CA of their memorable trip overland to Ayres Rock and back. Gordon gave us the geography and all (most anyway) of the technical details involved, whilst Brian in his usual style made a good commentary on the slides as shown. Most of the 100 members present really enjoyed the travel experiences so told and displayed and were sorry to see it end.

End, it had to do, of course, because by that time Chef Doc 5MD and his merry band, not forgetting steward Jim Paris, had the billy boiling and the ante-room just bursting with cakes, buns, biscuits, pasties, pies, sausage rolls and sandwiches, so something had to be done about it.

QSL distribution was made whilst this sumptuous repast was laid on a long table (about two wavelengths long) right down the hall. Oh yes, a snow white table cloth of equal length (plus some end effect) covered said table, and it is to be noted here that one Les 5AX cleared a gap amongst a lot of cakes and drew a circuit diagram of his preselector on said cloth. Just shows the habit of a lifetime will out.

In spite of healthy appetites there was a large quantity of items left over which as usual was distributed to charity, so if any of you brought too much along you have the satisfaction of knowing some needy person shared the surplus.

It was fairly late before the party broke up, for the v.h.f. boys had to have their meeting kerbside as usual and were not a bit dismayed by a late start.

A good social matter was appreciated by all and all voted it another good show.

February 28 will see the end of financial year at which time existing officers and Council will be up for re-election or not, according to the members' desires. If you have anyone who you would like to see on Council now is the time to speak up, get that nomination in right away for new blood and new ideas are the life blood of our show, so don't be backward. Any intending member of Council will find it an interesting experience and well worth while.

Last Council meeting we had the pleasure of a visit from Geo. 5EC who by virtue of the work he does at Ceduna was able to give quite a few pointers on emergency communication work, for which we were grateful. Thanks George.

The resignation of Ian 5IQ from the T.v.i. Committee was accepted with regret, for he had done a power of work on that Committee, anyway it was seen Ian could not carry on under the circumstances, but has made himself available for consultation whenever needed.

So VK6 did it again, congrats chaps, we ran second! Look out next year, for it would be nice to see the R.D. Trophy again.

There always has to be a first in things; this time it's Reg 5RR who came on the air on 40 mx with d.s.b., not a bad effort at that either, and if nothing else demonstrated that he put in a louder signal at my QTH on d.a.b. than a.m. Have not heard him since that first experience, but it was f.b. and we hope to hear more of him and others who may try the same ideas.

I know you would not expect Gordon 5XU to use this expression, but one Sunday recently on the broadcast he claimed the bands were sea-sawing like a swing. (8 banders, please).

Keith 5KH heard recently inviting all and sundry to visit him and share some 50 watt bottles, look out Keith the post Christmas weather encourages such sharing. Nobby 5WK now using 40 mx so look out for him, forecasting 10 Nobby?—been a bit quiet lately anyway. Les 5AX now has his G4ZU remote controlled and selsyn indicated, nice job too, he might even work a G at that. Carl 8SS last heard of at the 20 ft. level of his new tower.

Joe 1JO complains he has a welder operating near him, in fact so close that his 240v. meter flutters each time an arc is struck, and that he can hear the a.c. hum of the welder transformer in his shack. Gordon 5XU has a somewhat similar bother, but a little further from him, stated to be within brick throwing distance, although not known if so measured.

The death was reported in Adelaide on 21st December of Clem E. Ames, who was the first Secretary of the W.I.A. and naturally was responsible to a large degree in placing the Institute on its feet in the early days. So another pioneer passes to his reward.

We were all saddened by the news of the tragedy meted out to Pete 5FM, so much has been said on this that there is no need to add words to it now, but it is considered that 8WI treated the matter in the broadcast in an outstanding way and expressed all our sympathies at that time.

W.I.C.E.N. has continued to take shape and form up for emergency. Jim 5JK is of course the Chairman of the Executive Committee with John 5JC and Brian 5CA joint co-ordinators. The standby roster for each week's duty will be given over 5WI each Sunday and also published in the "Advertiser" notes each Thursday. Members please watch for this and notify the co-ordinators promptly if your affairs prevent you fulfilling the duty allotted to you. 702 and 3501 are the calling frequencies with 7050 reserved for Federal contacts.

More members are required for W.I.C.E.N., both full and associate, so join up now to aid the work being done and further your experience in operating technique. Certain equipment is available to help you join in if you are not so equipped at present.

Wal 5DF still a busy boy, playing bowls, making 50 cycles and beheading chooks. Dave 5BF heard occasionally on 40 mx, but not over much these days. John 5MG back from camp and again on the job. Joe 5JT changes antennae like most of us change our minds—but always bobs up with a really first-class signal. Laurie 5XN recently complained of sparrows on beams, burning resistors, floor polishers, carpet sweeping, etc., that always happens when he wants to go on the air. Anyway, he was heard recently trying out a new pre-amp with clipper, sounded fine here, particularly on the second attempt.

Burnie and Ron 5WC continue to keep in touch each Sunday. Bob 5RI always a good bet for a QSO on 40 mx these days. Austin 5WO still bowling them over on the DX, although gathered this mainly from those replying to him. Ken 5KC bobs up at the most widely scattered places whilst trying out his mobile gear. Frank 5MZ last heard of over 3LM tx.

TASMANIA

NORTH WESTERN ZONE

Well, I've been caught at last! No, no, not the R.I.I. I happened to be listening on 40 one evening when I heard Myles 7MF and Dennis 7DR in contact, so decided to risk the rebuffs and break in, called madly several times, no reply. Discovered later the tx was on 80 mx. I'd got zero beat too! President Sid 7SF in Melbourne recently, did the rounds on the radio dealers, but couldn't buy very much as he was unable to obtain the £15 from Hon. Treas. for zone purchases. Better luck next time Sid.

This time of the year seems to be popular for recreational leave, Dennis 7DR has been holidaying at Anson's Bay. Didn't hear that portable rig Dennis. Jim 7JO, who has changed his QTH from Latrobe to Devonport,

also enjoying leave. Ted 7EJ had a visitor recently from VK2, Charlie 2ASA, also on leave. Understand Charlie cleaned up the operating position at TEJ, unfortunately not till after Ted had had a visit from the R.I. Ted says he won't be able to find anything now. Secretary Max is still busy studying, and I believe is building a coil winding machine, transformers or r.f., and intends to wind all his power tranny's for the rig. Trust you will be in for the next exam Max.

We have now acquired a second member at Stanley—Reg 7RN has returned to the fold. That was a neat little portable rig Reg. Let's hear you some time. Same for Pat 7PM. Nothing heard of the associates in the zone over the Christmas-New Year break, but I trust that they have now got back into stride and are all studying hard. A little and often is the shot.

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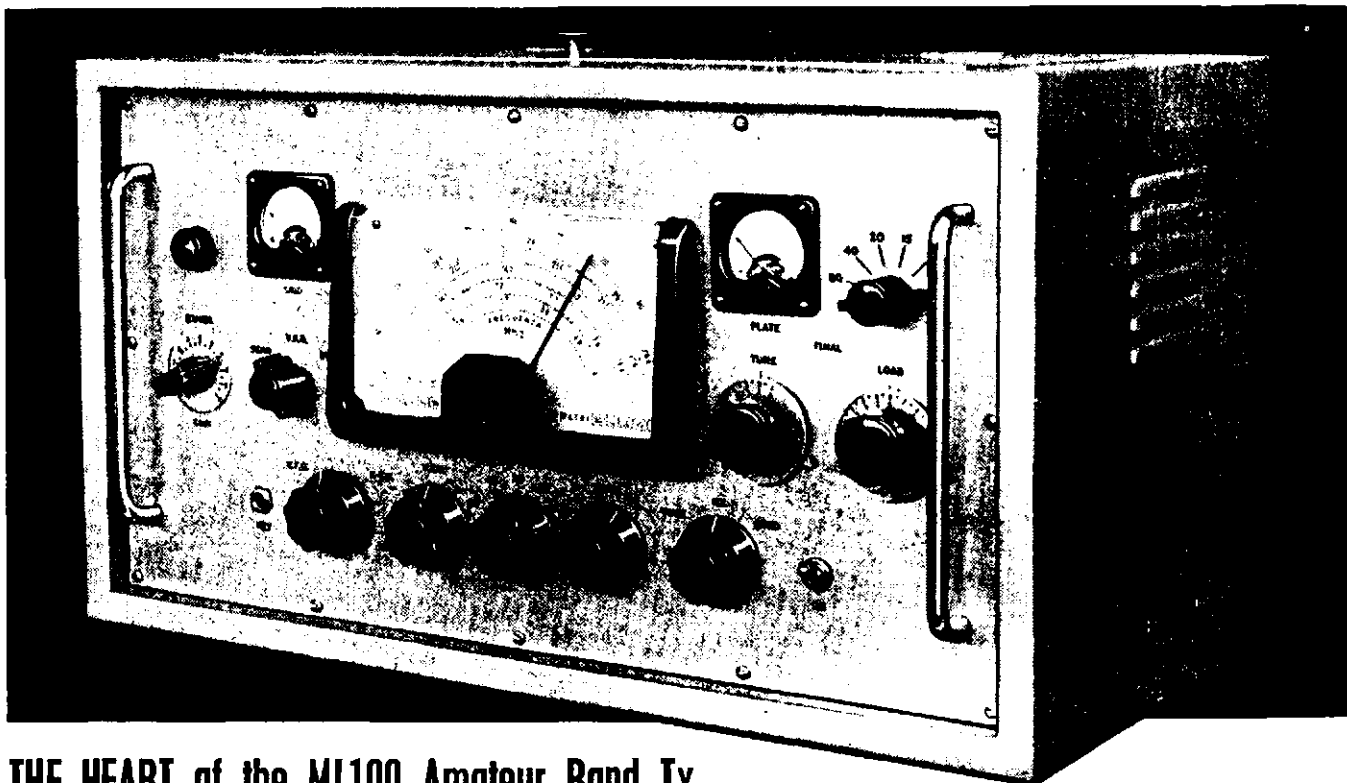
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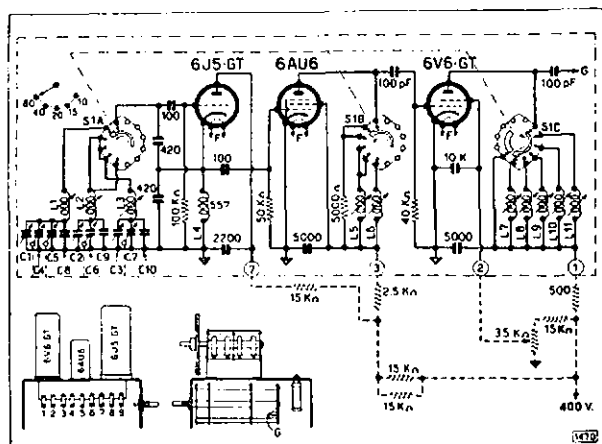
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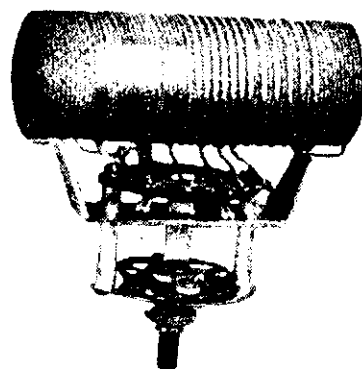
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SCR522 Receivers, less valves £5

SCR522 Transmitters, less valves £5

BC733D Crystal Locked Receiver, tuning range 108-120 Mc. I.F. 6.9 Mc. Valve line-up: three 717As, two 12SG7s, one 12SH7, two 12SR7s, one 12SQ7, one 12A6. Also contains six miniature relays. Packed ready for rail. Gift at £5/17/6

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Gold Plated Marker and Commercial Crystals, price on request. Delivery in seven days.

List of Crystal Frequencies appeared in last month's advert.

No. 19 Genemotors £2/10/0

No. 11 Genemotors, Low Power £2

No. 11 Genemotors, High Power 17/6

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Type "S" Power Supply. 230 volt AC. Good condition. Personal Shoppers only £25

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AMATEUR RADIO

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EDITORIAL



High Power and Component Parts

After the cessation of hostilities at the end of World War II, millions of pounds worth of surplus equipment became available on the disposals market—equipment which in normal times would be beyond the financial means of the average Amateur—and amongst this "gold mine" was equipment and components built to magnificent standards but in many cases well above the ratings required for the construction of Amateur phone and c.w. transmitters with the maximum input permitted to be used by the Australian Amateur.

No one can criticise the man who designs his equipment with a good margin of safety, indeed he is to be congratulated, not only for providing safety, voltage wise and insulation wise for himself, but for others who might come in contact with his equipment also. But the regulations governing the operation of Amateur stations did not provide for the use of such components particularly, which when used together could exceed the licensed maximum input, and the result was that many Amateurs who purchased this equipment were in trouble with Radio Inspectors from the Postmaster-General's Department who regularly inspect Amateur stations in accordance with the Wireless Telegraphy Act in the same way that commercial stations are inspected, and currently television stations also.

The Wireless Institute of Australia made representations on behalf of licensed Amateurs for a clear-cut policy on this matter and agreement was reached with the Wireless Branch of the Postmaster-General's Department that a combination of high power rating components could be used providing the licensed maximum input to the final stage of a transmitter could not be exceeded by other than a major modification to the installation. Despite this, there have been cases where Departmental Inspectors have continued to enforce the earlier regulation to the embarrassment and confusion of the Amateurs concerned. This will now cease! The Handbook for the Guidance of Operators of Amateur Stations is being reprinted and will shortly be available to

Amateurs through the usual Book-sellers or direct from the Postmaster General's Department. Other concessions granted to Australian Amateurs due to W.I.A. representations will be included and it is every Amateur's duty to obtain a copy and keep it handy at his operating position in the "shack".

Concerning the use of high power components, Paragraph 62 of this Handbook reads as follows:—

"Transmitting apparatus installed in an Amateur Station must be operated in such a manner as not to exceed the power authorised. Single components such as valves, transformers, etc., capable of handling power in excess of that licensed are permitted without restriction in Amateur Station transmitters, but where a combination of such components is in use a method satisfactory to the Department must be employed to ensure that the d.c. power input to the anode of the final transmitter stage cannot exceed that authorised. For example, power supply transformer tapplings should be arranged in such a way as to obviate without a major alteration the possibility of an increase of voltage beyond that necessary to supply the licensed power."

Unlike operators of bushfire fighting transmitting equipment, fishing craft and other small ships transmitters, taxi services, etc., the Amateur is a qualified technical person in his own right and is a licensed member of a recognised transmitting service. This service has never let the country down during times of either Civil or National emergency and with its members' "know-how" equipment is designed and constructed in accordance with any regulations or specifications.

Let us keep it this way! Paragraph 62 permits you to construct and operate your equipment to standards previously unobtainable. Don't abuse it! Those who do cannot expect the assistance or sympathy of the W.I.A. Administration. The old "bogey" of the use of high power components is now history. It will be kept that way for the betterment of Amateur Radio. The way it is kept is up to you—the licensed Amateur.

FEDERAL EXECUTIVE.

AMATEUR TELEVISION

PART ONE

BY E. E. CORNELIUS,* VK6EC/T

WITH the commencement of Television in N.S.W. and Victoria, and its extension to the other capital cities in the next year or so, an upsurge of interest in Amateur Television may be expected. A broadcast service means receivers, and a simple converter on the front end of a standard t.v. receiver provides one end of an Amateur circuit. All the commercial components available are designed around our 625 line system. A broadcast service too, can be pressed into service to provide the Amateur's source of synchronising signals.

For these reasons therefore, I suggest that Amateur t.v. in Australia should concentrate on 625 line standards, with both video and sound paralleling the broadcast service. The sound carrier should be 5.5 Mc. above the vision carrier, f.m., with 50 Kc. deviation. Then any commercial receiver, or home-brew either for that matter, can be pressed into service as a high quality monitor, or Amateur receiver.

This series will describe equipment for 625 lines, to Australian standards. The lowest, and therefore easiest band on which we may operate is 288 to 296 Mc. I therefore recommend that we set up a standard t.v. channel within that band—

- i.e. Vision carrier 290.25 Mc.
- Sound carrier 295.75 Mc.

With vestigial sideband transmission, the video does not extend below 289 Mc., leaving one megacycle of the band undisturbed. The transmitter to be described conforms to this plan.

The basic equipment needed can most easily be shown by the block diagram in Fig. 1. Variations of the scheme will be elaborated as each unit is described.

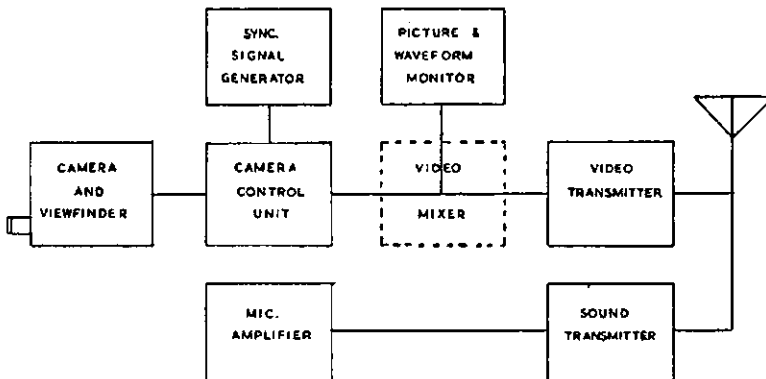


FIG. 1 — BLOCK SCHEMATIC-CAMERA CHAIN

Vidicon type camera tubes are now available at reasonable cost. They are satisfactory for Amateur use. Cost—approximately £A38 landed here.

With this tube, the Amateur can build a simple t.v. transmission chain, or can make elaborate equipment approaching commercial broadcast standards. For a

start, a flying spot scanner will serve to generate signals from transparencies, slides or film negatives. But soon the desire for "real pictures" will develop, and a camera will be projected. The method for obtaining one of these tubes will be outlined in Part Two.

This series of articles will be built around specific circuits, which work well, and can be duplicated if you wish.

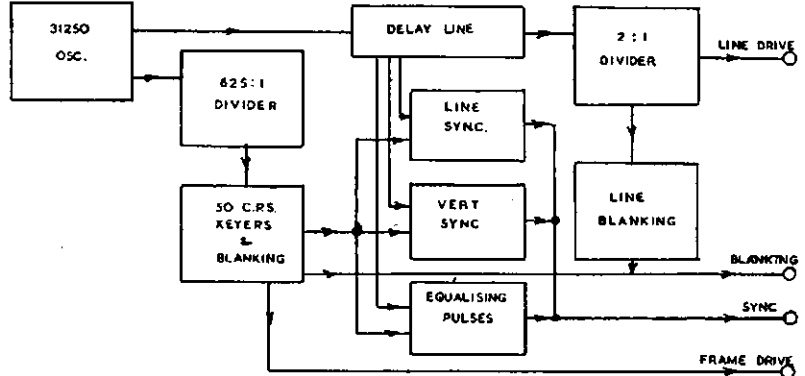


FIG. 2.—SYNC. GEN. BLOCK SCHEMATIC

Some of the data is basic, while some will be subject to your own convenience, pocket and what you have. The results obtained with the equipment to be described are in conformity with Australian commercial standards, with full 5 Mc. video bandwidth. To obtain this the equipment is fairly ambitious, but simplifications will be outlined, but with correspondingly lowered performance.

10 tubes uses 8kv. e.h.t. for a bright picture under any lighting conditions. Full instructions for making all camera magnetic components will be included.

3. **Camera Control Unit**—with 5FP7 pix monitor, and VCR139A waveform monitor. Output 1.4 volts composite video with sync. and blanking, ready for transmission.

4. **Video Mixer** enabling four picture channels to be mixed, and also inserting blanking and sync. With minor additions, this unit may be used in place of the camera control.
5. **Master Monitor** with a 12" picture monitor, using a VCR140, and simultaneous twin waveform monitors at both line and frame rates, using 5BP1s. Pulse cross display facilities are provided, and it can be used as a transmitter monitor, with detector diode and amplifier. Input required is 1.4 volts composite video.
6. **Video Transmitter** on 290.25 Mc., with 10 watts peak white output from a QQE03/12, vestigial sideband filter, and broad band antenna with 10 db. gain.
7. **Regulated Power Supplies**.—These are a must for most units.
8. **Video Oscilloscope**, grating generator, test charts and testing methods.

Before attempting to build a camera, other equipment will be needed, and the total number of tubes required will be considerable. I will describe fairly complex equipment with performance to C.C.I.R. standards, that you can duplicate if you wish. I will also show simplifications, although performance will suffer somewhat.

But you can make good pictures with comparatively simple equipment so do not be alarmed at the complexity of that described, as they have been designed to duplicate all broadcast t.v. functions, and much is not essential, although perhaps desirable.

To duplicate the equipment described is a project for a couple of years of work, but Amateur t.v. lends itself to club or community effort. A group of

The items described will be:—

1. **Synchronising Signal Generator**—with 21 tubes, giving standard outputs of 4 volts peak to peak in 75 ohms, negative going, to C.C.I.R. standards.
2. **Vidicon Camera**—with 5FP7 electronic viewfinder. The camera has 14 tubes, with an output of 1.0 volts p/p black negative. Viewfinder with

* 157 Wood Street, Inglewood, W.A.

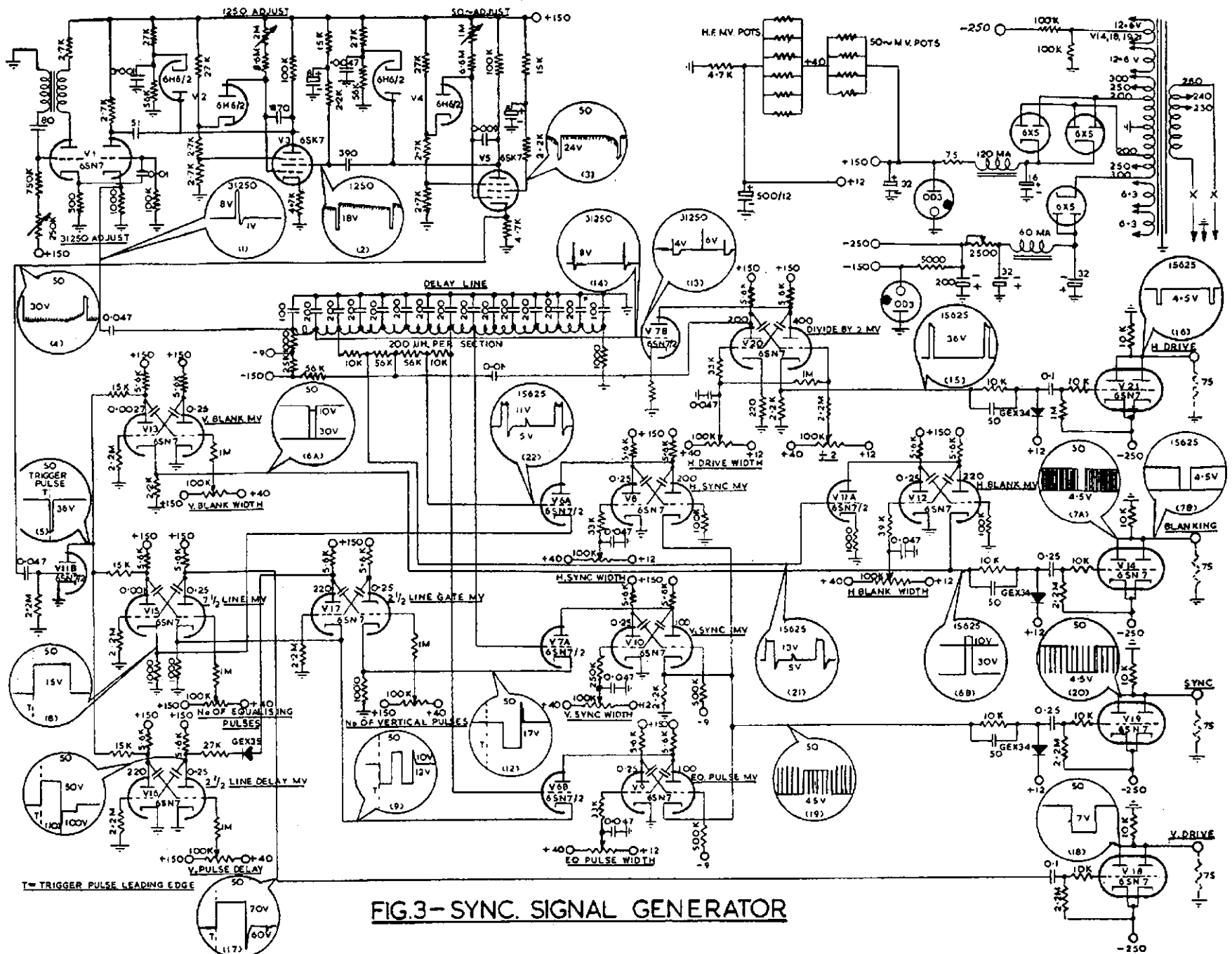
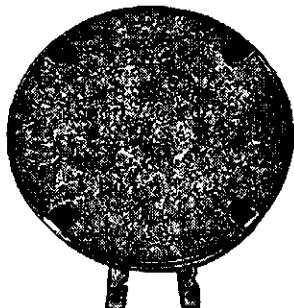


FIG. 3-SYNC. SIGNAL GENERATOR

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 $1\frac{1}{2}$ " diameter (rear), $\frac{3}{8}$ " thickness, 1-13/16" overall diameter (front) with filter fitted.

Frequency Response = 60-6,500 c.p.s.
 Output Level = -45 db (0 db = 1 volt/dyne/cm²)
 Impedance = Model 1XA Grid 1 — 5 megohms.



Approximate Frequency Response Curve

AVAILABLE FROM ALL LEADING TRADE HOUSES

ZEPHYR PRODUCTS PTY. LTD.

58 HIGH STREET, GLEN IRIS, S.E.6, VIC.
 Phone: BL 1300

two, three or more Amateurs can build a system in reasonable time, and share the work and expense. The simpler equipment is well within the capabilities of the average man.

THE SYNCHRONISING SIGNAL GENERATOR

This is the heart of the system, generating accurately timed pulse trains to hold all transmitting equipment in exact synchronism, and provide the transmitted sync. signal for all receivers. See Fig. 2.

There are four outputs:—

1. Line drive, for all line time bases and keyed clamps at the transmitter end, at 15,625 pps. of 5.6 usec. duration, leading sync. by 2.8 usec.
2. Frame drive for all transmitter frame time bases, 50 pps. of $7\frac{1}{2}$ lines duration.
3. Composite blanking for blanking of flyback in all picture tubes except the viewfinder. Line duration 11.6 usec, frame 18 to 22 lines.
4. Composite sync. for transmission with the blanked picture signals for sync. separation in all receivers. To Australian specifications.

It is easy, but not always convenient, to extract composite sync. from a sync. separator operating on a broadcast transmission. A good sync. separator will extract clean sync. signals, and these may be used to synchronise free running time bases in the camera, etc. Alternatively, the sync. can be used to control blocking oscillators or multivibrators which will generate line and frame driving pulses for use by driven time bases. Combining the two pulse trains will give a composite blanking pulse train, but the front porch will require more complex circuitry.

The sync. generator whose circuit is shown in Fig. 3 uses a 6SN7 (V1) as a free running blocking oscillator, and buffer feeding a delay line for timing of the equalising, line sync., line drive, line blanking and field sync. pulses. The buffer also feeds a 625 to 1 frequency divider, V2, 3, 4 and 5, using two phantastron circuits, each dividing by 25. The second phantastron delivers 50 c.p.s. pulses (4), which are used via a buffer (V11B) to trigger the three 50 cycle multivibrators V13, 15 and 16. The waveforms shown on the diagram are numbered, and will be referred to by the number in brackets as (4) above. The frequency of the pulse train is shown at the top of each oscillogram.

Composite Blanking

On receipt of the negative 50 cycle trigger pulse (5) from V11B, V13B is cut off, V13A conducts and a positive pulse (6A) is emitted from the cathode. That is the field blanking pulse, and is adjusted to from 18 to 22 lines duration.

Similarly, V11A receives positive triggers (21) from the delay line at 31,250 pps., with each alternate pulse sitting on a 15,625 pps. pulse from V20, via the resistor network. Only the alternate pulses will overcome the bias of V11A, causing it to conduct, and the negative trigger from its plate, cutting off V12A, causes V12B to conduct, and emit a train of line blanking pulses (6B). Their duration is adjusted to 11.6 usec.

The common cathode connection to V13A feeds composite line and field blanking pulses to the diode clipper

and the output tube V14. This tube is normally cut off, with anode at earth potential, but on conduction at each input pulse, a 4 volts negative pulse train is delivered to a 75 ohm load (7A) (7B).

Composite Sync.

Tube V15 (a) provides field driving pulses to the vertical drive output tube V18.

(b) In co-ordination with V17, the $2\frac{1}{2}$ line gate MV, and V16, the vertical pulse delay MV, keys in 5 pre-equalising pulses, and 5 post-equalising pulses in the composite sync. circuit. This is done via V6B, the equalising pulse gate, which allows the equalising pulse MV (V9) to operate only while its cathode is not positive, i.e., when V15B and V17A are cut off. The sequence is as follows:—

V13B, V15B and V16B are normally conducting, V15B cutting off V6B the equalising gate, and paralysing V9, the equalising MV. The negative trigger pulse from V11B cuts off V15B, allowing V6B to conduct, opening the gate to the 31,250 pps. triggers from the delay line to V9, which then generates equalising pulses.

At the same time V15A conducts, its cathode runs positive (8), cuts off V6A, the sync. gate, and closes down the line sync. MV (V8). Also at this instant, the 50 pps. trigger pulse cuts off V16B, readying it for cycling $2\frac{1}{2}$ lines later. At the end of $2\frac{1}{2}$ lines (5 equalising pulses), V16 cycles, V16B conducts again, its plate going negative, and via the diode, cutting off V17B, allowing V7A to conduct, gating in the vertical sync. pulses, and gating out the equalising pulses via V17A and V6B (9).

After $2\frac{1}{2}$ more lines, the vertical sync. period, V16 restores to normal, gating out the vertical sync. pulses, and gating in equalising pulses again. After a total of $7\frac{1}{2}$ lines, V15 cycles, V15A cuts off, V6A conducts, and the horizontal sync. MV starts up again until the next trigger.

The sequence thus is, horizontal sync. pulses till the trigger, then 5 equalising pulses, 5 vertical sync. pulses, 5 equalising pulses, and then the sync. pulses again. All done by the common cathode connections of the enabling MV's, and the gates, V6A, V6B and V7A. A common cathode connection between the H. sync., V. sync., and equalising multivibrators, goes to the composite sync. output tube (19), clipping in the GEX34, and the output tube grid, with the sync. train available at the anode of V19, at 4 volts p/p. in 75 ohms, negative going (20). No coupling capacitor is needed, as the tube is normally cut off by grid current bias, and the anode at earth potential.

The line sync. MV (V8) gets its triggers, similarly to the blanking MV, but via V6A, at 15,625 pps. (22). The equalising and vertical sync. MV's get their triggers direct from the delay line at 31,250 pps., via V7A and V6B. The pulses are adjusted to correct durations by the corresponding potentiometers in the MV grid circuits.

Line Drive

The line driving pulses at 15,625 pps. should precede blanking and sync., to overcome camera cable delay, so triggers are fed from the first tapping on the delay line (14), via V7B to the

grid of V20A, normally cut off. This MV has constants such that it will not cycle at trigger rate of 31,250 pps., but will do so at 15,625 pps. The potentiometers are adjusted for correct division, to line rate, and for correct driving pulse width, from 4 to 7 usec. (15). This driving pulse train is delivered by output tube V21 (16). The drive pulses are also fed back to the resistor network in the delay line, for addition to the 31,250 pulses, to provide the trigger pulses for the line sync. (22) and line blanking MV's (21).

Frame Drive

An output of the $7\frac{1}{2}$ line MV (17) is used for frame drive, via its output tube V18 (18).

SIMPLIFICATIONS

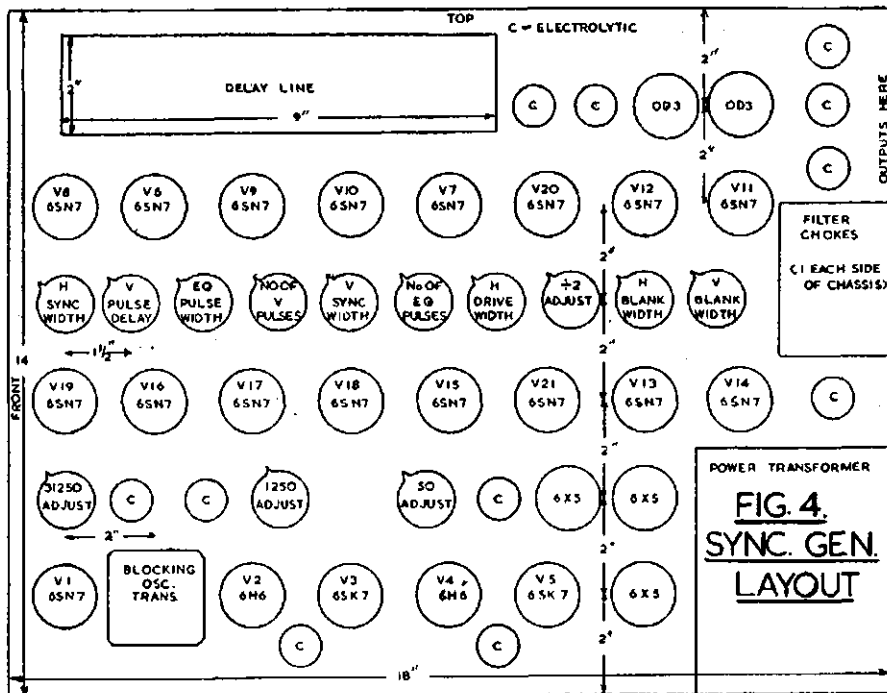
This unit will deliver outputs to C.C.I.R. standards. For Amateur work this is not vital, and the whole of the composite sync. circuit can be omitted. The receiver will then trigger from the blanking pedestals, but with a tendency to picture "tearing" at the top, and erratic interlace due to lack of serrations in the vertical sync. pulse, and equalising pulses.

It will then be necessary to retain V1 to V5, the divider chain, V11, 12, 13 and 14 for blanking (and sync.). V13 can feed V18 for frame drive. The delay line can be omitted, but V20 will be required for 2:1 division. It may be feasible to combine the functions of V20 and V12. V20 will give line drive, as before.

CONSTRUCTIONAL

There are no tricky parts in the construction, although the delay line may be unfamiliar. This consists of 14 identical inductors of 200 μ H. each, in series, $\frac{3}{8}$ " apart, on a $\frac{1}{2}$ " dowel. The tapping points are shunted to earth by 200 pF. capacitors, with each end shunted by 100 pF. The delay per section is \sqrt{LC} (μ F., μ H., usec.) = 0.04 usec. Mine were wave wound, but you could scramble wind in slots in a $\frac{3}{8}$ " former (about 120 turns each). Match these windings, and mount the whole unit in a shielding box. The 200 pF. capacitors should be matched to 2% or better, but the actual value could be anywhere from 180 to 220 pF. For 200 pF. and 200 μ H. the impedance of the line is 1,000 ohms. For other values it is $\sqrt{L \div C}$, and best obtained by experiment after assembly. Feed 31,250 pulses to the line, and bridge a c.r.o. across the input to the line. Fit a carbon potentiometer of 5,000 ohms as termination. Vary this for the cleanest pulse display, measure its value, and fit a fixed resistor of the same value.

The blocking oscillator transformer for the master oscillator can be a line b.o. transformer from a receiver. This may need damping with a resistor across the secondary, to prevent a damped wave train from following the output pulse. As there is a lot of meat in this package, some thought on chassis layout will be well worth while. The pulses have rise times of the order of a few tenths of a microsecond, so will radiate strong harmonics. I suggest that the layout shown in Fig. 4 could be used as a guide. The whole unit can then be housed in a metal case 18" x 14" x 7", with the chassis mounted vertically in the case, tubes and controls on one side, wiring the



the considerable sweep expansion needed to open up the V. sync. area enough for counting the pulses.

The vertical blanking MV is adjusted by superposing some 31,250 or 15,625 pulses from the master oscillator, or appropriate MV, and counting either 36 to 44 pulses for triggered or 50 cycle sweep, or 18 to 22 sync. pulses for 25 cycle sweep. This is because trigger or 50 cycle sweep displays both fields interlaced, and the sync. rate pulses are apparently at 32 usec. intervals.

Critical Components

Generally speaking 10% components will serve, with the following exceptions, which will need to be checked by experiment. The counter chain grid resistors. These will all be off, if substitute tubes are used, and the circuit values shown are right for my 6SK7s. The low value capacitors in the MV's have been selected, and the nearest standard value shown. The 0.25 μ F. capacitors are not critical. The resistors in the voltage divider chain in the delay line may have to be adjusted on test. Use linear potentiometers throughout, otherwise one end of logarithmic types will be cramped. The delay line capacitors must be matched as outlined earlier. The tubes shown have been used because I had them. Any pentode with suppressor not tied internally to cathode will do for the phantastrons. 12AU7s may be used in place of the 6SN7s without alteration. 12AX7s with some attention to the small capacitors in the MV's.

Power Supply

That shown is satisfactory. As the negative supply has to deliver about 250 mA. for the few microseconds that all output tubes are conducting, during the V. sync. period, although average output is only 60 mA., the large 200 μ F. output capacitor in the filter is essential. The glow tube on the 150 volt negative bus is to make sure that no variations find their way into the bias circuits. Glow tube regulation of plus 150v. is quite satisfactory, as the current drain is constant at about 120 mA.

In this Part, I have described the most important unit, and the most difficult. In Part Two I will describe the camera and viewfinder.

other. Removable doors will enable easy access and alignment.

Adjustment

This really needs a good c.r.o., preferably with triggered sweep, but an orthodox unit can be used, with some limitations. First, set the master oscillator to 31,250 pps., by comparison with some known frequency standard. Always take test output from the buffer (1) so as not to disturb the frequency with your test prods. A wavemeter will make an excellent frequency standard—remember the output is rich in harmonics. Or you can use a c.r.o. comparison with an accurate audio oscillator.

To adjust the first phantastron divider, take output from the screen of V3 (2), via a 10,000 ohm resistor, hold this in sync. on the c.r.o., and spread it as wide as possible. Count the small downward pulses from leading edge to leading edge of the 1,250 pps. output pulses. Adjust the 2 meg. pot. in the grid circuit for a count of 25. If any kick back from V5, which is still un-synced upsets the display, open its plate supply till V3 counts correctly.

Now adjust V5 for a count of 25 also in a similar manner (3). Compare the output frequency with the 50 cycle mains. It should be very close, better than a quarter cycle. If not, check back again. Once adjusted, the phantastron is very stable, but the initial adjustment is tricky, although much easier with a triggered sweep c.r.o.

Next to be adjusted is V20, for division by 2, and pulse width. Connect c.r.o. to plate of V20A, via a 10,000 ohm resistor, and adjust for division. Remove 10K resistor, connect to cathode, display two pulses (15), and measure distance from leading edge to leading edge. This is 64 usec. By proportion adjust the pulse width to about 5 usec. Now comes the H. sync. MV (V8). Make sure it is being triggered at 15,625 pps., not 31,250, and

then adjust pulse width to 5 usec. Similarly with V12, the H. blanking MV, adjust to 11.6 usec. If triggering is occurring at 31,250, adjust the bias, about -9 volts, by the 1K, 25K voltage divider at the input of the delay line.

For the vertical sync. MV (V10), allow it to run continuously by removing V17 pro. tem., and adjust the slot width to 5 usec. Similarly with V9, the equalising MV, remove V17 and V15, and adjust pulse width to 2.5 usec.

For adjustment of the 50 cycle MV's a triggered sweep is a great help. Obtain your 50 pps. trigger or sync. pulse from the trigger line (5), plate of V11B. Display the vertical sync. area of the composite sync. (19), and adjust V16 to give 5 pre-equalising pulses, V17 to give 5 vertical sync. blocks, and last, V15 to give 5 post-equalising pulses. Using a standard c.r.o., difficulty may be experienced maintaining sync. with

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Who's Afraid of a Receiver?*

BY BYRON GOODMAN, WIDX

THE sad ungrammatical answer to the above question is "Too many." Ask the Hams of any representative group how many of them ever dig into their receivers for any reason whatsoever, and you're likely to find that most of them are literally scared to death of the mere thought of action. This isn't just an idea we're pulling out of the air; be perfectly honest about it and you will admit we're describing the situation as it is.

Perhaps you're beginning to wonder why anyone should want to touch a receiver. After all, a good receiver should be in top working condition all the time, shouldn't it? Phooey! Why should it? Even the best receivers can stand touching up from time to time. Years ago the author was visiting a W2 friend of his who claimed he had a good location for 7 Mc. DX but it was no good for 14 Mc., and he had the cards to prove it. This we had to see, because it just didn't make sense. Listening around on the two bands did indeed show a marked difference in the way the bands sounded; 40 was "hot" and 20 was dead. The W2 was a sharp one, and even had a small antenna coupler between antenna and receiver.

When asked if he had checked the front-end alignment on 20, our friend replied that the receiver trimmers were sealed and the guarantee would be void if he broke the seal. (You old timers will recognise the receiver.) As we took leave of our friend we went out on a limb and said, "Break the seals, align the front end, and watch 20 come alive." A few days later we got a card from him, admitting he had screwed up his courage, broken the seals and aligned the front end on 20. Our pal concluded by enumerating the several new countries he had worked on 20 (including a couple we could have used nicely!)

One more fr'instance. Less than a year ago a friend built a new preselector which he connected ahead of a current model of a good receiver. Our friend was lavish in his praise of the preselector's performance, claiming that 10 and 15 metre signals practically inaudible on the straight receiver were loud and clear when the preselector was hooked in. We couldn't believe the receiver was that bad, so we asked him to check the front-end alignment on 10 and 15. The subsequent red-faced report was that the preselector didn't do as much good as he thought; the receiver front end had been out of adjustment.

But if you had wanted the story of somebody's life you would have bought a copy of "True Confessions." You want to know about receiver-phobia. We just threw in the examples to show how two Hams, who weren't afraid to tackle their receivers, avoided holding to erroneous conclusions about frequency-sensitive locations and superlative preselectors.

● There is a growing tendency these days to accept a communication receiver as a strange piece of complicated gear with "innards" no one but a man from Mars should touch. WIDX diagnoses this condition as "receiver-phobia" and tells why and how to avoid catching it.

Let's examine the possible causes of receiver-phobia and then talk about cures and the benefits of shaking off the affliction. What's so sacred about a receiver? Why shouldn't any Ham worthy of the name tackle a receiver as readily as he will a transmitter? For one thing, many operators are afraid to touch a receiver because they're afraid they'll spoil the dial calibration. (This is the same dial calibration they grouse about because it isn't accurate to 100 cycles!) Then there is the fear that the receiver will be thrown so far out of alignment that no one would ever be able to put it back. And, last but not least, there is the Ham who throws up his hands on the basis that "the thing is just too darned complicated." We're not talking about making any extensive receiver modifications, so the old it-will-lose-its-resale-value argument doesn't apply.

Let's examine these "reasons" for not touching a receiver. Do you think some high-powered engineer lines up every receiver at the factory? Of course not. It's someone who was taught the job, and chances are he or she knows very little about receiver theory and design. He or she merely follows a set routine, not at all unlike the alignment procedure outlined in most instruction books. Throw the receiver too far out of alignment? You could only do that by changing something very drastically not by twisting a few trimmers. After all, most receivers coming off an assembly line are not close to alignment, except through chance or a complicated system of subassembly testing. Production receivers have to be brought into line by the hired hands mentioned above.

As for the last argument, "complicated" is a relative term. A hand-cranked phonograph is sheer magic to a native of OQ5, but it is only a curiosity to any high-school student who has his room cluttered up with hi-fi gear. Sure, a modern receiver looks complicated to someone with no electronic background, but it uses tubes and components quite similar, except in size and shape, to those used in a transmitter. The wiring diagram is really no more complicated than that of a modern band-switching transmitter; the sad truth is simply that most of these schematics are laid out so poorly that they look ten times more involved than they really are. We don't suggest that the manufacturer does this deliberately to justify some of the current

prices; we suspect that worrying about clarifying the schematic in the instruction book is merely considered an unimportant waste of time. If so, it's too bad, because we might have a more technical breed of Ham if things were made a little easier for him at the start. If the schematics were laid out with fewer long leads running all around the drawing, and each stage were set off just slightly from the others, a tyro would have considerably less trouble following the signal through from antenna to output. And surely some of the switched circuits could be less complicated looking! Granted it takes some planning to organise a schematic so that it is relatively easy to follow, but it would be a big help to newcomer and old timer alike.

THE SOLUTION

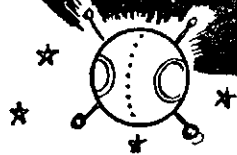
There are two ways you can go about ridding yourself of receiver-phobia. The long, but more satisfying, way is to learn what makes receivers tick. Find out from various texts just what superheterodynes are, the principles behind them, and some of the variations (single and multiple conversion, various detectors). Learn to visualise what is happening in your receiver¹ as you tune across a signal; pay no attention to what the signal is saying, at least while you're analysing receiver operation. Visualise the actions of the controls as you observe the effects, and if you don't know the answers, go back to the texts.

But maybe you have only 60 or 70 more years to live, and you would like a short cut to curing your receiver-phobia. OK, take the plunge. Lift the lid! Don't touch anything yet; just dig into the instruction book and find the section where it talks about alignment. From the diagrams in the book and the lid-up receiver, locate a trimmer adjustment on an i.f. transformer. Check to make sure you have an alignment tool (insulated screwdriver or wrench). If you haven't, go out to a radio store and get one. Turn on the receiver and tune in a signal. Check the location of that i.f. trimmer adjustment against the book just once more, grit your teeth, and turn the adjustment a little! Nothing real serious will happen, except that the signal you had tuned in may get a little weaker (or stronger). You will find that you can peak a signal or drop it down by your adjustment of the i.f. trimmer. This is the same sort of operation you perform when you peak the drive in your transmitter, but this is a receiver and you've taken the big step. (Don't fool with crystal filters unless you know your stuff; they can be tricky). And don't be like one fellow we heard of; his receiver wasn't working too well so he tightened all of the loose screws, most of which were trimmers!

Again referring to the instruction book, read about front-end alignment

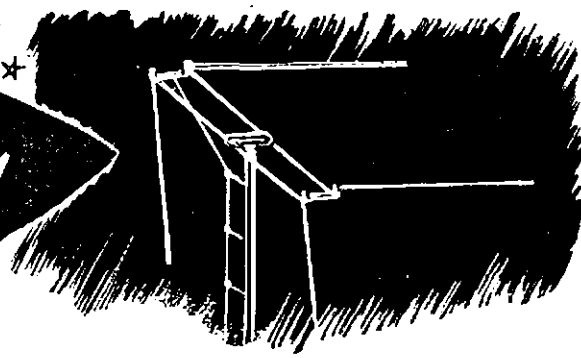
¹ As described in McCoy's "Let's Listen", "QST", March, 1953.

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and repeat the experiment. You will find that trimmers on the r.f. and mixer circuits change the signal strength, while oscillator trimmers change the tuning and, consequently, the dial setting for a given frequency.

CHECKING PERFORMANCE

One point that bothers many Amateurs, and rightly so, is how to determine when their receivers have deteriorated in performance. To some extent the ability to spot such things depends upon how much you want to learn about receivers and what happens inside them, but we can pass along a few simple checks and you can be your own judge as to whether or not you want to do something about them.

Take the matter of hearing the weak ones. This is described by Hams as "sensitivity" or "signal-to-noise ratio," but it means "hearing the weak ones." If your receiver has an antenna trimmer, as most of the current models do, the increase in noise you hear as you swing the trimmer through resonance (with the antenna connected) is a pretty fair measure of how good the front end of the receiver is. If you're in a noisy (electrically) location, the front end doesn't have to be as good as it does in a quiet location, because the local electrical noise is the limiting factor. Suspect the front-end alignment of your receiver if the noise does not peak up with the antenna trimmer the way it did when the receiver was new.

Many owners of two-dial complete-coverage receivers align the front ends of their receivers in the Ham bands as soon as they get their receivers, to insure that the best performance is available where it will do the most good. In most cases this Ham-band alignment will not be the same as that described in the instruction book, but all it involves is touching up the trimmers on the r.f. and mixer coils when the receiver is tuned to the centre of the Ham band for which the band switch is set, with the antenna connected. Refer to the instruction book for the trimmer locations; don't touch the oscillator trimmer unless trimming the mixer pulls the receiver badly off calibration.

If the Ham band falls at the high capacity end of the band-set capacitor, as is true of the 20 metre band on a number of receivers, the trimmer capacitors shouldn't be touched. Instead, pull the r.f. and mixer coils into line by adjustment of the tuning slugs, if there are any. If there aren't any, you will need a "tuning wand" to check alignment at the low frequency end of a range. This is an insulated rod with a brass sleeve at one end and a powdered iron slug at the other. Pushing the brass end in or alongside the coil lowers the inductance, and bringing the iron end near raises the inductance. If bringing either end of the wand near the end of the active r.f. or mixer coil increases the strength of an incoming signal, it indicates that the circuit is not peaked for that frequency. In this case you can change the inductance of the coil by cementing a closed copper loop or a bit of powdered iron slug at an appropriate distance from the coil. Obviously, you don't have to modify

the inductance of the r.f. coil if it has an antenna trimmer across it, and probably the best addition to a receiver without an antenna trimmer would be such a trimmer. And, of course, trimming the inductance at the low frequency end will require resetting the trimmer at the high frequency end.

Checking frequency calibration is something every Ham should know, and it shouldn't be necessary to point out that a 100 Kc. crystal oscillator is a Ham's best friend for this little task. You can bring a receiver into fair calibration on one of its ranges by bending plates on the oscillator tuning capacitor, but it's a job only for a guy with patience and confidence.

We've already mentioned i.f. alignment; you just peak the trimmers of the i.f. transformers for maximum signal. If the receiver has a crystal filter and you use the filter a lot, be sure that your test signal has been properly centered in the crystal filter before you touch up the i.f. trimmers. Do this by switching the filter in, the a.v.c. on and the b.f.o. off, and tuning slowly across a steady signal (a harmonic from your 100 Kc. calibrator makes a good one) for maximum S meter reading. If the receiver drifts or if the crystal filter is very sharp, it pays to "rock" the tuning a little while you touch up an i.f. trimmer. This merely means tuning back and forth through the peak to be sure that you are not slowly drifting off the peak.

If your receiver has no S meter, and you don't have a voltmeter that can be hung across the a.v.c. line temporarily to act as one, your only recourse is to turn on the b.f.o. and peak the i.f. trimmers by ear. Here again the "rocking" technique is suggested, to eliminate minor drifts of the oscillators.

RECEIVER FAULTS

We won't attempt to kid you into believing that brand new receivers do not have shortcomings, because some of them do. One has no right to expect an inexpensive receiver to do everything the expensive ones will. The inexpensive receivers have corners cut right and left, in an effort to bring the price down, but some of these omissions can be corrected by the owners. One fault you will sometimes find in the low-priced receivers is a change in frequency with a change in gain-control setting. This doesn't (or shouldn't) happen in a good receiver. Usually all it takes to correct it is to regulate the anode voltage on the high frequency oscillator and the screen voltage of the mixer (they're usually the same tube element unless a separate oscillator tube is used). On occasions, the b.f.o. may also require voltage stabilisation. If you have a receiver that has this characteristic of frequency change with change in gain, all it may need is the addition of a VR tube and dropping resistor of the right values. Check the receiver voltage chart for the proper value. If, for example, the required voltage is 85, you can get it from a

VR105 and a suitable dropping resistor. If the receiver already has a VR tube and still exhibits the trouble, make sure that (1) the VR tube is lit, and (2) the mixer screen voltage is regulated. (It isn't in all receivers.)

If the receiver seems to drift too much, you can try the dodge of propping up the lid, as pointed out in an earlier article.² Don't get any big ideas about putting in a compensating capacitor across the high frequency oscillator, unless you want to run a long series of tests. The trouble with temperature compensation is that you have to find a spot in the set where the temperature varies in the same way that the frequency does. Since the temperature drift may be caused by thermal changes in several components, you can see how tough your chances are of finding the magic spot. Shoot for reducing the temperature rise; your hair will stay dark longer.

HMMMM—HUM

Some of the inexpensive receivers have a little too much hum in the audio. This might be lack of filter in the power supply, so the first and most logical thing to try is another 20 μ F. across the power supply. However, usually life isn't that simple, and the next thing to try is to find out if the hum comes from ahead of the audio volume control. If the hum increases with the setting of this control, the hum is coming from somewhere ahead of the control, and this can mean that either the lead from the detector or the detector itself is the culprit. Shielded leads to and from the volume control may be the answer to the problem; at least they're worth a try. If the hum comes in from beyond the volume control, as indicated by no change in hum level with the volume setting, using smaller coupling capacitors between stages will reduce the low frequency response and, consequently, the hum level.

If you're a c.w. man and find that you hear no T9 signals on 21 and 28 Mc., but you do on the lower bands, you have frequency modulation of the high frequency oscillator. This is tough to cure sometimes, but just changing the oscillator tube may help. If the oscillator circuit is one with the cathode tapped "up" on a coil, adding a small low resistance r.f. choke to the ungrounded heater lead may reduce the hum. Don't overlook the possibility of the rough note coming from a humming transformer that vibrates the chassis and modulates the oscillator frequency; the cure here is to tighten the screws that hold the transformer together.

CONCLUSION

A dozen articles might not cover all of the facets of receiver design, test and maintenance, and we claim nothing more than a start for this one. But it will have served its purpose well if a few sufferers of receiverphobia have been started on the road to recovery through the assurance that they have nothing to fear from the receiver itself; the only enemy is one's own ignorance and languor.

² Goodman, "Getting the Most Out of Your Receiver", "QST", January, 1954, and reprinted in "A.R." June, 1954.

CORRESPONDENCE

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publishers.

DX COUNTRIES' LIST

Editor "A.R." Dear Sir,

The more I think about this "country" business, the sillier it seems. Of course Hams are recognised as being a little that way to start with, but these different lists of countries for DXCC purposes make things more difficult.

The W.I.A. has its own DXCC but, as far as can be seen, this follows no apparent pattern. One would think that Australia, being a member of the British Commonwealth, would naturally follow the R.S.G.B., but no—the R.S.G.B. countries' list is not a post-war affair. If you worked a fellow back in 1921 you can still get credit for him in the R.S.G.B., but not in the W.I.A.

Seeing then that it is a strictly post-war affair you might think that it would follow the A.R.R.L.—you're wrong again brother. It does not do that either—for instance the A.R.R.L. count the British Phoenix Islands and Canton Island as two separate countries, the W.I.A. says they are not. The A.R.R.L. recognises Aland Islands as a separate country and so does "CQ", but the W.I.A. will not recognise this one, and so on.

The position is further complicated by "CQ" magazine having its own list and discrepancies creep in there also. As A.R.R.L. and "CQ" are both in U.S.A. you would think that perhaps they could achieve uniformity, but again No.

For instance "CQ" recognises the British Virgin Islands as a separate country, but the A.R.R.L. says that this is part of the Leeward Islands, and there are other similar instances.

Why can't we get some uniformity, and if we can't get that, why can't the W.I.A. announce a policy of its own and stick to it—saying that the W.I.A. will compile its own list of countries, then maybe the others would follow and we would get a uniform list.

Let's have a look at the various lists and see how silly it all is.

I can think of nothing sillier than the position in Great Britain where you can get credit for G, GM, GW, GI, GD and GC all in the one island group, under the one Government and using the same series of postage stamps. Here is credit for six different countries. Yet you take the position of Belgian Congo (OQ5), and Ruanda Urundi (OQ0)—separate stamp issuing countries. The A.R.R.L. and the W.I.A. say they are the same place. "CQ" recognises them as different. You will find them as separate in the Atlas.

If Great Britain is to be divided up into six, why can't we divide Italy into three? We already have Italy and Sardinia (I and IS), but although "CQ" recognises Sicily (IT) as separate for country purposes, the A.R.R.L. and the W.I.A. do not. To my mind it is just the same as Great Britain.

There is a dependency of Mauritius called Rodrigues Is. which is a tiny spot some miles away from Mauritius. It has now received country status from the A.R.R.L.—yet Fanning Island and

Christmas Island (VR3), which are just as far apart, are held together as one country. If they split the Caroline Islands into Western and Eastern Carolines, why not this? The same applies to Madagascar and some of the French islands separated from the main island by only a few hundred miles. Because an active Ham is there, it's called a separate country.

No doubt you have heard of Finland and Finnish Karelia (OH and UN). Karelia was the slice of Finland which Russia took. It is now recognised by all as a separate country. Let's have a look at post-war Germany—is not Western Germany and East Germany in the same position? The Russians took East Germany. It has a separate Government, issues its own stamps and is cut off from Western Germany by the so called "Iron Curtain". I therefore suggest that DL and DM should be recognised as separate countries.

There is also the question of the Falkland Island Dependencies and the operation therein of Argentine and Chilean Hams. A.R.R.L. and "CQ" recognise a contact with one of these stations as credit for that particular country. The W.I.A. will not, taking the attitude that these stations are improperly operating on British territory and are not therefore properly licensed inasmuch as they were not licensed by the Falklands authorities.

However, I understand that in the International Geophysical Year, foreign countries have permission to operate observation stations in the territories of other powers. Can it be that contacts with "LU" and "CE" stations operating in the Falkland Islands Dependencies during the I.G.Y. will therefore be recognised???

If Arabia is divided up into Aden proper, the Sultanate, Qatar, and Trucial Oman, and Great Britain is divided into its six separate countries, let's have a crack at the assorted States which make up the Federation of Malaya. Each has its own Sultan and each issues its own postage stamps. Their claims to be considered separate countries are stronger than Scotland and Wales.

Then there is East and West Pakistan—separated by India—surely this is analogous to the Eastern and Western Carolines.

What about New Guinea and New Britain being separated—they are just as much separate countries as England and Wales are—perhaps more so.

If the islands around Madagascar can achieve country status, why can't the islands around Papua New Guinea receive the same treatment?

Perhaps the Americans might grumble if we counted the Aleutian Islands as separate from Alaska—but look at them on the map—they run right up to the Asian mainland—yet the one next to Asia counts as Alaska and North America.

Antarctica is another continent which merits some division—many countries claim portion of it as their own territory. Why can't credit be given for contact with stations which operate in that particular territory? The claims of those countries to the territory they say is theirs, seem to have been recognised internationally so why can't the countries list people bring themselves up to date?

I know that the present Manager of the DXCC, and his predecessor, are both well known DX operators, but apparently the compilation of the list is not left in the hands of one man only.

Can readers please be informed just who does run the W.I.A. DXCC Countries List and what experience (if any) have the people concerned in such matters as Geography, World Affairs, and DX operating???

There are so many other examples that if I were to quote them all I'd never get this published. However, can something be done about it please?

—Alan G. Brown, VK3CX.

[Federal Executive of the W.I.A. were asked to comment on the above letter. Herewith is their reply.—Ed.]

FEDERAL EXECUTIVE'S COMMENTS

Federal Executive has long been aware of the inconsistencies mentioned in this letter. As a result, late last year, the following motion was submitted for consideration by members of the International Amateur Radio Union.

The motion moved by the Wireless Institute of Australia is—

"That an official I.A.R.U. DX Countries' List be prepared by a committee consisting of a representative from Region 1 (American Radio Relay League), Region 2 (Radio Society of Great Britain) and Region 3 (Wireless Institute of Australia), and all additions and deletions be made only by a unanimous decision of the three region representatives."

Results of the voting on this motion will appear later this year.

—Federal Executive.

OBLIQUE STROKE F.O.C.

Editor "A.R.", Dear Sir,

Reference Oblique Stroke F.O.C. in Feb. issue "A.R." On reading this conglomeration of garbage, my first reaction was to ignore it and treat it with the contempt it deserves, but for the benefit of all concerned I shall endeavour to enlighten readers as to why the "F.O.C." functions.

F.O.C. stands for "First Class Operators' Club." Some of the rules are as follows: "Its aim will be to foster and encourage a high standard of operating ability and behaviour on all Amateur Bands. Membership be limited to those who can send and receive morse at not less than 18 w.p.m. Can QSY if necessary, break-in single channel working with v.f.o. is desired but not obligatory. Members prepared over the air to assist and advise newcomers to Amateur Radio. Operators will be elected to membership on recommendation of at least five sponsors who they themselves already are F.O.C. members. These sponsors must have been in contact with the operators concerned over the air and be satisfied that he or she can fulfill the foregoing conditions. Members should sign F.O.C. after their call sign. Members of club will adhere strictly to band planning and also members are reminded that good manners over the air are part of first class operating."

What is "snob value, discredit to the true democratic spirit, un-Australian,

un-democratic, time wasting," etc., about the above standards, Roth Jones?

There are approx. 181 members in Great Britain and approx. 145 members overseas. On looking very carefully through the P.M.G. Handbook of rules for Amateur Operators, I can see nothing that the signing of F.O.C. after one's call sign commits any breach of the regulations, so I am at a loss to know why Roth Jones thinks it quite illegal.

Soliciting for sponsorship to club is definitely barred and anyone indulging in such practices would have little or no chance of ever becoming a member.

Could anyone listen to the excellent operating ability and highly skillful technique employed in transmissions from VK3's FH, RJ, CX, VK4YP, VK-5BY and other members who have been appointed without solicitation and it may be significant that Roth Jones VK3BG has not been invited.

First thoughts, his expressions may be "sour grapes", but perhaps it may well be that he does not measure up to required standards.

Now, concerning the use of CQ/F.O.C. certainly this is used during the Annual Contest between members, how else would they be identified in their own contest?

There is no suggestion of "snob value" in the signing of F.O.C. but rather it should inspire other aspirants to improve their operating ability with a view of future membership. Readers will therefore agree that it is not "un-Australian, un-democratic, time wasting" as stated by Roth Jones, but rather it is an honour to belong to such an International Body of Gentlemen Operators.

Roth Jones' statement re lowering of one's self to be a member of such a clique, is rather in reverse, as no doubt, old timers such as VK3RJ, VK4YP and I include myself will agree that the invitation to join F.O.C. and the day we were duly appointed members was the culmination of more than 20 years of hamming.

Roth Jones' reference to "scab labour" and the "plague" brings discredit to no one but himself, as the prestige of membership of F.O.C. remains untainted and unscathed.

You should know better Roth Jones.

—Roy Baxter, VK4FJ.

[Letters along similar lines have been received from Messrs. E. J. R. Cowles VK6EJ, R. E. Jones VK3RJ, A. L. Kissick VK3KB, and A. Brown VK-3CX, but space does not permit publication.—Ed.]

TECHNICAL CORRESPONDENCE

S.S.B.

Editor "A.R.", Dear Sir,

Once again another is trying to convince himself and others that the trend towards s.s.b. is not all as is claimed by its users. Article by VK3ACA, February, 1958.

I would like to point out that the British Post Office has spent several thousand pounds on s.s.b. radio telephone installations, and whether he likes it or not, as a taxpayer he has contributed to several Government installations in this country, that I am aware of.

When I first took up this mode of operation, I was told by another Amateur that s.s.b. was a passing fancy, and would not last. I note he has purchased and is now operating a complete s.s.b. station.

It is not difficult to make s.s.b. sound like an a.m. signal, and the quality can be designed to be better than the average country b.c. station is able to provide to the public. It is also possible to receive s.s.b. with little strain on a regenerative detector as many s.w.l's. are doing. It has been proved consistently that s.s.b. provides a more stable signal, which under given conditions is easier to follow than a.m. signals. The outright statement that c.w. still has the edge on all these systems is open to debate. I have operated c.w. both commercially and for some time on the Ham bands, and was of the same opinion. However, after changing to s.s.b. Nov. '56, I have conducted tests and each time received better "S" reports for s.s.b. I attribute this to the frequency diversity effect of s.s.b., which has the "edge" on c.w. as far as selective fading is concerned. With s.s.b., the user is concerned with translating the audio spectrum to be used directly to a radio frequency to enable propagation; and the reverse frequency conversion from r.f. to a.f. should take place at the receiver. The use of a product detector or converter does help with the noise problem, because, operating correctly, it is insensitive to amplitude disturbances.

I would like to include the following table for consideration for pure tone signal modulating a.m.—

% Mod.	% Total Power in Carrier	% Total Power in Sidebands
0	100	0
25	97	3
50	89	11
75	78	22
100	66.6	33.3

i.e. one sideband, which is all that is useful with a.m., has only 16.65%

With s.s.b., no modulation, no power; 100% modulation is 100% useful signal on the air (like c.w.).

I would recommend that VK3ACA take a trip to some of the s.s.b. gang in Melbourne and see the system in use.

—V. J. Kitney, VK6VK, s.s.b.

PEAK POWER FOR S.S.B.

Editor "A.R.", Dear Sir,
I am afraid John Adcock, VK3ACA, in his article in "A.R." for February has made a major error.

In his summing up, para. 7, he says we are allowed a peak power of 100 watts. As an a.m. 100 watt transmitter 100% modulated by a sine wave runs 400 watts peak power, it is only fair to allow this same peak power for the s.s.b. transmitter.

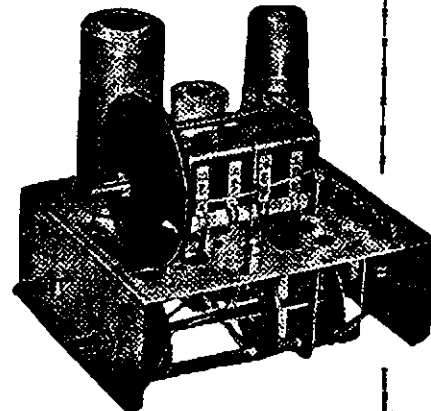
An a.m. transmitter of 100 watts peak power would have a carrier power of 25 watts, and a carrier power of 25 watts is certainly not our power limit.

The comparison of a s.s.b. transmitter of 100 watts peak power against an a.m. transmitter of 400 watts peak power by VK3ACA certainly illustrates the effectiveness of s.s.b.

Anyway, the proof of the pudding is in the eating thereof.

—Barry White, VK2AAB.

AVAILABLE FROM STOCK GELOSO VFO'S



Model 4/101 and Model 4/102 with calibrated dial and handsome perspex escutcheon—

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TRANSMITTER CASE with chassis and panel to suit Geloso £6/0/0

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★ "WODEN" MODULATION ★ TRANSFORMERS

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UM2 60 watts Audio, 200 Ma. max. current £10/13/3
UM3 120 watts Audio, 250 Ma. max. current £12/2/6

Woden Modulation Transformers will match any set of impedance conditions. Also suitable as output transformers for high quality public address equipment.

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10,000 TIMES FASTER THAN A SATELLITE

Sydney to Melbourne in two minutes: this example of the speed of the earth satellite probably means more to us than stating the velocity as 18,000 miles per hour.

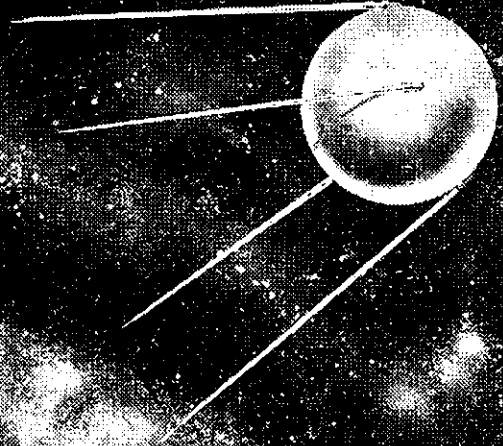
Sydney to Melbourne in one seventy-fifth of a second: this is the speed (ten thousand times greater than that of an earth satellite) at which electrons from the Radiotron picture tube gun strike the phosphor coating on the face of the tube.

As each electron strikes the screen at this terrific speed, a flash of light is produced. By controlling the distribution and intensity of these flashes the electron gun creates your television images.

The electron gun is one of the many units that go to make up the Radiotron picture tube. Amalgamated Wireless Valve Company introduced and was the first to manufacture in Australia the electrostatic-focus electron gun illustrated below.

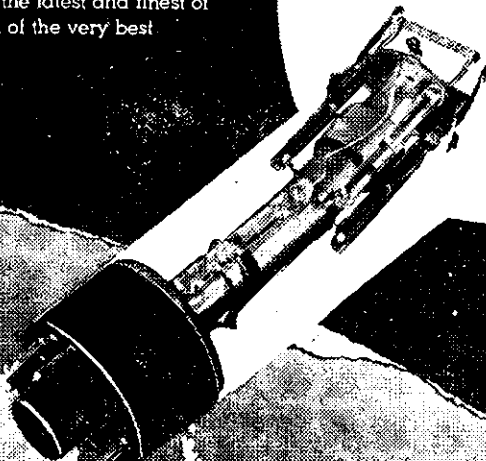
The electrostatic-focus gun is acknowledged to give clearer, sharper pictures than earlier types and to stay in focus under all conditions of transportation, installation and operation.

It is this policy of using the latest and finest of techniques that ensures you of the very best when you buy Radiotron.



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QSL CARDS

BY E. W. TREBILCOCK,* BEES195

During my 30 odd years' association with Amateur Radio, the humble QSL card has always fascinated me, for reasons more than one. The most important of which is the fact that it is a confirmation in writing of a contact made or a report received. (I am a firm believer in the long established line of thought and action, by a majority, that all initial contacts on a particular band, using a particular mode of emission, are worthy of a QSL card.)

To me a QSL card is more than a mere piece of "wallpaper". (I don't think the term "wallpaper" does justice to a QSL card, anyway.) A QSL card is a picture, portraying the thoughts of man and woman in layout, wording and color schemes. It is an aid to acquiring of world-wide geography knowledge and its passage from point to point provides many a philatelist, such as my son and myself, with an assortment of postage stamps, many of which would be hard to obtain locally. Above all things, a QSL card helps to set the seal of friendship established between peoples of various races, colors, and creeds in some 260 odd countries of the world.

As an added interest, I recently made a careful analysis of just how well (or otherwise) a QSL card is "filled in" with detail by the station operator concerned. I used my inward stockpile for June (90 QSL cards) plus the first 10 QSL cards received for July of 1957, and from the data available I obtained the following interesting results:—

- 95 of the QSL cards bore my call sign.
- 78 were dated.
- 74 mentioned the input power used.
- 73 gave the type of aerial.
- 72 listed the type of receiver.
- 71 mentioned the frequency band.
- 60 quoted the time of the logging.
- 54 indicated the mode of emission (c.w. or phone).

Looking at the results obtained, it is obvious to me that far too many operators spoil their good intentions when QSL-ing, by omitting to include some (or all) of the eight details listed in the previous paragraph. Three facts amazed me, viz.:—

- 5 of the QSLs did not include my call sign.
- 2 of the QSLs omitted 7 of the 8 details listed above.
- 46 of the QSLs did not contain an indication whether the QSL was for a c.w. or phone report.

It is my considered opinion that five of the details listed above are a "must" insofar as filling out the QSL card is concerned. The five in question are as follows: Call sign, date, time, frequency and mode. I venture to suggest that any QSL card which lacks any one, or more, of the five "musts" is not a QSL card at all, and is therefore worthless to the recipient. The cards are especially worthless from the point of view of those who claim the many and var-

* 340 Gillies St., Thornbury, N.17, Vic.

CONVENTION AT URUNGA

The VK2 North Coast and Tablelands Zone will be holding its Ninth Annual Convention at Urunga during the coming Easter week-end and all Amateurs, associates, XYLS, friends, etc., are cordially invited to join us for a very pleasant week-end. To defray expenses a registration fee of 15/- for gents, and 2/6 for ladies will be collected.

Accommodation is available upon direct application, or to Mr. Brian Clarke, VK2ZCQ, of P.O. Box 8, Bellingen, and I would advise you to book early to avoid disappointment. For the information of the "regulars" the Pilot Guest House has closed down. The available accommodation is as follows:

- (1) Ocean View Hotel, Urunga, approx. 37/6 per day or £11/11/- p.w.
- (2) Guest House, Mrs. Lee, Bonville St., 30/- day or £8/8/- p.w.
- (3) Flats from £8/8/- to £16/16/-, depending on size.

A deposit of £1 per person is required for the Hotel and Guest House, but it is variable for the flats.

The tentative programme is as follows:

Friday, April 4—

8 p.m.—General get-together to discuss W.I.A. affairs or similar topics.

Saturday, April 5—

- 10 a.m.—Registration and ragchew.
- 3-5 p.m.—Gerry Challenger Remembrance Contest on 7 Mc. for portable or mobile equipment—non-mains powered.
- 3-5 p.m.—Heats 144 Mc. Blindfold Tx Hunt.
- 7.15 p.m.—144 Mc. Fox Hunt.
- 8 p.m.—Social evening, 18 watter and perhaps an outline of W.I.C.-E.N. activities, films.

Sunday, April 6—

- 10 a.m.—144 Mc. Transmitter Hunt.
- 11.0 a.m.—VK2W1 broadcast.
- 11.30 a.m.—144 Mc. Tx Hunt.
- 3-4 p.m.—All-band Scramble.
- 3-6 p.m.—Heats and finals 144 Mc. Blindfold Hunt.
- 8.0 p.m.—Prize-Giving Concert and films.
- 10.30 p.m.—Disposals Auction, supper and ragchew.

Transport to Urunga is by road or rail, and by air, via Coffs Harbour.

ied world-wide certificates of merit now available to tx men and s.w.l's. alike.

I suggest that all who read this article, and who have time on their hands, select 100 of their most recent inward QSL cards, analyse same along the same lines as I have done, and see how your results compare with mine.

When filling in your own QSL cards for dispatch to the other fellow, give positive thought to completing those eight details (especially the five "musts") I have so often mentioned in this article, and so make your QSL card one worthy of all it represents and a credit to the man (or woman) concerned.

The road to Urunga from Sydney is now sealed except for a maximum of 16 miles which even may be completed by Easter. If you desire to come by plane, please advise the writer in ample time to arrange transport between Coffs and Urunga.

I look forward to seeing a bumper crowd.

—N. A. Hanson, VK2AHH, West Kempsey.

W.I.C.E.N. NOTES

Arrangements are now well in hand for printing Authorisation Cards. Cards will be issued by Federal Executive through the agency of your Divisional W.I.C.E.N. Co-ordinator. Hence if you wish to be in the first distribution now is the time to register.

Obtain full details from your Divisional Co-ordinator and make sure you fully appreciate the obligations imposed by membership of W.I.C.E.N.

Reports being received from all Divisions indicate a very gratifying interest in W.I.C.E.N. and impetus should increase as I.G.Y. activities expand.

During the year interesting and meaningful tests will be arranged for W.I.C.E.N. networks.

Readers interested in W.I.C.E.N. activities are advised to index these notes for ready reference. Apart from continuing publication of our own rules, data regarding overseas activities bearing on subjects of interest to us will be included.

Operating Procedure continues:—

- 2.11 When a station is called, but is uncertain of the identification of the calling station, it shall reply immediately by transmitting: "This is . . . (giving its own call sign). Say again your call sign."
- 2.12 The responsibility of establishing communication shall normally rest with the radio station having traffic to transmit.
- 2.13 Stations should make use of relay by another station, if unable to contact control direct. Stations should at all times be ready to act as a relay centre.
- 2.14 When a control station is called simultaneously by several stations, the control station shall decide the order in which such stations shall communicate.
- 2.15 Should it become necessary to suspend work, e.g., because of repairs or adjustments of apparatus, a station shall, if possible, inform the control station beforehand, followed by the time at which it is expected that communication will be resumed.
- 2.16 When transmission is again possible the station shall so inform the control station.
- 2.17 When a station is unable to establish communication due to receiver failure, it shall transmit its traffic preceded by the phrase "I am transmitting blind."
- 2.18 Messages should be transmitted at dictation speed. As a guide, the operator may write the message as he transmits it.
- 2.19 Each station shall listen to all communications on its network, and shall be responsible for rendering communications assistance to other stations as required, permission being first obtained from the control station.
- 2.20 Each written message shall be read prior to commencement of transmission in order to eliminate unnecessary delays in communications.
- 2.21 Transmissions shall be conducted concisely in a normal conversational tone; full use shall be made of standard phraseologies as prescribed.
- 2.22 The Phonetic Alphabet shall be that recommended by N.A.T.O.
- 2.23 The pronunciation of numerals shall be as follows: 1—WUN, 2—TOO, 3—TH-REE, 4—FOW-ER, 5—FIFE, 6—SIX, 7—SEV-EN, 8—AIT, 9—NIN-ER, 0—ZE-RO.

SILENT KEY

It is with deep regret that we record the passing of:—

Jack Groves, 20/12/57, Member Victorian Division.

BOOK REVIEW

U.H.F. TUBES FOR COMMUNICATION & MEASURING EQUIPMENT

By Members of Philips Electron Tube Division

With use of the u.h.f. bands increasing every day, all Amateurs should be conversant with the latest technique in use on these frequencies.

This book covers a representative range of tubes, circuits and layouts to suit operation in the 300 to 10,000 megacycle spectrum. Both transmitting and receiving tubes are included, the latter receiving thorough attention with a discussion on grounded grid r.f. circuits and standard noise sources. Transmitting tube data covers disc-seal triodes, reflex-klystrons and u.h.f. triodes of standard construction.

Definitely a book recommended to all Amateurs interested in 288 and above.

Our copy from Messrs. Philips Electrical Industries Pty. Ltd., Philips House, 69-73 Clarence Street, Sydney. Price in Australia, 13/-.

TUBES FOR COMPUTERS

By Members of Philips Electron Tube Division

The electronic tube, in its function of an inertialess switch, is one of the essential parts of an electronic computer. The tubes described in this book are specially designed for this use.

As well as comprehensive data on each of the tubes, many typical circuits are published. The data is divided into two sections, one for high speed computers up to the rate of one million units a second, and the other for lower speed computers. A chapter on constructional practice is included.

This book is recommended as a companion to "Analysis of Bistable Multi-vibrator Operation".

Our copy from Messrs. Philips Electrical Industries Pty. Ltd., Philips House, 69-73 Clarence Street, Sydney. Price in Australia, 13/-.

TUBE SELECTION GUIDE

Compiled by Th. J. Kroes

This handy book enables the user of electronic tubes to quickly determine preferred tube types.

A number of tables are included, grouping the tubes according to their most important electrical properties.

The book is most comprehensive in its coverage, and includes data on receiving, transmitting, microwave, industrial, and cathode ray tubes.

Our copy from Messrs. Philips Electrical Industries Pty. Ltd., Philips House, 69-73 Clarence Street, Sydney. Price in Australia, 13/-.

YL CORNER

ELECTRONIC FANTASY

Once upon a time there was a city slicker, the image of a pirate, a genuine parasitic element, a dud who had gone soft. He stole a frequency, he stole a call sign, and then he stole the band. He also tried to steel tower and antenna. He was after plate and crystal so he used lines of force to blow up the front end and break-in to kilocycle hobbyist. Kilowatt? Well to kill a radio ham whose junk box was full of such things. The ham became a resistor and strongly impeded the city slicker with a positive charge. Both became heated, the ham made a number of turns and coiled himself up to try to get out of the city slicker's range. The city slicker was a type-free from restrictions and left his mark 2 after using a high voltage probe, whereupon the resistor became a bleeder, but fortunately it was only skin effect.

It was then a case of up and atom and sparks flew in all directions. The ham slugged the city slicker with an iron core, deflecting him from his normal path. The city slicker tried to choke the resistor who then neutralised him with a by-pass from a bottle. He felt his pulse which was at zero beat, but he didn't have enough energy to discharge this dummy load as his useful power was now negligible. The city slicker, who was an all-round-looker, then revived and the ham had to stand up to another battery of charges.

The city slicker couldn't get a bearing so he jumped the air gap, hopped on a grounded grid and went for more grid drive, then cycled across the earth to a ground plane and with a call, sign and a wave he took-off making a thermionic emission with a space charge.

The ham finished up with a sore tooth and in addition to losing a megacycle he also lost sink and lost the band.

VALVE DATA

6CB6

SHARP CUT-OFF PENTODE

The Radiotron 6CB6 is a sharp cut-off pentode of the miniature type designed for use as an intermediate frequency amplifier at frequencies up to about 45 Mc. and as an r.f. amplifier in the v.h.f. television tuners.

The valve features a very high transconductance (6,200 μ mhos) combined with low interelectrode capacitance values, and is provided with separate base pins for grid No. 3 and cathode to permit the use of an unbypassed cathode resistor to minimise the effects of regeneration.

Base: 7-pin miniature.

Socket connections:

Pin 1—Grid No. 1.

Pin 2—Cathode.

Pin 3—Heater.

Pin 4—Heater.

Pin 5—Plate.

Pin 6—Grid No. 2.

Pin 7—Grid No. 3, Internal Shield.

Electrical Data

Heater Voltage 6.3 volts
Heater Current 0.3 amp.

CLASS A1 AMPLIFIER

Maximum Ratings:

Plate voltage 300 max. volts

Grid No. 2 (screen) voltage 150 volts

Plate dissipation 2.0 max. watts

Grid: No. 2 input: (for grid No. 2 voltages up to 150 volts) 0.5 max. watt

Peak heater - cathode voltages:

Heater negative with respect to cathode 200 max. volts

Heater positive with respect to cathode 200*max. volts

* The d.c. component must not exceed 100 volts.

Typical Operation and Characteristics:

Plate voltage 200 volts

Grid No. 3 (suppressor) connected to cathode at socket.

Grid No. 2 voltage 150 volts

Cathode-bias resistor 180 ohms

Plate resistance (approx.) 0.6 megohm

Transconductance 6200 μ mhos

Grid No. 1 bias (approx.) for plate current of 10 μ A -8 volts

Plate current 9.5 Ma.

Grid No. 2 current 2.8 Ma.

AMATEUR RADIO SERVICE

A NEW SERVICE TO THE AMATEUR including—

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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	13
VK3ET	7 1		

AMATEUR CALL SIGNS

October, November and December, '57

NEW CALL SIGNS

VK— New South Wales
 2FK—T. W. Kinsella, 115 Alice St., San Souci.
 2HJ—H. E. Jacobs, 8 Whittion St., Griffith.
 2PM—J. S. Cumming, 8 Sortie Port, Castlecrag.
 2RJ—L. R. Baber, 1 Roslyn St., New Lambton.
 2SZ—R. C. Cook, 127 New England Highway, Rutherford.
 2UG/P—R. W. Earling, 115 Commerce Street, Taree.
 2UO—J. F. Dalstead, 14 Barbara St., Fairfield.
 2WY—G. H. Simpson, 19 Degnance St., West Tamworth.
 2XI—B. Hannaford, 333 Chloride St., Broken Hill.
 2AAA—A. W. Ballantine, 34 Finlayson St., Lane Cove.
 2ABQ—F. J. Caton, 23 Jeffrey Ave., North Parramatta.
 2AEB—M. O. Bested, 14 The Circle, Griffith.
 2AFY—Central Coast Section of W.I.A., C/o School of Arts, Mann St., Gosford.
 2AJK—J. F. Regan, 28 Short St., Oyster Bay.
 2ALE—R. E. Lynch, 33 Tempe St., Stanmore.
 2APK—D. F. Klesewetter, East Camp, Cooma.
 2ZCJ—C. J. Charman, 6 Wilson St., Muswellbrook.
 2ZCK—I. M. McCosker, 122 Warialda St., East Moree.
 2ZEC—E. G. Clare, 5 Palla St., Griffith.
 2ZEP—G. P. Pez, 9 Farnsworth St., Thornton.
 2ZJF—B. J. Foster, "Avoca", Biala, via Gunning.
 2ZJV—J. Van Lear, 10 East Crescent St., McMahon's Point.
 2ZMN—N. L. Norman, 1074 Barrenjoey Rd., Palm Beach.
Victoria
 3JS—B. J. Coles, 6 Sturt St., Essendon.
 3NS—J. E. De Cure, 425 St. Kilda Rd., Melbourne.
 3PN—D. B. Schroder, 355 St. Georges Rd., Thornbury.
 3XE—W. J. Dennis, Marandee, Hexham.
 3YG—G. E. Smith, 21 Hughes St., E. Brighton.
 3AI0—W. R. Ion, 12 Bartlett St., Moorabbin.
 3AMI—D. Laws, 102 Darling Rd., East Malvern.
 3ZDU—F. A. Auld, 14 Sargood St., Toorak.
 3ZEF—J. V. Hudson, 46 Donald St., Highett.
 3ZEG—T. S. Gray, 87 Doncaster Rd., North Balwyn.
 3ZEI—G. W. Quirk, Burwood East P.O., Burwood East.
 3ZEJ—G. J. McDonald, 41 Norman St., Wendouree West, Ballarat.
 3ZEK—D. D. Watson, Flat 1, 138 Kilby Rd., North Kew.
 3ZEO—M. J. Owen, 466 Burke Rd., Camberwell.
 3ZER—R. W. Wilkinson, 6 Boyle St., Ballarat East.
 3ZET—R. J. Abell, 87 Marshall St., Ivanhoe.
 3ZEW—L. T. White, Evelyn St., Hopetoun.
Queensland
 4DM—R. J. S. Davis, Dept. of Civil Aviation, Longreach.
 4JG—J. D. Griffin, 14 Aubrey St., Camp Hill, Brisbane.
 4KN—C. F. Peddell, 137 Beigen Rd., Wavell Heights.
 4MU—E. H. Zahmel, Finch Hatton.
 4QJ—G. C. Jenkins, Bowen St., Roma.
 4RC—Brisbane Amateur Radio Club, 30 Hawthorne St., Enoggera.
 4RG—R. D. Grandison, House 141, Mt. Crosby.
 4US—R.A.A.F. Squadron, R.A.A.F., Archerfield.
 4XK—R. A. Collins, 150 Ashgrove Ave., Ashgrove.
 4XO—W. A. E. Flannery, Wishart St., Mt. Gravatt.
 4ZBC—K. D. Campbell, 34 Evadne St., Graceville.
 4ZBK—S. W. B. Kemp, Junabee Rd., Warwick.
 4ZBO—C. P. O'Brien, Green St., West End, Townsville.
 4ZDK—K. J. Dibble, 84 Imperial Ave., Morningside.
South Australia
 5AG—A. G. Mulcahy, 25 Hart St., Semaphore.
 5GV—R. C. Grivell, 16 Silver St., Clearview.
 5JR—B. A. Endersbee, 15 Holme Ave., Lower Mitcham.
 5ND—L. K. Metcalf, 60 Castle St., Edwardstown.
 5NE—G. F. Barham, 43 East Point Rd., Fanny Bay.
 5OS—M. J. Brunger, 39 Rowlands Rd., Hilton.
 5TK—T. S. H. Kent, Section 2, H25-27 Finsbury Hostel, Pennington.
 5TM—R. D. Martin, 16 Henry St., Croydon.
 5XY—C. G. Luke, 16 Kennaway St., Tusmore.
 5ZAB—H. A. Fisher, 17th St., Renmark.
 5ZBQ—A. B. Hollebon, 26 Nelson St., Port Pirie.
 5ZDA—H. Dreimann, 28 Days Rd., Croydon.
 5ZGW—G. Wilde, 112 George St., Norwood.

Western Australia
 6SM—M. H. Saw, 28 Auborough St., Double View.
 6WD—W. F. Duns, Box 15, P.O. Hyden.
 6ZAN—R. J. Skevington, 3 Rose Ave., South Perth.
 6ZAY—A. M. Austin, 6 Endersbee St., Merredin.
 6ZBG—N. S. Gardiner, 24 Frederick St., Midland Junction.
 6ZBK—L. G. Rock, 38 Essex St., Wembley.
 6ZBS—N. A. Stocker, Flat 8, 115 Stirling Highway, Nedlands.
Tasmania
 7JB—J. C. Batchelor, 39 Willowdene Ave L.W.R., Sandy Bay.
 7MF—M. F. McGinniss, Cable Stn. Naracoopa, King Island.
 7XB—E. Carruthers, 292 Park St., Nth. Hobart.
Papua-New Guinea and Other Islands
 9BB—M. B. Bonser, R.R.S. R.A.F. West Island, Cocos-Keeling Group.
 9VG—H. A. Vinning, C/o. Dept. of Posts and Telegraphs, Lae.
 9XM—J. W. Davey, Christmas Islands, Indian Ocean.
Antarctica
 0BG—B. G. Cook, Mawson.
 0DA—D. A. Brown, Mawson.
 0HK—H. Knox, Macquarie Island.
 0IJ—D. R. Twigg, Mawson.
 0RB—R. A. Borland, Mawson.
 0RO—R. E. T. Oldfield, Mawson.
 0TC—T. J. Cordwell, Macquarie Island.

CHANGES OF ADDRESS

VK— New South Wales
 2DB—R. A. Biddle, 532 Merrylands Rd., Merrylands.
 2VA—A. W. Bennett, 63 Denning St., South Coogee.
 2ACE—L. Brennen, 188 Forsyth St., Wagga.
 2AED—E. Colyer, 57 Mt. William St., Gordon.
 2AGG—A. K. Gee, Lot 14, 26 Larra St., Yennora.
 2AHP—H. J. Pickett, 9 Crane St., Homebush.
 2Aik—C. T. Horne, 34 Lorna Ave., Nth. Ryde.
 2AIZ—B. G. Powell, 65 Lucas Rd., Burwood.
 2ALZ—V. J. Nugent, 73 Herbert St., Tumut.
 2ANS—K. H. Vaskeas, Tackwells Rd., Castle Hill.
 2APD—R. P. R. Drummond, 291 Ernest St., North Sydney.
 2ATA—P. A. Tavares, 2/137 Mount St., Coogee.
 2AUP—K. Postler, 24 Birnam Gr., Strathfield.
 2AWM—T. S. Mayne, 16 St. Aidan Ave., Dundas.
 2AXH—W. H. Hannam, 22 Merley Rd., Homebush.
 2AXS—R. F. Smith, 116 Northcote St., Earlwood.
 2AZE—G. R. Stewart, 42 Emma St., Leichhardt.
 2AZQ—L. W. Cook, 31 Long Ave., Nth. Ryde.
 2ZBY—J. T. Jarrott, 25 Douglas St., Stockton.
 2ZDT—C. J. Jirsa, 5 Cook Ave., Canley Vale.
Victoria
 3CC—H. M. Bain, 25 View St., Pascoe Vale.
 3DE—D. E. Hale, 19 Denman Ave., Glen Iris.
 3EQ—N. Gee, 132 Skene St., Warrnambool.
 3MJ—W. L. Matters, 151 Neale St., Bendigo.
 3NE—E. E. Nelson, 34 Washington Ave., East Malvern.
 3NI—N. R. Boase, 262 Elgin St., Carlton.
 3NR/T—N. G. Roberts, 14 The Ridge, Tally Ho.
 3QN—P. E. Naplestone, 42 Berkely St., Huntingdale.
 3WQ—C. C. Chirnside, 8 Blake St., Caulfield.
 3AEA—G. G. Whitmore, Lot 38, Beverley Rd., Rosanna.
 3AFP—J. H. Power, 133a Gregory St., Ballarat.
 3AJV—K. G. Avery, C/o. Officers' Mess, R.A.A.F., Tottenham.
 3AKZ—A. K. Head (Dr.), 6 Duffryn Place, Toorak.
 3ANE—R. Longworth, Station: Barry Lane, Melbourne; Postal: 19 King St., Melbourne.
 3APX—P. X. Daviey, Police Station, Romsey.
 3ARK—F. J. House, 7 Coates St., Moorabbin.
 3ZAL—R. A. Foot, 43 Munro St., Ascot Vale.
 3ZAT—D. D. Tanner, 30 Maude St., North Balwyn.
 3ZCG—W. G. Francis, 30 Windsor Ave., Moe.
 3ZEP—D. C. Paton, Station: 49 Havelock Rd., Hawthorn; Postal: C/o. Mrs. R. C. Francis, 4 Tarring St., Hawthorn.
Queensland
 4AP—A. Gullford, 95 Brighton Ter., Sandgate.
 4CJ—C. W. Marley, 2 Lynch St., South Mackay.
 4DR—L. G. England, 115 Barclay St., Deagon.
 4ND—N. D. Dangerfield, Eighth Ave., Home Hill.
 4YK—W. A. Bath, Norbiton St., Geebung, Brisbane.
South Australia
 5IW—I. B. Wail, 311 North East Rd., Hampstead Gardens.
 5KQ—F. T. Park, 10 Almond Gr., Glandore.
 5KY—R. T. Mardon, 6 Jervois Ave., Murray Park.
 5PM—J. B. Porter, 44 Burbridge Rd., Brooklynn Park.

5SR—R. Short, 58 Victoria Ter., Hawthorn.
 5VR—W. D. Randall, 12 The Strand, Large North.
Western Australia
 6BH—B. G. Hudson, 144 Brighton Rd., Scarborough.
 6HK—D. E. Graham, Flat 21, 114 Terrace Drive, Perth.
 6UP—F. H. Turner, 15 Temby St., Cannington East.
 6WJ/T—W. J. Jacobs, Flat 509, 138 Adelaide Ter., Perth.
 6ZAJ—B. W. A. Jacobs, 20 Williams Rd., Narrogin.
 6ZAO—R. G. Smith, 17 Milford Way, Nollamara.
Tasmania
 7JO—J. G. Oliver, 18 Percy St., Devonport.
 7PM—P. D. Mulligan, Radio Link, Stanley.
Papua-New Guinea and Other Islands
 9BS—R. A. Sutherland, Dept. of Civil Aviation Quarters, Honedobu, Port Moresby.
 9NT—N. T. Casey, C/o. Dept. of Posts and Telegraphs, Rabaul, T.N.G.

CANCELLED CALL SIGNS

VK— New South Wales
 2DD—A. Davis-Rice.
 2NE—G. R. Barham, Now VK5NE.
 2QJ—G. C. Jenkins, Now VK4QJ.
 2SU—C. B. Jones.
 2AAG—W. W. Moss.
 2AAK—E. A. J. Kyle.
 2AMN—R. D. Martin, Now VK5TM.
 2AQA—18th L.A.A., Regiment R.A.A.
 2AQM—Dubbo Postal Amateur Radio Club.
 2ZBC—F. J. Caton, Now VK2ABQ.
 2ZBD—J. S. Cumming, Now VK2PM.
 2ZCB—L. R. Baber, Now VK2RJ.
 2ZCD—J. F. Dalstead, Now VK2UO.
 2KN—C. F. Peddell, Now VK4KN.
Victoria
 3EI—J. Allan.
 3JF—J. C. Batchler, Now VK7JB.
 3WB—R. S. Beckett, Transferred to N.S.W.
 3AHS—A. G. Svenson, Transferred to N.S.W.
 3AJL—W. R. Adey (Dr.).
 3ARG—R. Graemer.
 3ZBC—J. T. Jarrott, Now VK2ZBY.
 3ZCA—R. J. Skevington, Now VK6ZAN.
Queensland
 4PJ—P. J. Chapman.
 4YA—W. A. Young.
 4ZAN—R. D. Grandison, Now VK4RG.
 4ZAU—W. A. E. Flannery, Now VK4XO.
South Australia
 5DT—B. Hannaford, Now VK2XI.
 5GZ—Penfield Radio Club.
 5LA—R. E. Langfield.
 5TI—J. C. Torr.
 5ZBN—B. A. Endersbee, Now VK5JR.
 5ZBR—K. L. Metcalf, Now VK5ND.
 5ZCK—R. J. Kreig.
 5ZDX—R. C. Grivell, Now VK5GV.
 5ZXY—C. G. Luke, Now VK5XY.
Western Australia
 6UG—J. H. White.
 6ZAG—J. Kitchen.
 6ZAM—M. R. Meharry.
 6ZAQ—D. A. Meadowcroft.
Tasmania
 7RC—R. C. Ireson.
Papua-New Guinea and Other Islands
 9AJ—E. L. Lerpiniere.
 9DS—D. B. Schroder, Now VK3PN.
Antarctica
 0CJ—C. J. McNaughton.

PERMITS GRANTED FOR TELEVISION EXPERIMENTS

2AMG/T—D. M. Finn, 68 Augusta St., Leichhardt, N.S.W.
 7RN/T—R. D. C. Nicholls, 30 Pearl St., Wivenhoe, Burnie, Tas.
 7SF/T—S. F. Medford, 4 Mark St., Hillcrest, Burnie, Tas.
 9AT/T—E. J. Roberts, Station: N.O. 2 Donga, 2nd St. Lae; Postal: R.T.C. Office, Dept. of Posts and Telegraphs, Lae.

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DX

Frank T. Hine, VK2QL
30 Abbotsford Road,
Homebush, N.S.W.

Am now back again to all the "chores" after a delightful holiday in Adelaide, and strange as it may seem there was not much talk of DX when with any of the VK5 boys I had the pleasure of visiting.

Some good DX has been on the bands if you were fortunate enough to be on at the time, but no two days were the same. Some very short skip has been evident at night in Eastern Australia and the DX stations have also been complaining of the short skip in their areas. Many strong W signals have been heard on the long path in the mornings.

Entertained W1KVU for a few hours whilst he was in Sydney and he was most interested to be on the air from "down under" and hear W signals. Some very interesting information came out of our talk, one of which is the way the leading DX boys in the States operate and have themselves organised. If one of them is on the band and hears something worthwhile in the line of DX, telephone calls start to get the others on the air. These are not local calls, as they can become coast to coast. W1KVU has made calls of over 1200 and up to 1,500 miles himself and told of one instance when he rang a W0 asking him to zero beat a VQ1 he was working, receiving the reply I am zero beat, so John did not hear that VQ1. So now you know how the W stations appear in profusion when something worthwhile shows up. Most of them were probably asleep.

NEWS AND NOTES

The reference to ZLIABO in last month's notes is to be corrected to ZLIABZ. If you need the Kermadec Is., and who doesn't, ZL-2GX or VK9AD may be able to arrange something for you even cross band. Generally he listens for a.m. only, but can read slow c.w. Power is 100w. and gets out quite well.

Activity from FW8AA has temporarily ceased as he is in hospital at Noumea and will be in Noumea for some time (2ACX).

ZL1CI, the old 80 mx stalwart, has worked over 70 and heard 140 countries on 3.5 Mc.

Although it is shown as acceptable to the A.R.R.L., the Aaland Is. is not being allowed for Australian DXCC credit (3CX).

There is renewed possibility of activity from the Maldives as there is a change of command taking place, and the new C.O. is an ex-Amateur.

2AGH overheard an HR station telling a DX station that the HR Bureau was not functioning at present and that many cards had been "lost".

A strange call appearing on the 14 Mc. band is FKOAD. Gave his QTH as Chesterfield Is.

JT1AA is now active on 21 Mc. The first QSLs from this station have arrived in Australia, but were only four in number.

The XYL of JT1AA is on 14 and 21 Mc. with the call of JT1YL.

HK0AI has been on from San Andrea Is.

FP1CK/0 has been active on 14 Mc. phone, PY2CK often acting as the link.

UP0L7 is the call of the Russian station in the Amateur bands operating from the North Pole (2EG).

VK0AB has now ceased operation from Mawson. Had 70 countries confirmed and had made W.A.S. (2EG).

CE3O has now QRT and returned and is operating as G6Z0.

ZL1ACV is operating from Antarctica as ZLAC and plans operation on all bands. VK9AD is having difficulty in getting his cards. Sez there are hundreds somewhere for him. He asks that all his cards be routed through the VK2 Bureau and that if a DX station seeks his QTH, tell him it is Norfolk Island via Australia, as many cards are being returned to the DX station if Norfolk Island only is shown as the address.

XV5A is W3ZA operating from Saigon. He expects to have 1kw. on s.s.b., a.m. and c.w., usual hours of operation being 0100z-0130z and 1000z-1130z.

SW8AA QSLs are reaching him OK via the OK Bureau. Have not heard Phan for some time.

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

VR5N is the first station to appear from the new "invasion" of the Pacific Xmas Is. CE0AG is active from Easter Is. on 14, 21 and 28 Mc. phone (2JZ).

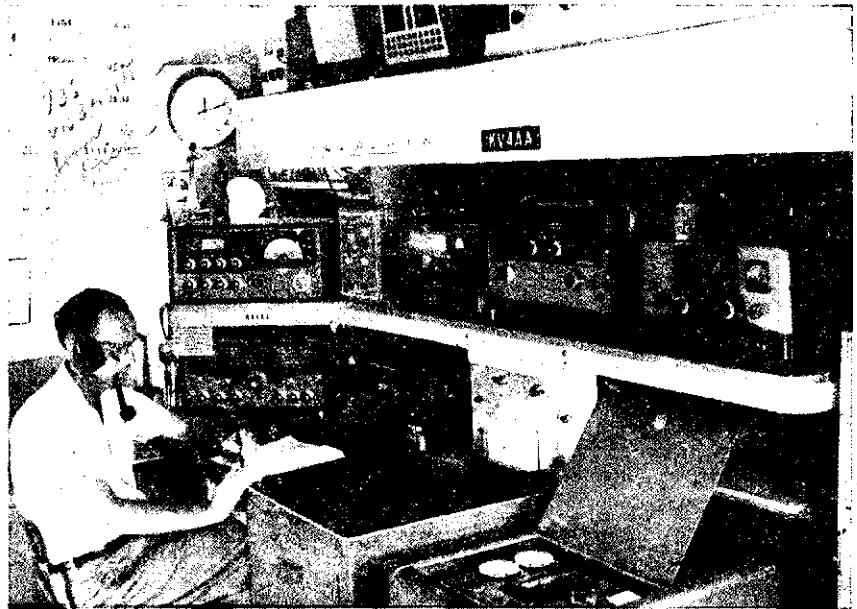
ACTIVITIES

3.5 Mc.—2AGH: ZLIABZ*. 2QL: ZLIABZ*. 7 Mc.—0AB: F8RJ*, DJ2HC*, VESAW*, JAI1AE*, 2AIR: OX3DL*. 2QL: G. ZC4IP*, 2AMB: KA2FF*. Ian Thomas: JAI1MZ*. B. Smyth: JAI1Z*. BERS195: DL6XT DU7SV, G3JZK, G5JU, G5RP, KR6AK, OH2EC, OH5RH, OH7NF, OQ5RU, SM5BFE, UA1BE, UA1YH, UA4FE, UA0CN, UB5QF, UC2KAD, UF6KAA, VS1CN, VS1FJ, VS2DF, Y08XU.

14 Mc. C.w.—0AB: UR2KAA*, LZ1WD*, UA4KCE*, UP0L7*, 3V8AB*, TI2VA*, FF8AC*, CN8JX*, UA3KBA*, OK1KT1*, UP2KBA*, UN1AE*, UB5KAW*, U18KAE*. 2ACX: LA2JE/P*, ZC3AC*, VQ8AS*, HA5AM/Z.A, EK0AL, HV1CN*. 2AGH: SV0WR*, CR8AC*, EA9BM*, FB8XX*, PJ2CE*, UN1AN*, LZ1KSZ*, I1ADW*, ZC3AC*, HS1C*, ZB2I*, VS9AJ*, UA0KDD*, CN2BE*, OA4FA*, UB5KAA*, MP4BBL*, UA4NB*, KM6BJ*, IT1TAI*, IS1FIC*, LJ3D*, VR3N, EA8CE, FK0AD, EA6AU, 9K2AX, OY5ML, FL8AC, FB8CE, UC2KBR, UP2AT, HL9KS. 2AIR: CT3AB, KP4AZ, JT1AA*, CR8AC*, XE1RY*, XW8AE*, HS1C*, VK0KT*, ZC5RF*, UL7HB*, 3V8KS*, VS9AJ*, FL8AC*, HC1JW*, KC4USA*, ZC5AB*, XW-

PZ1AP, CR8AC, UL7KBA, 5A1TV, CR6BX, VK0TC, HE9LAE, HL9KS, CS9AD, VQ5GJ, VQ4KRL, HZ1VB, VQ3CF, VP6PJ, 2JZ: UA0KFD*, UA6KAE*, VQ3CF*, VQ8AF*, SV0WR*, VK0AB*. 5GM: VU2DR*, EA5F*, 4X4JT*, UP0L7*, UA0KK*, 5BK: SM8BYG/MM*, JA2AE*. Ian Thomas: KR6DA, KR6ES, BERS195: HZ1AB, HZ1VB, LX1AS, OD6LJ, KP6AL, OQ6IE, MP4BBE, OY2M, PY4AO, PI1RS, SU1HM, UJ8AG, UH8BA, VU2NA, VO1DX, ZC5AB, 3V8AO, 4X4JU.

14 Mc. Phone—2ACX: PY1CK/0*, CR5AC*, HV1CN*. 2AGH: VK9RG*, VR3A*, YS1JR*, I5FL*, ZK1BS*, ZK2AD*. 2AMB: TG9AL*, VK0AS*, HC1HL*, VR2DC*, VK9AD*, ZL5AC*, CESH3, BV1US, FUSAD, 5A1TV, OA4DMG, OA4IGY, YU2DB, VR4JB, HH2CL, VU2RM, KP4GN, PY2AJN, 2JZ: VP9DC*, YV5ABH*, HH2HH*, EA8BY*, HZ1AB*, ET2US*, VK0AB*, CE0AG*, 3AOM: CT1PK*, G8ML*, HH2CL*, HH2R*, KR6JN*, KR6LB*, VK9AD*, VR2DA*, VR3A*. 4D0: BV1US*, ISFL*, ZD8DT, 457YL*, CESHJ*, XV5A. 5GM: VK9YT*, VR2DA*, VK0KT*, Z56UR*, MP4BBC*, VK0TC*, KC4USA*, YS1JR*, VS5JL*, KR6DO*, 5WP: 4X4DR*, 4X4GB*, CO8J*, HV1CN*, SV1AE*, FA9UP*, EA8BY*, SV0WP*, OD5BV*, YV5AG*, ZE7JR*, OA4IGY*, CN8MM*, JT4KAS*, 5A1TB*, VS9AD*. B. Smyth: TI2MG, TI2ACA, TG9AL, VR3A, VR4JB, VK0KT, ZD6DT, 5A1TV, HP3FL, VU2AV, LU2HAE, YV-



Does this make you drool a bit? It is Dick KV4AA seated in his shack. He has two of everything, drivers, finals, s.s.b. exciters, etc., plus 3kw gas generator. On the top shelf: spare electronic key, speakers, ant. couplers. Middle: HT-32, B. and W. 51SB, Collins 310-B, HT-33 amp, Ranger. Table: Audio keying speaker, SX-101, El-bug controls, 75A-3, control panel (selects antennae, switches drivers to any final, etc., etc.)-Johnson KW. The antenna farm consists of a 3 element beam 75 ft. up on Vesto tower for 14 Mc.; 3 element beam 40 ft. up on pole 21 Mc.; 80 metre zepp takes care of 1.8, 3.5 and 7 Mc. He is fairly active and you will hear him on 14 c.w. most days 1030 to 1200 GMT. DX is fine and he has 272 confirmed (one behind WIFH!).

8AI*, KX6AF*, SV0WR*, OQ5EH*, 2AMB: KR6QW*, YV5GO*, LU6DJX*, CE4AD*, CK5CO*, VS4BA*, JT1AA*, HS1C*, VK0KT*, ZC5AB*, VQ0AS*, MP4BBL*, VR5AZ, HL9KS, HL3AP, VQ3CF, YJ1LD, FB8CD, PJ2CC, VS9AJ, KG1HL, 9K2AN, ZC5AL, ZC5RF, VQ6LQ, 20W: 4X4GY*, MP4BBE*, HA5BO*, HA5DH*, OH2YV/0*, OX3DL*, HS1C*, ZE1JD*, UL7KBA*, XW8AE*, XV5A*, CT3AB*, CR8AC*, HL3AP, HH2LD, UG6KAA, UG6AB, PZ1AP, VS9AJ, FL8AC. 2QL: SV0WR*, VQ3CF*, XV5A*, HS1C*, XZ2TH*, FY7VF*, FQ8AP, ZD2DCP, ZD8DT, PJ2BA, HZ1AB, HZ1VR, VQ8AS, AP2AD, ZC3AC, VK9JF, FB8XX, LX1DW, YK1AT, UD6FA, UD6AM, FB8YY, 2ZR: UA3WV*, UB5LK*, UC2CB*, UP2KCB*, LZ1KPC*, IT1TAI*, IT1PDN*, CN8BK*, CN8GV*, ZS6AQ*, CN8CJ*, YV1AD*, YV5HL*, LUINE*, LU8FBH*, KV4AA*, VK0AB*, VP6PJ*, ZC4FM*, 3CX: ZC3AC*, KV3*, LU*, YV5GY*, ZC4PT*, VQ6LQ*, LU4ZD*, VQ4KP*, VR5A*, HS1C*, LA2JE/P*, VR3N, CR5AZ, FK0AD. 4D0: UA4FE*, UA9KCA*, UA0P*, ISFL*, U18KAE*, UM8KAA*, VQ6LQ*, ZC5RF*, HC1JW*, SU1HM*, BV1US*, XV5A*, VQ2AB*, ZC5AL*, XW8AI*, SP5GN*, Y03ZA*, Y06XU*, UB5KEP*, 4X4GY*, UL7GN, U05KAA, CR9AH, CT3AB,

5CD, CN8MM, OA4IGY, MP4KAA, HC1FG, XQ8AG (see QTH), BERS195: BV1US, EA3GH, Z55RB.

21 Mc.—2AGH: OH2YV/0*. 2AIR: KL7*, W*. 2AMB: OA4V*, FUSAD, VR2DF, VR3A. 2QL: OH2YV/0*, YN1AA*, JT1AA*, ZC4IP*, VQ6LQ*, MP4BBE*, VK9JF*, ZB2I, 2JZ: CN2BK*, UA2KAA*, VS4JT*, DU1GF*, VK9BS*, UQ2AN*, FA8CF*, SV0WS*, VU2ET*, ZB1GUH*, and Europeans*. 2ZR: GC3HF*, HA1KSA*, SP2LV*, Y03ZA* and the regular Europeans.

28 Mc.—2AIR: W*. 2QL: W*. VE*, KH6*. 4XJ: HP1QD*, CO2JK*, HH2LD*, VP5EM*, VP9DC*, HC1FS*, XE2FV*, 9G1CI* (midday, long path), G*, W*, VE*, GD*.

QSLs RECEIVED

A large and interesting batch of QSLs have been received by the VK2 gang during January, with increased confirmations for DXCC. 0AB: VR3C. 2ACX: HV1CN, SV0WR, Z57C, 3W8AA, 2AGH: YS1JR, UA4FE, UA0KK, CR8AC, ZC4IP, FP8AS, UBU5U, W6UQU/KS6, 3W8AA, SV0WR, TG9AD, 2AIR: W4FC/K54, HH2CL, UD6KAB, UP2AT, UA0OM, UR2AK, CT3AB, VP8CW. 2AMB: VK0AB (7 and 14

Mc.), HK7AB, CN8GL, LU8BAJ, FM7WT, FY-
TYF, FA8CF, SP6KBE, FB8ZZ, EA9BK, EA-
8CC, HC1HL, UB5UW, LA5Q, 30W: 3W8AA,
UA1KAE, 2QL: ZB1CR, RA5BI, JZ0PC, UH-
8KAA, BV1US, UC2CB, UA8OM, UQ2KAA,
4X4DR, 4X4BX, 9S4CH, ZS3AG, ZS3Q, W6UOU/
KS6, KP6AL, FP8AS, UA1KAE, UL7HB, UQ-
2AQ, UM8KAA, BERS195: CR8AC, 9S4DW,
HR1JH, KZ5RF, PY1BFR, UA4SF, UB5FD,
ZD6RM, EI8BC/MM.

QTH OF POSSIBLE INTEREST

HS1C—Box 1038, Bangkok.
VP8CW—QSL via I.S.W.L.
VR5A—Box 2, Tonga (3CX).
HZ1VB—Box 167, Jeddah, Saudi Arabia (4DO).
9G1CI—University College, Accra, Ghana
(4XJ).
XQ8AG—No. 7 Vanguard Station, C/o U.S.A.
Consulate, Antafogata, Chile.
ISFL—Box 90, Mogadiscio.

Before I finally wind up the cat and put out
the clock, Hans 3AHH has asked me to pass
on his 73 to all VK DXers. On my return
from holidays there was a Xmas card and
letter waiting for me. Hans gave no indication
when he may be back, but as he holds a
supervisory post in the I.G.V. organisation on
Ionospheric research, which is keeping him
on the move throughout Europe, I should say
that we won't see him until the end of the
I.G.V. task, although he hopes he may be on
with something QRP in his travels. He is not
out of touch completely as he gets his copy
of "A.R." although almost three months old.

And so my thanks to the following, some of
which is welcome "new blood!" 2EG for his
regular QSP of 0AB whilst Chas has been at
Mawson, 2ACX who now has the fine total of
262c worked, 2AGH torn between trying to
watch the bands for the good ones and build
a new tx, 2AIR is wondering when conditions
will stabilise (ask Hans Alan), 2AMB still
able to dig out the occasional good one and
pleased with the QSLs he is getting, 2JZ who
is trying a quad on 21 Mc. and we welcome
his first contribution, 20W waiting on three
QSLs to confirm his W.A.S., 2ZR added two
new ones for the month, 3CX who is happy
with his cross-band with ZLIABZ, 4DO who
is having some QRI trouble, 4XJ who manages
to scare up something satisfactory on 28 Mc.,
3AOM whom we hope to see regularly listed
on the page, 5RK for his QSP of 3GM and
5WP, BERS195 has now reached a total of
236 confirmations, Barney Smyth is interested
in aeriels, and finally we welcome to the page
Ian Thomas of Clayton VK3.

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
VK3ATN	26 204	VK9DB	31 161
VK4FJ	21 202	VK4WF	16 180
VK4HR	12 192	VK4RW	23 157
VK8RU	2 191	VK3JD	1 155
VK3BZ	3 176	VK4KS	9 152
VK3EE	10 163	VK6KW	4 150

Amendments

VK4DO .. 20 123

C.W.

Call	Cer. C't- No. ries	Call	Cer. C't- No. ries
VK4FJ	29 234	VK3XU	48 213
VK3FH	15 226	VK5BY	45 202
VK3KB	10 225	VK2EO	2 191
VK3CX	28 223	VK3YL	39 190
VK3BZ	6 222	VK6RU	18 176
VK4HR	8 218	VK5RX	23 176

Amendments

VK4DO .. 20 151 VK4RW .. 47 145

New Members

VK2AIR 60 102

OPEN

Call	Cer. C't- No. ries	Call	Cer. C't- No. ries
VK2ACX	6 239	VK3JE	12 210
VK4FJ	32 238	VK3ATN	69 210
VK4HR	7 233	VK3HG	3 201
VK3BZ	4 231	VK2NS	16 195
VK6RU	8 221	VK9DB	59 182
VK3XU	61 221	VK4RW	52 179

Amendments

VK4DO .. 15 175 VK4WF .. 40 165

PREDICTIONS FOR MARCH, 1958

Mc.	E. AUSTRALIA	W. EUROPE S.B.	Mc.										
0	2	4	6	8	10	12	14	16	18	20	22	24	45
45	-----												45
28	-----												28
21	-----												21
14	-----												14
7	-----												7
E. AUSTRALIA -- W. EUROPE L.R.													
0	2	4	6	8	10	12	14	16	18	20	22	24	45
45	-----												45
28	-----												28
21	-----												21
14	-----												14
7	-----												7
E. AUSTRALIA -- MEDITERRANEAN													
0	2	4	6	8	10	12	14	16	18	20	22	24	45
45	-----												45
28	-----												28
21	-----												21
14	-----												14
7	-----												7
E. AUSTRALIA -- N.W. U.S.A.													
0	2	4	6	8	10	12	14	16	18	20	22	24	45
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21	-----												21
14	-----												14
7	-----												7
E. AUSTRALIA -- N.E. U.S.A. S.R.													
0	2	4	6	8	10	12	14	16	18	20	22	24	45
45	-----												45
28	-----												28
21	-----												21
14	-----												14
7	-----												7
E. AUSTRALIA -- N.E. U.S.A. L.R.													
0	2	4	6	8	10	12	14	16	18	20	22	24	45
45	-----												45
28	-----												28
21	-----												21
14	-----												14
7	-----												7
E. AUSTRALIA -- CENTRAL AMERICA													
0	2	4	6	8	10	12	14	16	18	20	22	24	45
45	-----												45
28	-----												28
21	-----												21
14	-----												14
7	-----												7
E. AUSTRALIA -- S. AFRICA													
0	2	4	6	8	10	12	14	16	18	20	22	24	45
45	-----												45
28	-----												28
21	-----												21
14	-----												14
7	-----												7
E. AUSTRALIA -- FAR EAST													
0	2	4	6	8	10	12	14	16	18	20	22	24	45
45	-----												45
28	-----												28
21	-----												21
14	-----												14
7	-----												7
W. AUSTRALIA -- W. EUROPE													
0	2	4	6	8	10	12	14	16	18	20	22	24	45
45	-----												45
28	-----												28
21	-----												21
14	-----												14
7	-----												7
W. AUSTRALIA -- N.W. U.S.A.													
0	2	4	6	8	10	12	14	16	18	20	22	24	45
45	-----												45
28	-----												28
21	-----												21
14	-----												14
7	-----												7
W. AUSTRALIA -- N.E. U.S.A.													
0	2	4	6	8	10	12	14	16	18	20	22	24	45
45	-----												45
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21	-----												21
14	-----												14
7	-----												7
W. AUSTRALIA -- S. AFRICA													
0	2	4	6	8	10	12	14	16	18	20	22	24	45
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14	-----												14
7	-----												7
W. AUSTRALIA -- FAR EAST													
0	2	4	6	8	10	12	14	16	18	20	22	24	45
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7	-----												7

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190 Thomas Street,
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Unprecedented events marked the past month's activity on 50 Mc. VK5EF heard KH6, W0 and K0; VK4ZBF swapped calls with K6RNQ; VK2-3-4-5-7 worked into JA; auroral contacts from VK3 to VK2 and 7; KL7 heard in VK3. What more is required to set the gang in all States on edge, waiting for the next break-through to who knows where?

Here is the sequence of events from the information to hand. Jan 11, 1700 E.A.S.T. for about 10 mts. VK5EF heard KH6UL on 50.2 Mc., R4 S5 with quick flutter QSB on the signal; during the same period on 50.23 and 50.24 Mc. a W0 and a K0 were heard in quick QSB conditions but enough of the signals were received to allow confirmation of the prefixes. By 1713 E.A.S.T. the signals had disappeared. VK5EF was using a 4 eL beam 45 ft. high with gamma match to co-ax line feeding into a 8BQ7 cascade r.f., 6U8 osc. mixer, 6SN7 cathode follower to 26 meg. i.f. through pre-selector to a 75A3 receiver. Unfortunately no transmitter was on hand to go back to the stations heard. Jan 23 at 1950 E.A.S.T. VK3RR (Horsham) contacted JAZZW, the first recorded VK3/JA contact ever.

Feb. 2 had two openings, northern VK to JA and southern VK south. JA signals poured into VK4 for several hours and many of the local gang made their first JA contact on 50 Mc. VK4HM was apparently putting an excellent signal into JA going by the dogpile which developed on his frequency. That is one feature of JA operating, they way their v.f.o. onto the station they call. At 1140 VK3 had a short opening to VK5 and while this was in progress VK7AB proceeded to contact JA1AXE at 1155. Each was R5, S5, to the other though they lost one another in the end after a good contact. With Doug. 7AB located

in Hobart it will take a contact with Macquarie Island to give the JA's a longer distance. In the evening VK3 had an opening to VK5 and ZL with an extended opening to VK7. Again here many VK3s made their first VK7 contact. With so many signals coming in from the south, the VK3 beams were swinging madly from ZL to VK5 through VK7 and back again. During this period VK3OF sat on one signal (1908 E.A.S.T.) and identified it as VK0AA calling VK5MK. VK0AA having left Macquarie Island (replaced by 0KT) the query now is "was it JA0AA off the back of the beam?" Was JA0AA one of those worked by the VK5 gang? During this same evening VK5 had an excellent opening to JA, the first ever once again. According to the A.B.C. News service the following morning, Col 5RO worked 11 and Reg 5QR contacted 4. Maybe others were in on it too.

Feb. 5—Gerry 5ZBN at 2047 E.A.S.T. heard a KL7 calling CQ VK or JA. A strong local signal made copy difficult at times, the signal also having a sharp scatter flutter/fade on it also. At 2100 on approx. 50.1 a similar type of signal appeared for a short period but the rapid QSB made identification impossible.

Feb. 8 at 1045 VK4ZBF listened to a signal which signed K6RNQ. Allan called to be answered as VK6ZBF, but after several efforts was correctly identified before the signals went out. It is not known whether signal reports were exchanged by each station, though the calls definitely were. Allan was using a mere 8 watts to a 2 eL cubical quad, his final being a 2E28. Receiver was a 6AK5-6J6 converter into a 5-6 Mc. Command receiver. Unfortunately while this was going on Allan was the only VK4 on the band. How about going QRO Allan? During this period the ZLs were steadily working across the Pacific to the west coast of W land. Once again both first, VK/W, ZL/W.

Feb. 10 in VK3 at 2145 E.A.S.T. weak signals from the north came up on the band, at 2210 Ian 3ALZ raised his first JA. Ian went on to work 4 more while the rest of the gang called in frustration to no avail. The first meg. of the band was full of JA signals to S7, but copy was difficult because of the sharp QSB flutter coupled with language difficulties. A terrific dog-pile developed on Ray 3ATN (Birchip) while 3ZCW (Ouyen) appeared to be in the thick of it also. General consensus of

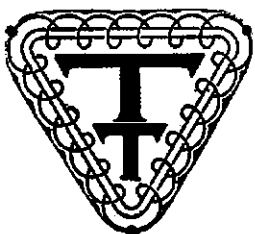
opinion was that it was a "scatter" type of opening.

Feb. 11 provided an anti-climax as well as some amusement for the VK3 gang with an excellent auroral opening. With VK2-3-5-7 all beaming south at the aurora, VK7AB/VK7LZ broke the ice with an Instrate contact, followed by VK7/VK3, VK7/VK2, VK3/VK2, with VK5 calling VK7 though no sign of him in VK3. Signals between VK7/VK3 peaked 9 plus at times allowing phone contacts, but for the most part c.w. was the obvious choice. Signals such as those on the band had to be heard to be believed. All d.c. characteristics were lost, c.w. sounding like a square toothed buzz saw gone mad. Even strong S9 plus local signals developed the auroral effect, ground waves being conspicuous by their absence. VK3/VK2 contacts were by phone, difficult copy at times; hope the Z call boys are out to get their full tickets, they would get a lot more contacts under auroral or fringe conditions. Col 7LZ alerted Len 7BQ by landline whilst Doug 7AB started off on phone without any method of keying, but speedily rectified that, it did not take him long to pound brass.

SKEDS AND THOSE TO LOOK FOR

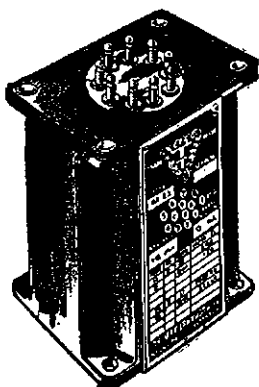
VK0KT, Macquarie Island, runs automatic c.w. on 50.19 Mc. beaming north, calling and listening in a sequence of 5 minute periods on Saturdays and Sundays at these times E.A.S.T.: 1200-1230, 1500-1530, 2000-2030, 2100-2130. Up and down the VK east coast various Hams are running skeds with KH6 and W around 0700 E.A.S.T. VS2DQ on 51.8 Mc. is looking for VK contacts so tune up that far if you can boys, while XE1GE just inside band edge, with high power and a good location is beaming at VK also. With so much interest being displayed overseas in the VK direction and conditions as they are, there should be opportunities for everybody before the band closes up. Of interest is an extract from a letter received from Vern 4LK. From JAZOW (Jan. 30) he has worked KL7, VE7, W6, 7, 0 on 50 Mc., all this taking place in the morning from around 6 a.m. to 8 a.m. Jap. C.S.T. (0700-0900 E.A.S.T.). JA3JJ, who does not work (spastic), has had over 100 contacts with the west coast of W land and Canada. Another first overseas was W1CLS to KH6UK on 50 Mc. on Jan. 25, believed to be a single hop contact (1930 G.M.T.). VK6 appear to be out of all this (lack of news to date) but with the activity evident in South

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Africa contacts should be made in that direction, while the hop to Ceylon and JA should not be beyond them. The success of Ian 3ALZ with his 30 ft. long yagi and approx. 80-90 watts input plus consistently operating on and watching the band shows the local chaps what is necessary to work the good stuff. The extra few d.b. gain in his antenna enables him to read signals which the average fellow can only beat with the b.f.o. if he hears them at all. Not only read them, but work them as well. Nice work Ian.

NEW SOUTH WALES

Meeting.—The monthly meeting of the V.h.f. and T.v. Group was held at Gore Hill Technical College on Friday, 7th February, at 8 p.m. The lecture for the evening was given by John 2ANF and was entitled "The Design and Construction of Mobile Equipment". John dealt with transmitters and modulators at length and also covered the important points concerning receivers, power supplies and antennas. A vote of thanks was moved by 2ZDF and carried by acclamation. The meeting then adjourned for supper, after which the balance of formal business was concluded.

DX Contact.—On 18th January Alan VK2ZAL made 2 mx contact from Sydney with VK5BC. The contact, which took place between 1400 to 1420 hours, was at good strength in both directions. The congratulations of us all are due to both these stations for this very excellent DX contact.

The Monthly Day Fixture, held on 19th January, was a treasure hunt. The fox was John 2ANF who had Roy 2EO with him. Eight mobile stations participated in this event which was won by 2OA with 6 points.

I.G.Y.—Following the launching of the first American Satellite on 1st Feb., the organisation set up by the V.h.f. and T.v. Group to assist the Sydney "Moonwatch" Group at Belfield, went into action. Results have been most satisfactory and we have been able to provide the Belfield people with the information service that they required.—2ER.

VICTORIA

Field Day.—The results of the Field Day on 15th Dec. are: 1st, 3ZAN at Pretty Sally, 35 pts.; 2nd, 3VF, Kinglake, 23 pts.; 3rd, 3ZET, Mt. Macedon, 18 pts. 15 stations were out in the field on 26th Jan. This was the best muster of portable stations for many years. Stations out were: 3KM Mt. Martha and Arthur's Seat (2 mx), 3OM Mt. Dandenong (1), 3VF Donna Buang (2, 1, 1/2), 3AFJ One Tree Hill (6, 1), 3AGQ Arthur's Seat (2), 3ARY Red Hill (2), 3ATW Echuca (2), 3ZAE Kinglake (0, 2, 1), 3ZAV Mt. Barrabool (2), 3ZBJ Loch (6), 3ZBP/AHL Mt. Camel (2), 3ZBU Mt. Macedon (2), 3ZCC Bass Hill (2), 3ZCZ Lorne (2), 3ZFA Arthur's Seat (2, 1). Interest was added to the event when VK4BT came through on 6 and VK7LZ on 2 mx. Other stations on 2 were 3ATN, 3ZAW, 3ANQ, 3AW, 3CJ, and 3ZAG. During the afternoon Roy 3ARY was heard calling for assistance; he had become bogged. However, Garth 3ZFA heard him and was able to give some help. Les 3ZCN went to Mt. Buffalo but found that the location is unsuitable for v.h.f. work. Les says that any good positions are not accessible except to mountain goats! The next field day is on the 2nd of this month and Col 7LZ has promised to be on deck.

30 Mc.—New calls on the band recently include 3AFL, 3ZAE, 3ZBJ, 3ZCJ and 3ZEW. By the time these notes are printed, Lindsay 3ZEW will be operating from Hopetoun—on 144 Mc. as well. Interest is running high now because of the possibility of JA contacts. 3RR in Horsham has worked a JA and I have heard that VK5 and VK7 have also. 3ANQ at Warrnambool is active on 8 now—with a v.f.o. Eric's first station was a ZL so he is very impressed with the band.

144 Mc.—DX activity has dropped off a bit after the hectic holiday period. 3ZCN mobile using a haio antenna worked 5ZAG over a 175 mile path on 8th Jan. Les claims this as a record. Any challengers? 3ATN/3ZEE worked 7LZ on 12th Jan. Poor Col had to listen to the Birchop gang for half an hour whilst they discussed some proposed 288 Mc. activity with yours truly 3ZAG. Sorry I kept you waiting Col, but maybe we can talk you into some one mx work too. A good break-through occurred on 8th Feb when 5CJ came through into Melb. as well as 7LZ and 7BQ. Western district stations 3ANQ, 3AKR and 3AGV were putting very strong signals into Melb. on this evening too. Weather conditions were warm, gradually cooling, clear sky, bright moonlight.

New stations on the band are 3ZFG near Warrnambool (144.182 Mc.), 3ZFK Caulfield, and 3ZFF, 3ZEO and 3ZCZ have been staying at Pt. Lonsdale and Lorne respectively and have been running portable gear. Don 3PO and Ron 3ZER have struck trouble. Don temporarily blinded himself whilst using an arc welder and Ron was involved in a motor cycle accident. He was in hospital with a fractured hip but is on the mend now.

288 Mc.—3AJ/T Luback has reported hearing signals on 280 Mc., believed to be those of 3ALK. Further checks over this 150 mile path are to be made soon. 3ZCN has his stabilised equipment working and has had a two-way with 3ZAG—c.c. gear both ends. (Les was at Noble Park at the time.) Les will be operating from Ballarat on 288.175 Mc. Ron 3ZER may be on shortly with stabilised gear.

V.h.f. Meeting.—The first meeting for the year was held on 15th Jan. David 3ZAG was chairman in place of Herb 3JO who was on holidays and Boz 3OJ was Secretary. Details for the v.h.f. convention were discussed at length and the following results arrived at. The convention to be on 9th March (i.e. 9th of this month); the meeting place, the rooms at 1300 hrs.; the agenda to be a discussion of the Ross Hull rules and other v.h.f. matters that may arise. After discussion a tour of the ABV and HSV transmitting stations has been arranged. This last item has been arranged and will be at about 1630 hrs. For the convenience of the country gang, the date selected is a Sunday and the week-end is a long

one—Monday 10th is Labor Day. Therefore all v.h.f. types wherever they be are urged to attend this function.

The meeting concluded with descriptions of 6 mx converters brought in by Jack 3ZAJ and Jock 3ZDG. Don't forget: 9th March, 1800 hrs. at the rooms.—3ZAG.

SOUTH AUSTRALIA

Some visitors from VK3 recently in Ivan 3ZDV and Glen 3ZBJ, who operated on 2 mx portable, added some interest to that band. These boys dropped over because when they set out from home they found the urge to work some VK5s just too great so they came amongst us. Good idea too, and their reception here livened things up for a day or so, and all were pleased not only to work them on 2 and 6 mx, but to see them when they did the rounds. Some very nice gear too and very efficient judging by the signals they put out.

108 megs is getting its share of interest too, and reports coming in from all over the place of the signals being very good, with the usual v.h.f. gang being the first to hear "Explorer" and pass the information on to moon watch.

Conditions on 6 mx have been remarkable and no one with a tx on that band could miss out on real DX this time. The break through to JA was shared by many with Col 8RO really topping the score with 12 contacts on Feb. 2, others in the race were Keith 5MT, Reg 5QR, Ron 5MK and yours truly. Very good whilst it lasted with JA sigs up to 5 x 8 at my QTH, although one was heard coming back to Col giving him 5 x 9.

The opening of the break was an experience in itself in that VK2s were coming through very well, and suddenly they were replaced by JAs, just like that, and held for over two hours with some variations within that time.

KH8UL was heard here, not real good copy, but enough to identify, together with two Ws right down in the noise, but heard nevertheless, unfortunately no tx at that stage but fixed since. For the benefit of those who may have missed the news, VK0KT is on 50 Mc. Saturdays and Sundays from 1000 to 1100 GMT for 20 mins. on 20 mins. listening, and 2S2PE on 50.23 Mc. with 100w. into 6 over 6 over 6 from 1100-2000 GMT daily and from 0700-2000 GMT Sundays, so watch out for these two, the latter may come up to what was heard in VK5 from ZS2FW on Jan. 30 at 2130 CST.

Les 5AX has re-built his driver stages and now has plenty of drive (and audio) and has re-entered the field in great style; he claims that if he was a heather he too would have shared the fun on that Sunday night. John 5ZBA has solved his feed line problems and has the whole show sorted out nicely. Bob 5RI still trying to make it south on 8 or 2 mx, turn your beams that way chaps and give him a start. Hughie 5BC still heard here at good strength and giving good reports of 108 Mc. sigs; Oh for his QTH.

Col 5CJ still active on 2 mx and from his QTH the band has been wide open to VK5 and VK3, one of the latter at Westernport Bay using 10w., being worked. The Gambier boys thought Erg 5KU was converted to 2 mx but not yet. Keep working on him. Col. Tom 5TW has a new 522 so there will be some sigs from there soon. Leo 5ZAG sat for his morse recently—good luck Leo, hope you made and has made many VK3 contacts recently. Claude 5CK still active on 2 mx and reports visits recently from 5XN and 3ZE who did over most of the South East boys.

WESTERN AUSTRALIA

The 31st meeting of the V.h.f. Group was held on Monday, 27th Jan. A number of visitors were welcomed including John 6ZAN who has been in the East for some time. After business, which included election of officers for the year, had been dealt with, we were given a lecture on audio oscillators by Dennis 6AW; this included the many phases of audio and circuits and concluded with a demonstration of an audio oscillator built by Dennis on a c.r.o. and also compared with factory-type instrument, needless to say 6AW's had the edge on the commercial job.

50 Mc. DX during the Ross Hull Contest left much to be desired as far as W.A. is concerned. Contacts being few and far between—rather a disappointment to newcomers to the band. Noel 6ZBG and Arthur 6ZBE have hit 50 Mc. and have also been on 56 Mc. Rolo 6BO and Don 6ZAV worked Wally 6WG in a three-way on 144 Mc. with 5/9 sigs on Saturday morning, 1st Feb. Wally then changed to 50 Mc. for a check, which also finished up in a three-way, but sigs were not as good as on 144 Mc.

A Field Day was held on Sunday afternoon, Feb. 2 on 144 Mc., and the following stations participated: 6BO, 6HK, 6SJ, 6ZAS, 6ZAK, and 6ZAV.

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FEDERAL

Fed. President: W. T. S. Mitchell, VK3JUM.
 Fed. Secretary: L. D. Bowle, VK3DU, Box 2611W, G.P.O., Melbourne, C.I., Vic.
 Federal Councillors:
 New South Wales—Bob Godsall, VK2AHG.
 Victoria—Dave Wardlaw, VK3ADW.
 Queensland—Arthur Walz, VK4AW.
 South Australia—Rex Richards, VK5DO.
 Western Australia—Ron Hugo, VK6KW.
 Tasmania—Doug Fisher, VK7AB.
 Papua-New Guinea—Russ Coleston, VK9XK.
 Fed. Contest Committee: Reg. Harris, VK5RR, Secretary, Box 1234K, G.P.O., Adelaide, S.A.
 QSL Bureau: R. E. Jones, VK3RJ, 23 Landale Street, Box Hill, E.11, Vic.
 Awards Manager: A. G. Weynton, VK3XU, 5 York Street, Bonbeach, Vic.

NEW SOUTH WALES

President: Perc. Healy, VK2APQ.
 Secretary: Keith Woodward, VK2ZAU, Box 1734, G.P.O., Sydney.
 Meeting Night: Fourth Friday of each month at Science House, Gloucester Street, Sydney.
 QSL Bureau: Box 1734, G.P.O., Sydney. Frank Hine, VK2QL, Manager; assisted by Allan Smith, VK2AIR.
 Zone Correspondents: North Coast and Tablelands: Noel Hanson, VK2AHH, Ryan Ave., West Kempsey; Newcastle: Les Sparke, VK2AOR, 18 Kahibah Rd., Highfields, via Adamstown; Coalfields and Lakes: H. Hawkins, VK2YL, 9 Comfort Av., Cessnock; Western: W. Stitt, VK2WH, "Cambijowa," Forbes; South Coast & Southern: E. Fisher, VK2DY, 2 Oxide St., Warragong; 8th, Western: J. W. S. Edge, VK2AJO, Wallace St., Coolamon; Tamworth: F. W. Fowler, VK2APF, 4 Thompson Cres., Tamworth.

VICTORIA

President: F. G. Ball, VK3YS.
 Secretary: J. R. Lancaster, VK3JL.

NOTES

Administrative Secretary: Mrs. May, C.O.R. House, 191 Queen St., Melbourne.
 Meeting Night: First Wednesday of each month at the Radio School, Royal Melbourne Technical College.
 Divisional Sub-Editor: V. M. Jones, VK3YE, 7 New St., Surrey Hills, E.10.
 QSL Bureau: Inwards and Outwards—W.I.A., 191 Queen St., Melbourne, C.I. Vic.
 Zone Correspondents: Western: W. J. Kinsella, VK3AKW, Magdala, Lubeck; South Western: W. Wines, 48 Cranley St., Warrnambool, and W. Zimmer, VK3AWZ, 70 Skene St., Newtown; Far North Western: M. Folie, VK3GZ, 101 Lemon Ave., Mildura; Midlands: R. Jonasson, VK3ND, Farnsworth St., Castlemaine; North Eastern: L. Eliason, VK3ALE, 72 Orr St., Shepparton; Eastern: J. Spark, VK3AJK, 20 Marshall Ave., Moe.

QUEENSLAND

President: Frank Bond, VK4ZM.
 Secretary: W. J. Rafter, 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-Editor: A. Simpson, VK4ZAE, Cr. Baden Powell and White Sts., Everton Park.
 QSL Bureau: Inwards—J. Files, VK4JF, Vanda St., Buranda; Outwards—Miss Claf 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, VK5EK.
 Secretary: B. W. Austin, VK5CA, Box 1234K, G.P.O., Adelaide. Telephone: UX 2821.
 Meeting Night: Second Tuesday of each month at 17 Weymouth St., Adelaide.
 Divisional Sub-Editor: E. C. Daw, VK5EF, P.O. Box 44, Gawler, S.A.
 QSL Bureau: G. Lutton, VK5RX, 27 Belair Rd., West Mitcham, S.A. (Inwards & Outwards).

WESTERN AUSTRALIA

President: J. E. Rumble, VK6BE, Box N1002, G.P.O., Perth, W.A.
 Meeting Night: Third Wednesday of month at Perth Tech. College Annexe, Mounts Bay Rd.
 Divisional Sub-Editor: E. J. R. Cowles, VK6EJ, P.O. Box 11, Bencubbin, W.A.
 QSL Bureau: Jim Rumble, VK6RU, Box F319, G.P.O., Perth, W.A. (Inwards and Outwards).

TASMANIA

President: F. J. Evans, VK7FJ.
 Secretary: M. Hurburgh, VK7MH, Box 371B, G.P.O., Hobart.
 Meeting Night: First Wednesday of each month at W.I.A. Clubroom, 147 Liverpool St., Hobart.
 Divisional Sub-Editor: W. W. Watson, VK7TY, 58 Brooker Ave., Moonah.
 QSL Bureau: K. A. Johnston, VK7RX, 34 Tower Rd., Newtown.

Zone Correspondents: Northern: K. J. Briggs, VK7LX, 18 Melbourne St., Launceston; North Western: L. S. Eddington, VK7LS, 3 Jenner St., Wynyard.

PAPUA—NEW GUINEA

President: F. N. Nolan, VK9FN.
 Secretary: N. T. Casey, VK9NT, Box 204, Port Moresby.
 Divisional Sub-Editor: R. Clark, P.O. Box 204, Port Moresby.
 QSL Bureau: R. Lloyd, VK9ZAL, Box 204, Port Moresby.

FEDERAL

CHANGE OF FEDERAL SECRETARY

Federal Executive is pleased to announce that for the next six months, Mr. Bob Boase, VK3NI, will be taking over the duties of Federal Secretary of the Institute.
 This change is necessitated by the fact that the present Federal Secretary, Doug Bowle, VK3DU, and his XYL are making a world tour in the near future.
 Bob is active on both 40 and 80 metres and can often be heard during the week-ends.
 For those wishing to contact Bob, his phone number is FJ 3621 during business hours and FJ 8952 at other times. As usual all mail should be sent to the postal box—No. 2611W, G.P.O., Melbourne.

VKS FEDERAL COUNCILLOR

Word has been received by Federal Executive that the Federal Councillor for 1958 will be Mr. Rex Richards, VK5DO. Rex will be taking over from Mr. Gordon Bowen, VK5XU. All members will support Executive in saying thanks to Gordon for his fine work during the past years. Through his fine efforts in the Division and by means of the broadcasts over VK5WI, Gordon has been able to maintain contact with members' thoughts and translate them into action. Besides this his wise councils at the last Convention will be well remembered.
 However, VK5 is extremely fortunate to have another very able member to follow in Gordon's footsteps. Rex has had experience at Conventions and then as Manager of the Federal Contest Committee, he has been able to gain an insight into the Federal sphere. Executive is happy to say a very big "thank you" and an equally big "welcome".

VISIT OF VK9 FEDERAL COUNCILLOR

A welcome visitor in Melbourne during the last couple of months was the VK9 Federal Councillor, Russ Coleston, VK9XK.
 During his visit, Russ was able to have a number of discussions with Federal Executive. As a result various aspects of problems confronting the Institute have been given consideration.

FEDERAL QSL BUREAU

Please note that the complete address of the Greek QSL Bureau and which should figure on all correspondence addressed to SV Amateurs is: QSL Manager George N. Zarifis, Box 564, Athens, Greece.
 A new award from Japan styled "The DC-25 Award" and sponsored by the Japan Double

Call Club is unique and interesting. The certificate may be claimed by any licensed Amateur who submits proof of having worked 25 double or triple call sign stations. Example: JA1ZZ, G5CC, VK4SS, W7BBB and so on. Contacts must have been made AFTER JULY 30, 1952, and the submission must contain at least five or more JA stations on either phone or c.w. Send QSLs with a check list and 10 I.R.C. to Double Call Club, JA1CC, Akira Asano, 237 Eifuku, Sughami, Tokyo, Japan. The QSLs after checking will be returned by registered mail together with the award. The award is also available to s.w.l's.

The correct address for the India QSL Bureau is Box 534, New Delhi, India. The old Munnar address must not be used.

Once again the well known Helvetia 22 Contest is coming up. The U.S.K.A. has scheduled it for the following dates: 1500 GMT May 17 to 1700 GMT May 18. The object of the contest is for stations outside HB to work as many stations in each of the 22 Swiss Cantons as possible. All Amateur bands may be used for c.w.-c.w. or voice-voice contacts, and the usual serial exchange is to be made. 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 Cantons worked on c.w., phone, or both together on all bands, hence the maximum multiplier possible per band is 44 (22 c.w., 22 phone). Entries must be submitted on separate sheets for each band and

contain the usual contest declaration. Certificates to the two highest scoring entrants in each country. Last date for mailing logs is June 7 to U.S.K.A., HB9NL, QSL Manager, Knutwil, LU, Switzerland. The information does not state how the separate Cantons are distinguished and the result sheet of the 1957 Contest does not list a single VK entrant.

Following on the announcement in February "A.R.", it is advised that Doug VK6LU is now operating from Mawson. The rest of the boys will probably be in action shortly.

—Ray Jones, VK3RJ, Manager.

FEDERAL AWARDS

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

VE6VK, W9ABA and G8KS have been issued with W.A.V.K.C.A. Certificates. The total number of certificates issued to date is 71 only.

—Gordon Weynton, VK3KH, Manager.

NEW SOUTH WALES

On Friday, 24th January, members who attended the monthly meeting of the N.S.W. Division had a very interesting evening. A lecture by Mr. Ern Stevenson and discussion with Mr. Max Hull VK3ZS, our Federal Vice-President, was the order of the evening.

Mr. Stevenson lectured on transistors and various applications in which they could be used. By the use of slides the various methods of using transistors were described and comparisons made with similar circuits using conventional type valves. Several types of transistors which are not yet available in Australia were also described. At the conclusion of the lecture many questions were asked by members and Mr. Stevenson very capably answered. A hearty vote of thanks was moved by Bill 2XT, who came down from Newcastle to attend the Convention at Dural.

The Chairman introduced Mr. Max Hull, VK3ZS, to members. Max then spoke on various phases of Federal Executive's work in Institute affairs. Many points on the magazine "Amateur Radio" were discussed and several suggestions made by members were noted by Max who assured them that he would refer them to the Magazine Committee on his return.

Federation of the Institute was also mentioned but although it was agreed that many problems would have to be solved, it should receive due consideration as it was conceivably that many advantages would be gained.

The necessity for the Amateur of Australia to be represented at the International Telecommunication Union Conference at Geneva

CONTEST CALENDAR

Compiled by W.I.A. Fed. Contest Com.

★

A.R.B.L. DX COMPETITION—

Dates: Phone—March 7 to 9; C.w.—March 21 to 23.
 Times: 2400 hours (7th, 21st) to 2400 hours (9th, 23rd).
 Cypser: RST followed by power input e.g. RST 589075 for c.w., 57100 for phone.
 Scoring: "QST", January, 1953.

REMEMB. DAY CONTEST—

Dates: Saturday, 18th August, 1800 hrs. E.A.S.T.; Saturday, 17th August, 1759 hrs., E.A.S.T.
 Rules: See amendments, February issue.
 Voting return date: 31st March, 1953.

In 1959 was discussed at length. Proposals for raising the necessary finance to meet the expenses of a representative were put forward, and the opinion was expressed that every licenced Amateur in Australia should be asked to contribute £1 towards the expense. This, providing that every Amateur contributed, would establish a £3,000 fund.

The tasks that such a representative would be required to undertake were outlined and the problems that would arise if adequate preparations were not made were also mentioned. Many questions on Institute activities were asked by members present and these were ably answered by Max.

As it was some considerable time since a member of Federal Executive had been present at a Divisional meeting, many points were discussed and clarified to the satisfaction of many present.

During the business portion of the meeting, the Chairman welcomed the following visitors: 2WH, 2AJB, 2ACK, 2AJK, 2ZJF, 4BV, 2ACG, 1ZCA, 2AIA, 2AAH and 2AYE (who we had not seen at meetings for some time). Several of whom had come to Sydney to attend the Convention the next day.

The following new members were also admitted to the Institute: D. Whitlaw, 2ZCE; A. H. Outtrim, 2EX; J. F. Graydon, 2AIS; J. P. Day, Assoc.; K. Edmondson, Assoc.; B. J. Jackson, Assoc.; H. E. Jones, Assoc.; J. Brier, Assoc.; E. Kruger, Assoc.; G. W. Main, Assoc.; F. Smith, Assoc.; J. Snell, Assoc.

The motion from the VK6 Division dealing with the proposed request for the increase in power was discussed at some length and the meeting carried a motion that the Division support the VK6 motion.

W.I.C.E.N.—Bob 2ARG reported that appointment of the five Area Control Officers had been made and that he was now awaiting replies from these members accepting the positions.

EIGHTH ANNUAL CONVENTION

The Convention was held at VK2WI, Quarry Road, Dural, for the first time. The attendance was beyond all expectations, the members who signed the visitor's book exceeded 200. This number included 139 licenced members who had recorded their call signs. The weather was excellent and although two large tents were erected in the grounds, the seating accommodation was not sufficient for the number present.

Proceedings commenced at 3 p.m. with the Divisional President, Perce Healy, 2APQ, introducing the Federal Vice-President and members of the N.S.W. Divisional Council. After welcoming those present to 2WI, many of whom had not previously visited Dural, and giving a short review on recent activities at Dural, the President introduced Reg Brook, Secretary of the Central Coast Section who acted as Master of Ceremonies. The first event was a display of member-built equipment and a short description by the member displaying the equipment. Pieces were shown by 2AET, 2ANF, 2ARZ, 2APQ, 2ARG, 2ZDL, 2CB, and 2MP, which were later judged by 2HZ, 2JU and 2VN.

This was followed by a number of lectures given by the following: 2CB, 2AOU, 2OT and 2AJA. The best lecture was selected by ballot of those present.

At this stage refreshments were served, then followed a sale of disposal gear, when many pieces of useful equipment from Type 1155 Receivers to Box Kites and Balloons in Gibson Girl Packs.

A very excellent buffet tea was prepared by a ladies' guild from Dural, who attended to the catering for the Convention. Large tables tastefully decorated contained many tasty and appetising dishes to tempt appetites of those present.

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After tea, technical questions were answered by Max 2OT, who, as well as giving answers to questions, referred questions to members for answers.

This was followed by a film session which lasted for an hour and which was interrupted by the arrival of "Sputnik No. 2" which passed directly overhead, giving many their first view of the satellite. The open air setting for the films in the evening was perfect.

After the films a further disposal auction was held, followed by supper, then to close proceedings the Divisional President called on the Federal Vice-President to present the prizes to the winners of the various sections, then thanked all who attended for making the day such a success and those who assisted in organising the day's proceedings. After which Bill 2XT, on behalf of those present congratulated Council on their efforts, both in regard to the Convention and their work during the past months.

Several additions to VK2WI brought comments of appreciation from those who had not visited Dural for some time and found a 25 ft. x 13 ft. 6 in. iron frame building had been erected to house the 2kva. emergency power plant as well as other Institute equipment.

The telephone installed, Dural 289 is the number of the Institute's transmitting station VK2WI.

But that which caught the eye was the new look to the transmitting section which had the walls draped from ceiling to the floor and the floor covered with a carpet type covering which now gives this section the look and acoustic properties of a broadcasting studio. Our thanks go to Mrs. Duff for her work in making up the drapes.

The following are the call signs of those who recorded them at the Convention. There may have been others who did not record their call signs against their names.

VK's: 2APQ, 2ALJ, 2ARG, 2OT, 2EO, 2CD, 2ZAU, 2CB, 3ZS, 2DO, 2ZDM, 2ZJC, 2AHX, 2OI, 2FY, 2EW, 2AGF, 2AIZ, 2AJS, 2PM, 2ER, 2DR, 2BD, 2XT, 2FP, 2ZL, 2BQ, 2YM, 2EL, 2XX, 2HL, 2ZDE, 2UO, 2RJ, 2ZDL, 2QL, 2ZAF, 2AAJ, 2AUM, 2OW, 2JU, 2ARR, 2ZBX, 2ZCW, 2PF, 2AJA, 2RU, 2ZAL, 2ND, 2TP, 2AIS, 2ZAC, 2ZMN, 2VN, 2IK, 2AJW, 2TP, 2ZCF, 2IC, 2ADF, 2KZ, 2AUA, 2HU, 2AWZ, 2EL, 2QZ, 2AVJ, 2AWW, 2AVQ, 2HZ, 2BP, 2MZ, 2EX, 2OA, 2MP, 2OZ, 2AKV, 2ANF, 2AET, 2JW, 2VY, 2AYE, 2WJ, 2AOQ, 2AVW, 2ACP, 2AGH, 2AVK, 2AOU, 2ARZ, 2AHT, 2ATO, 2AZO, 2QX, 2ZF, 2AAP, 2ABU, 2AJZ, 2ZDC, 2ARE, 2ATB, 2ZAB, 2VL, 2AQJ, 2AT, 2ASZ, 2YB, 2AVT, 2ABT, 2FJ, 2ABZ, 2WH, 2BG, 2QS, 2OA, 2AWQ, 2AAB, 2BZ, 2AEZ, 2AB, 2NK, 2AGO, 2IH, 2ASW, 2ABE, 2BM, 1ZCA, 2YR, 2AGY.

The prize winners were as follows: Member-Built Equipment: City—Max 2ARZ, panadaptor; Country—Max 2MP, transmitter. Lecture: Hans 2AOU. Visitor who came the greatest distance, John 2ZDM. Lucky Lapel Shield, J. P. Folkard, 2ZAF.

Members are reminded that the Annual General Meeting of the N.S.W. Division will be held at Science House, Gloucester St., Sydney, on Friday night 28th at 8 p.m.

VICTORIA

As previously announced the first general meeting for the year held on 5th February took the form of a discussion night, or more generally speaking, a grouch night, and safety valves were popping all over the place.

First and foremost our Federal Secretary pointed out that the time is fast approaching when the Institute must reach a decision on the sending of a representative to the next I.T.U. meeting to be held in Geneva in 1959. This matter has been lurking in the background now for months, in fact years, and we seem to be still no nearer a conclusion than ever. If we decide not to send a representative then we must rely on a proxy to put our case and this has proved to be a very unsatisfactory arrangement in the past, as evidenced by our unfavorable frequency allocations, etc., when compared with other countries who had representations. On the other hand, there is no guarantee that sending a delegate will automatically bring success to our case but the chances of success should be considerably enhanced. This must be so as, although our deputy would not have a vote, this being vested only in the Government representative, he would be "Johnny on the Spot." He would thus be excellently placed to state our case on committees and in lobbying activities generally, and ensure, as far as is humanly possible, that the policy as formulated here in Australia is not distorted or misunderstood. In other words, he would keep our case alive

and generally act as our mouthpiece on all matters pertaining to our area.

Unfortunately the expenses of such a delegate must be found by the Institute and would amount to something of the order of £1,500. When we think of our other commitments and our present financial position, this is a very large sum of money and would be very difficult to raise, particularly as nothing has yet been done. It was suggested that perhaps a levy of £1 a head would be the most satisfactory method of raising the money but this would need to be agreed to by a large majority of the members and, as it was pointed out, this would probably be no mean task. Most of the members present at the meeting were in favor of sending a delegate and raising the required amount by means of a levy, but it was decided that the meeting was not a representative gathering of the members generally. The £1 per head would be little enough to pay for the use of our funds provided there was a reasonable chance of success, but there is no guarantee that this would be so. However, this uncertainty applies to most things in life and nothing is achieved without some sort of risk.

Our Federal Secretary is leaving on a world wide tour just before Easter and he intends to make contact with other Amateur Radio organisations during his trip. It would be a decided advantage, therefore, if we could reach a decision in this matter prior to his departure, as if the decision is in the affirmative, he can do some very valuable ground work during his travels and maybe get some financial backing from other organisations in Region 3.

As a consequence it was decided to refer the matter to Council with a recommendation that members be circulated, preferably in conjunction with the forthcoming statements of account, with a view to reaching an early decision.

Ken 3AFJ produced the next item for discussion—our hardy annual—the lack of workers. His remarks were concerned particularly with the present strength of the Magazine Committee.

As you know this Committee is responsible for producing the monthly magazine principally, but in addition handles the call book, the log book and sundry other odds and sods which all add up to the expenditure of a lot of time by the body concerned. Up to the time of the meeting this Committee has been functioning with four members short and the extra work on those remaining has been no joke. Thanks to Ken, the following four members volunteered to fill the breach: Syd 3ASC, George 3AOM, Jacques 3ZEE and Bill 3AHN. Thanks chaps.

At this stage President Fred gave a brief resume of the benefits which result from taking office and the necessity which exists for those who can to lend a hand. In this connection he pointed out that he has been nearly twelve months trying to obtain a volunteer to write the script for the Sunday morning broadcast. During this time, Mrs. May has been carrying on and now that she is on leave Allan Elliott has been filling the gap. Quite a lot of discussion took place on ways and means of producing these notes, but much has still to be done. Keith 3YX has undertaken to lend a hand for the next six months.

Don't get the impression that the Institute is fast running down because this is far from the truth. There is still a solid core of willing toilers who battle on unheralded and unsung, but their load could be considerably eased if others would appreciate their work and offer to share the burden.

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The V.h.f. Group advises that it proposes to hold a convention on 9th March and it hopes to include a visit to the ABV Tx on Mt. Dandenong. Listen for further announcements.

The lecture for the meeting on 5th March will be given by a member of the staff of D.C.A. There will be no lecture at the April meeting as this is the annual general meeting, but it is hoped to tie-up a lecture on some aspect of t.v. by a member of the staff of the Royal Melbourne Technical College for the May meeting. Ideas on lecture subjects would be welcomed by the President.

New members admitted at the meeting were: Full Members—K. C. Oldroyd (3ZED), A. Parker (3AER), R. H. Hall (3ZEC), M. R. Osborne (3ZCZ); Associate Members—J. Forse, R. E. Buchanan, L. E. Fowler, W. H. Hensen; Country Junior Member—G. K. Glover.

EASTERN ZONE

Don't forget our Convention to be held at Sale, 15th and 16th March, so finalise your arrangements now.

The dinner will be held at the Masonic Hall, and on the Sunday there will be an inspection of the Plastic Factory and 3GI. There will also be a picnic lunch at Sea Spray (weather permitting) and hidden tx hunts, etc., during the afternoon.

David 3DY went portable down at Point Lonsdale on 80 mx at the end of February.

SOUTH WEST ZONE

The zone is very active in most ways for the Convention, which is to be held in Warrnambool on 22nd and 23rd. If you intend coming please send a deposit of £1 for bed to reach the organiser, Bill Wines, 48 Crawley St., Warrnambool, before 9th March. You must also book if you intend coming for the dinner which is a 3 course poultry meal with refreshments. Your booking should reach the organiser by the 9th with a 10/- deposit.

There will be a prize for the chap who travels the longest distance. In addition there will be 144 Mc. activity and a fox hunt and tx hunt on 25 Mc.

The hook-ups have been well attended of late, even Peter 3APJ from Kyneton being present. Not much has been heard of late of 3HG, 3AFS or 3JA. What's the matter chaps, are you only able to find the switch for the green-eyed monster? 3AWQ hopes to be on 144 Mc. and 6 mx on the Saturday of the Convention to work the mobiles on these bands. He would also like a few beams turned his way occasionally. The 3.5 and 7 Mc. mobiles will be able to have a contact as 3PS will be on the job from about 12 o'clock on the Saturday and perhaps 3ARJ. On arrival you are all to report to the organiser's QTH for instructions of booking and a cup of tea.

Trev. 3ATR and XYL and harmonics have been on holidays in the fair city of Warrnambool and I believe 3ANQ and he had a great rag chew on 144 Mc. equipment. We hope to see you down for the Convention.

The Ballarat boys never seem to come in on the hook-ups. What about it Don SPO and Bob 3GR, and anyone else from that area? We also hope to see you boys down in Warrnambool for the Convention. Kevin 3AKR made himself known the other week.

Geelong Amateur Radio Club

Geelong members are looking forward to the next Zone Convention to be held at Warrnambool on 22nd and 23rd March. Mr. C. Rann, 3AAK, while holidaying in Geelong, called at the club and we were pleased to hear a talk on the subject of Amateur T.V.

VK3 SOUTH WEST ZONE CONVENTION

to be held at
WARRNAMBOOL

on
SATURDAY and SUNDAY,
22nd and 23rd MARCH, '58

★

For all bookings and enquiries
contact Organiser:

**Bill Wines, 48 Crawley Street,
Warrnambool**
before the 9th March.

The details of the flying spot scanner were discussed and the necessary techniques involved. Some members of the club are advancing with Amateur t.v. transmission and wish to contact Melbourne experimenters. Would any Hams in Melbourne interested in Amateur T.V. please contact Bill 3BU.

V.h.f. operators in the S.W. Zone please note. A meeting will be held at 1300 hours on 9th March, 1958, at the clubrooms, 191 Queen Street, for the purpose of discussing scoring for the Ross Hull Contest—the outcome to be submitted in the form of a recommendation to Council. A picnic at some suitable rendezvous has been suggested after this meeting.

Bob 3IC entertained members at a recent visit with a discussion on the BC221 frequency meter. Recent disposal sales have been very successful and some fine pieces of equipment have changed hands. Syllabus items for March are 'Colour T.V. in America' and a visit to the shack of 3AWZ for v.h.f. operation.

MOORABBIN & DISTRICT RADIO CLUB

The New Year has got off to a flying start at Moorabbin, and it is hoped that this year will bring considerable progress in club activities. The general meeting in January consisted of a discussion night, in which members considered ways of introducing new activities during the year. First and foremost, our aim is to make the club call sign 3APC heard more frequently on the air. With this in view, the meeting resolved that a hook-up night be held on 40 mx on the fourth Friday of each month.

It was with regret that the meeting received the resignation of our Treasurer, Ken 3ACS, who is shortly leaving us to go overseas on official business. Ken hopes to be active with a G call sign, and we hope to hear him from this end. Meanwhile, we take this opportunity to wish Ken and his family a very enjoyable trip and hope they get the most from their stay on the other side. The meeting elected Jack 3ZEF to act as Treasurer.

The first hook-up night was held on the fourth Friday night in January. At 2000 hours the club station, operated portable from the house of Laurie 3CN, called member stations, and was promptly answered by the President, Stan 3ZE, with the Vice-President, Jack 3ZEF, visiting. Altogether ten stations participated, including one Honorary Member, Keith 3ZY, and other guest stations. The evening was voted a great success, and we invite members and friends to join us next month at the same time.

Another activity in the near future is to be the airing of 3APC on 2 mx. from the club natter night on the first Friday of each month. Plug-in equipment is being built by Jack 3ZEF and v.h.f. enthusiasts are requested to watch out for us. We hope to be on 2 mx the first Friday night in March, and each month thereafter.

A programme of technical lectures and visits is being arranged for the year. Don't forget to be with us the first and third Fridays of each month at the Library, Moorabbin Town Hall.

QUEENSLAND

During the month of January the boys have had a considerable number of things to consider. Present indications are that 1958 is off to a good start and let's hope that our Division will grow in strength and prosper accordingly.

Vince 4VJ called to mind the enjoyable times that the boys had at our last Convention. His suggestion that we hold a local barbecue was immediately taken to heart at the last general meeting. Arrangements have been made for a get-together barbecue at Cash's Crossing on March 3. All interested Hams, friends (and relatives) are requested to be at the Chermiside Terminus by 2 p.m. Two mx tx hunts are to be conducted and heats run off. So come along and get in some practice for our next Annual Palm Beach Convention. Don't forget to bring along your radio gear, XYLs and harmonics, etc.! Anyway, a good time is assured for all at a very nice picnic location.

Council wishes to remind all members that the next general meeting will be an Annual General Meeting, which brings with it nominations for positions on Council. At Townsville, there was a re-election of officers and I believe that there were no new faces present on the new council. Let's hope that Brisbane with its greater population of Hams can give some of the present councillors a well-earned rest. There are some present councillors who have served continuously for more years than they care to remember. Our Secretary, Jim 4PR, signified that he is willing to continue as Divisional Secretary for a further year and believe me, we are all very grateful as the position is one which requires

a great deal of personal effort and sacrifice. As "Nino" would now be able to say, "You don't fine mate!"

The problem of securing a new typewriter has been temporarily solved. Mrs. 4PR has graciously consented to type all our "QTC" stencils, which on a new machine will make for easy reading. We have received suggestions about purchasing a reasonable second-hand machine, but in order to conserve our finances, Council only too willingly accepted Mrs. 4PR's kind offer. Members now consider that the old Divisional typewriter, which Mrs. 4JO pounded with remarkable success, should now be used as a "boat anchor!"

At the end of February, all membership fees will be due. The cost of production of "Amateur Radio" has risen 3/- per annum. Membership fees have remained the same, so, when you send your subscription in next week, and you subscribe to "A.R." please remember to add the additional 3/-. Council was notified by the Magazine Committee that production costs could not be met without an increase in price. Don't forget, at the end of February, you are unfinancial.

On the Saturday night, following the Annual General Meeting, will be the Annual Dinner which will more than likely be held again at Anzac House. All members who are able, are requested to attend. Friends from various Trade Houses and Government Departments will be invited and we hope to have an up to the minute lecture concerning the Geophysical Year by Professor Webster, or one of his colleagues. Again, we extend the opportunity for fellowship to any of the country boys who can join us at the Annual Dinner. Further details will be published in "QTC".

The minutes of the recent Federal Convention have duly been ratified and returned for further compilation. Also, we were once again requested to keep in mind the possibility of the Institute sending a representative to the Geneva Convention next year. The estimated cost of such a trip, which would be in the vicinity of £1500, and with the possibility of our losing more band space, each member should give this matter earnest consideration. Be prepared to make that little extra sacrifice, financially, to protect your hobby.

Bert 4AO has been doing extensive maintenance to the 20 mx tx and on his holidays too! Just how keen can you get? Nevertheless full credit goes to Bert for he really brought 4WI up to date. Council requests all Amateurs to make full use of their bands and keep them populated. Latest reports are that there is DX to be had on 21 Mc. and the boys have no trouble with signals to Japan on 50 Mc.

Righto boys! Start getting all that mobile gear ship-shape, as the Palm Beach Convention isn't far off. The Division hopes to secure the National Fitness Camp once again and fees, etc., will roughly correspond with those of previous years. The last Convention was a roaring success and this year we hope to make it even better. So what about it, if VK2 boys can come all the way from Sydney to someone else's Convention, surely we can do justice to our own.

Unfortunately, Stan 4SA was recently hospitalised with a bad arm. However, you can't keep Stan down for long and he is once again making his presence felt, as was recently demonstrated by the number of students who sat for the last A.O.C.P. examination. Glad to hear you're well enough to go back into harness, Stan.

The President advises that there is no new disposals to hand, but as there are a considerable number of Government surplus sales going through, anything may turn up. It is hoped to present for the interest of members at future general meetings a series of film shows and technical lectures.

Is your rig safe? Does it comply with the regulations? Have you a frequency meter and your licence handy? These are questions you may have to answer in the near future and the Radio Inspector would like to get the right answers! You may be next.

Concluding with the request to listen for the melodious tones of the American Satellite on 108 Mc., please do not confuse these with the wedding bells that were heard recently by Jim 4OB, the Divisional Treasurer. To Jim and to Joyce, we wish all "the life that happiness can bring."

All Satellite reports are to be submitted to 4WI. See yer to-more-er Explorer!

MARYBOROUGH

4CB is operating on 10 mx only, while not watching for a break-through. He now has a 70 ft. collapsible guyed mast. 4D, is staying up late for 15 mx DX, and getting some new countries. He is also working DX on 10 mx and putting up a 7 Mc. ground-plane. Grahame made a portable rig for the

National Field Day, set up at Ghost Hill, Plaiba, and made some good contacts. He has also built a pre-selector which has brought up DX signals two S points. 4BG now has a 10 mx converter going, and is enjoying DX on that band. In addition he is re-building grid dipper for extra bandspread in order to adjust four element tri-band beam. Congrats to Noel Bignell, still at school, on getting his limited license. Get started on that c.w. Noel, so that we can hear you on the d.c. bands.

TOWNSVILLE

The Annual and General Meeting was held at the residence of 4BX and quite a large number turned up, 16 in fact. Although quite a few of the old timers were amongst the absent, nevertheless it was heartening to see a few new members roll along for nomination to the club.

The retiring officials were again duly re-elected and the Chairman and Secretary vowing that this is their last term in office and some of the younger ones had better get ready to step into their shoes. Pat 4ZBO informed the club that the R.A.A.F. club was starting classes and issued an invitation to associate members to come along. Morse would also be taught and five members signified their willingness to attend for morse and tuition in Radio. Many thanks Pat.

The Secretary 4WH presented the balance sheet and all were relieved to find we were not in the red. Joe 4JH promises to give his long-awaited lecture in March—nailed him down at last. My apologies to Harry 4ZP at Sarina for not meeting him in Mackay as promised. Truth is the wife would not face that horror stretch beyond Bowen.

Eric 4EL and Len 4SD chasing the Europeans on 10 mx each evening, closely watched by Ted 4EJ and John 4DD. John took on holidays to Sydney and on the look out for parts for the gang. Bits and pieces hard to come by up here. Ted is unable to rotate the beam due to birds building and hatching their eggs. Vern 4LK had a few hurried visits in course of business and now building mobile gear (all bands) for the car. Shortly shifts to new QTH away from QRM. Bob 4NG watch out now. Bob 4TK also sends along news.

A Christmas morning hook-up on 7 Mc. had Basil 4ZV, Harry 4ZP, Vic 4BJ, Bob 4TK, Vern 4LK, Alex 4MA, Frank 4FC, Claude 4UX and Frank 4FN. Andy 4BW was missing due to holidays. Andy spent two weeks at Port Douglas where he listened each day on sked times. Also spent some time at Atherton as guest of Harry 4HK. Another large hook-up was held on New Year's Day. Alex at Mt. Garnett spent part of his holidays in Cairns where he operated portable and also assisted Basil 4ZV in re-arranging his new rig. Basil crushed his little finger while doing chores around the house. Bob 4RW called on a few of the Hams in the far north whilst on holiday and operated from some of them. Gordon 4GH of Maryborough was also a visitor to the north and called on several of the gang en route.

Harry 4HK and Bert 4BP have joined the morning or afternoon hook-up on 40 mx at times. Likewise John 4DK, while Don 4PW has been heard since his return from Rocky on leave. Listener Agton at Atherton has erected a smart efficient and rotatable beam for 50 Mc. and has new converter for his rx also. Why not try for a Z call sign Agton? Bob 4TK at last finished his all-band rig which has a multiband coupler. Tom 4TT and Andy 4BW in a 3-way with Eddie 5OW at Darwin on 14 Mc. most evenings. Norm 9NT getting settled in at Rabaul and expects his cases of junk to arrive from Mareeba at any time. Vic 4BJ at Beautiful Bundy off on holidays and developed a passion for Nth. Qld. mangoes. While Harry 4ZP does the same for watermelons during the hot dry spell. QSOs between Harry and Andy approaching the 1,500 mark. Ted 4MH (Cairns) comes on the air from time to time. Rumor has it that Ken 4XD giving up the game and has his gear up for sale. Want to see some surplus gear just call on Bill 4XM. He has a house full, no kidding.

SOUTH AUSTRALIA

There just cannot be many growls or complaints in our Division these days, because at the last get-together general business was at a minimum and took very little time to get through, so that within the hour of opening the meeting, President John was able to hand over to those two hard working types, Dougal 5BY and Norm, to conduct the "Tender" programme. This they did with great gusto and the amount of gear that changed hands was amazing, ranging as it did from morse keys (complete with dust—for shame) to complete units.

These nights are usually well attended and this one was no exception, in spite of that there was a fair carry over, some of which went by private treaty and went away in new hands.

Our membership is still growing, 7 new associates, and 2 new full members being added at the last meeting, there being a few conversions imminent too, when last exam. results are known, so Norm gets it both ways, or he gets you both ways, but in the main keeps the membership alive. Congrats to the new faces, hope you enjoy the fraternity of membership.

The January holiday saw the annual picnic function again, this time Tea Tree Gully being chosen, which turned out to be a really good choice, for it was apparent that all who attended really enjoyed themselves and agreed it was as good a picnic as we had ever had. Whether it was the compact nature of the facilities of the grounds, the weather, the programme, or the organisers, something or a combination of them made a very friendly and enjoyable atmosphere, that gave the proceedings a swing that must have delighted Norm, Frank 5MZ and Luke 5LL, all of whom really put a lot into the show. We missed Joe 5JO, but as he was unfortunately tied up at home could not make it—hope all well again now Joe.

Several of the items were perhaps illuminating in their way, for instance XYL of Treasurer Jim 5FO proved that she could throw a rolling pin further than anyone else (Jim can run and duck well), whilst my XYL, who came second in that event, caused me some alarm—I'm now taking running lessons, to hang with DX for the time.

They had us threading needles, running bare footed over three-corner jacks, putting other blokes' boots on and finally playing cricket and in the latter event that partly character no less than "Fanny" (Aga Khan) 5FS was a starter, but didn't tire himself at the crease, in fact it was considered his filters were wrong somewhere in that a fast one from John 5ZBA just went through like any vigorous harmonic would.

Phone once again cleaned the c.w. out, there being no need to quote scoring, that would be too painful, but phone did have an advantage in a couple of scorers who obviously do not confine their playing to W.I.A. picnic days.

Some hidden talents of a few of the younger members came to the fore and it was nice to see them in action. The final scores were c.w. all out for 38, with phone 5 for 118.

The tennis courts were not neglected, nor did the children miss out. "Uncle Frank Bentley" had a host of novel items and ideas, including an animate button hole skeleton that caused a riot and a good supply of minor prizes and plenty of ice-cream. The doll in the ice competition was won by the great grand-daughter of a dear old lady, who at 85 years of age, was present and enjoying the proceedings, the little girl being John Hazeldine's youngest.

An inspection of the car of Len 5OC disclosed a spade (or shovel—depends on your old school) and it was considered that to be the one he uses to dig them out of the QRM with, whereas in fact it is used to gather suitable garden soil. The trick being that if you pay him a visit at any time, the entry fee is a bag of dirt—reason?—he lives on a hillside where nature has denuded the rocks of suitable soil and XYL wants a garden.

By the way, it is possible that Len has the only set-up where the antenna leads go down through the floor of the shack to the flat top which happens as a result of said hillside.

Bob 5BG has another unique set-up, his ant. being close to a b.c. vertical and he has 1 amp. of r.f. at one frequency coming down the feeders and his own r.f. going up (quantity not quoted). What about beating something against the 1 amp. and poking side bands on it Bob—you might make history!

The Gibber boys at 5WC are still on the ball. Pat G13KIX recently joined the team with a couple of others who are c.w. types, so get your b.f.o.'s on chaps and be in it. Ron 5FY building a new 5OW rig around a Geloso and he tells us it will have plate and screen modulation this time, good for him, better for us.

News from the South East tells that Col. 5CJ is still on 7 Mc., and a recent meeting of the gang at Gambler, took the form of a visit to the shack of 5CJ where a very enjoyable evening was had by all, especially the part played by Mrs. 5CJ in providing an excellent supper. The appetites of the chaps being the best proof of the quality. The tape recording dealing with noise limiters, etc., was well received by the chaps also, and their thanks to the Division in making the tapes available.

John 5JA still off the air, for shame, for it's the one-eyed monster that still occupies his

time. Erg 5KU heard occasionally on 20 c.w. Stewart 5MS pokes out a signal on 20 now and again, his daughter recently returning from U.K. with personal news of some of Stewart's G contacts.

TASMANIA

NORTH WESTERN ZONE

A record meeting was held at Burnie during February at the QTH of our President, Sid 7SF. Twenty-four members were present, no less. A lively discussion took place on the pro-forma circulated by the Noise Location Committee in Hobart and it was decided to make a 3-hour listening watch on Sunday, 9th February from 9 a.m. to 12 midday in an attempt to correlate noise on the N.W. coast.

A practical demonstration of the Hon. Secretary's new coil winder followed after the meeting, and Ted 7EJ performed his usual task as auctioneer.

The highlight of the evening was the supper provided by Sid's mother, ably assisted by his sister, Enid; Joy, XYL of Roy 7RN; Mrs. Bob Wilson and Miss Fhyl Greaves. The usual comment applies and Sid should be able to live on sandwiches, sausage rolls and cream cakes for at least a fortnight. Congratulations all round.

Sid's t.v. set also created some interest, particularly when Ken 7AI knocked a wire off somewhere and we had sound but no picture.

Understand Ray Schulze, a Devonport associate, has purchased a No. 19 set. Study on Ray and you will be able to push the key to "Tx" before long. Associate John Lee is getting quite serious about this Ham business and has obtained a pair of poles with the aid of a couple of bullocks. Believe bullocks will also be used to erect same.

Allan Baptist is receiving t.v. sound and although Allan has no working tube, the beam on the roof tops has given him increased social standing, in fact the whole street appears to be proud of it.

Lee 7KC heard by Sec. Max calling his home State—VK6—recently on 40 mx, only trouble was found out later Lee was calling on 20 mx.

Had a trip down South recently, worked portable from Hobart and was heard by Myles 7MF on King Island. Thanks for report Myles. Visited Ken 7KA and found out why 7KA sounds like a kw. There is certainly some work there Ken, and what about going into commercial production for beams, or do I remember you saying "never again"!

Burnie associate Ken Brown seen at the local auction again; bought a telescope for 30/. Any sighting of the Explorer yet Ken? Associate Terry Tongs also visiting auction. That AR8 was too dear anyway Terry.

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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.

FOR SALE: Eddystone 750 Receiver as new, had very little use, £100. Also a quantity of unused Ham gear including unused parts for a 1,000v. power supply, a Tecnico N80 crystal mic., an 813 valve and a host of other valves and equipment. Leo R. Dwyer, Newry, Gippsland, Vic.

FOR SALE: Ideal Mobileer, 4-wheel drive, ex-amphibious Jeep; 12 v. 80 amp. gen., excellent throughout. Reg. Sept. P. Ward, Highton, Geelong, Vic.

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1 x 12 x 3	31/4
2 x 4 x 3	24/10
2 x 5 x 1	11/7
2 x 5 x 2	17/10
2 x 5 x 3	24/10
3 x 3 x 1	11/7
3 x 3 x 2	17/10
3 x 3 x 3	24/10
1 x 2 x 1	11/7
4 x 2 x 2	17/10
4 x 2 x 3	24/10
5 x 2 x 1	13/10
5 x 2 x 2	23/10
6 x 2 x 3	31/4

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0.3/600	1/6
0.5/200	1/2
0.05/400	1/4
0.5/600	1/7
0.1/200	1/2
0.1/400	1/9
0.1/600	2/0
0.25/200	2/0
0.25/400	2/5
0.25/600	2/11
0.5/200	2/7
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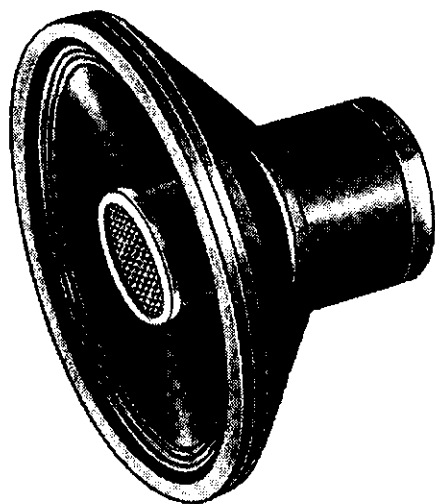
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EDITORIAL



Is the Australian Amateur Abreast with Communication Progress?

Let us first of all define what we mean by "Communication Progress" based upon general developments in the world of commercial and Amateur communications.

Receiver design,
Transmitter design,
Modulation techniques,
Pulse techniques,
Antenna design,
Propagation problems,
Television,
Instruments.

Generally speaking the nature of items published in the magazine of any organisation reflects the thoughts and interests of members. Probably because our members are Amateurs much of the good work done does not reach the pages of our magazine due in some cases to fear of criticism and in others to the "leave it to the other fellow" attitude characteristic of Australians generally; however, those subjects which have been covered in the magazine indicate that interest in new techniques is well maintained.

The nature of technical lectures given at Institute meetings and the interest taken therein is another means of gauging the technical progress of members.

Yet another way of assessing the technical standards and interests of Radio Amateurs is to listen on the bands to the ideas being exchanged thereon and the discussions which follow.

The advent of Limited A.O.C.P. gave great impetus to u.h.f. and v.h.f. activities, because it brought into the fold many men who are interested in technical progress rather than communication for the purpose of earbashing or DXing.

It is a long time since the Institute conducted a full scale exhibition, but we are confident that if such an exhibition is held the quality and modernity of Ham gear would offer visible proof of the Amateur's ability to keep abreast with new techniques, both theoretically and practically.

We are firmly convinced that at present the answer to the question posed in our title is emphatically yes, however in the future the answer will depend upon the maintenance of a steady stream of recruits to our ranks.

Realising that the best way to ensure fulfilment of our hopes is to encourage every potential Amateur into the fold not only by extending a helping hand but also by giving him or her the opportunity of obtaining practical experience.

With this in mind your Executive has assiduously pressed for issue of "Novice" licence. Our reasons are not altogether selfish, a fact that is borne out by the support we have received from the Defence Services, who realise that in an emergency the Amateur is a trained specialist capable of immediate assimilation into the communication branch.

FEDERAL EXECUTIVE.

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Propagation Studies on 3.5 and 7 Mc.

BY HANS J. ALBRECHT*

THE International Geophysical Year having commenced in July 1957, all sections of Geophysics experience a period of considerable activity. Many scientific organisations and institutions co-operate on an international basis in an enormous effort to obtain research results on geophysical phenomena. On the other hand, the huge continent in the south, Antarctica, is being investigated systematically by expeditions of many nationalities.

In ionospheric research, one of the particularly important items on the I.G.Y. programme is a thorough investigation of ionospheric propagation in all possible frequency ranges. In the case of the sporadic E-layer, for instance, observations on frequencies of the order of 50 Mc. are thought to be conclusive for research on the movement of sporadic-E clouds. In addition, data are collected on the origin of sporadic E-ionization, and its regularity and predictability, if any.

Another branch of propagation research refers to the so-called scatter propagation. A lot of work is yet to be done in this field but, nevertheless, a development of great significance appears to be ionospheric scatter communication in the v.h.f. range, admittedly somewhat expensive, but consistent and relatively dependable.

With regard to long-distance propagation on frequencies between 3 and 30 Mc., it may be said that the control-point concept of great-circle propagation is sufficiently accurate for all practical purposes. This means that the opening of a certain band to one or the other continent can be predicted with reasonable accuracy, on a monthly basis, by choosing control-points along

the great-circle path, one each approximately 1,250 miles from either end. The critical frequencies at these points, multiplied by the m.u.f. factors, then indicate two values of m.u.f., the lower of which being regarded as the m.u.f. of the path. It has been proved statistically that, for generally useful predictions, the behaviour of the ionosphere between these control-points is not of appreciable significance.

On the other hand, it is of great scientific interest to have some information on the actual path taken by the signal. A well known theory assumes multiple hops between the ionosphere and the earth's surface, although there has always been reason to believe that this concept is rather debatable.

NEW METHOD OF PATH ANALYSIS

During the last few years, the author developed a new approach to propagation analysis, based on his ionospheric observations at Box Hill, Vic., and published it in his capacity as I.G.Y. research consultant, Mediterranean Area⁽¹⁾. The new method may briefly be described as follows: "Path Attenuation" being the attenuation a signal experiences on its path along the great circle, this quantity may be measured if the actual transmitting power and the signal strength at the distant receiver are known. The amount of this path attenuation depends on the distance, on the absorption along the ionospheric path, and on losses at earth-reflection points, if any. Careful selection of operating time and frequency allow a practical elimination of effects of the second factor, the ionospheric absorption. Furthermore, the decrease in strength due to distance may be taken into account by calculations. Thus the residual path attenuation measured is

an indication of earth-reflection losses along the path.

However, the interpretation remains clear only if certain theoretical aspects are considered. Details being beyond the scope of this contribution, it may just be mentioned that the operating frequency mainly used by the author was 3.5 Mc. and a minimum distance of the order of 10,000 miles was found to be essential. The new method⁽¹⁾ may be utilised either passively (receiver only) or actively (with receiver and transmitter). With the latter method the author of course restricted himself to normal Amateur DX communication within the 3.5 Mc. band. Emphasis being laid on signal strength reports and transmitting power on both sides, a large amount of observational data was collected during the period of about three years up to 1957.

As is to be described further below, applying this method of path analysis the author found a new hypothetical theory of radio propagation, the chordal-hop theory⁽¹⁾.

AMATEUR REPORTS

As is known to all readers of the DX page at that time, reports on the times of band openings were always particularly welcome. These times served an entirely different purpose, namely the comparison with the times predicted, as has been mentioned and analysed in a previous article in this journal⁽²⁾.

Expressing once again his appreciation of the excellent co-operation of VK Amateurs, the author wishes to emphasise here, as he has done wherever possible and advisable, that serious Amateur reports are of great scientific value. This is undoubtedly the field where Amateurs are in a unique position to prove the justification of their existence in the light of international conferences on frequency distribution, etc. In all corners of our globe, one can presently find Radio Amateurs making their contributions to the I.G.Y., particularly by observing sporadic-E breakthroughs on v.h.f. and by assisting in the electronic satellite observation. Summarised and analysed accordingly, as described previously⁽²⁾, Amateur reports are, in general, a very useful basis for scientific investigations.

CHORDAL-HOP THEORY

Referring again to the new approach to path analysis, the author found that, on the average, the amount of path attenuation was identical to that determined by theoretical calculations, without the losses due to earth-reflections. It was thus concluded in⁽¹⁾ that, within reason, there is no direct proof for multiple-hop propagation between ionosphere and the earth's surface.

Looking for a theory of propagation which could replace the old multihop concept, the author calculated so-called "path diagrams" which display the behaviour of the ionosphere along the great-circle path under investigation. Thus he found that, within 600 to 1,250

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miles of each end of the path, there exists a more or less steep change in the height of the F-layer. It may be pointed out that, due to 3.5 Mc. being the operating frequency, DX communication is of course only possible when the ionisation of the other layers is so small that absorption can almost be neglected for the purpose of this path analysis. In consequence to relevant calculations, it may be assumed that, for instance for the path Eastern Australia-Western Europe at 1900 GMT, February 1954⁽³⁾, a transmission angle of the order of 5° resulted in the ray experiencing an additional upwards bending at the first ionospheric reflection point caused by the inclination in the layer. Briefly, such an inclination, in addition to a change in the refractive index along the path, results in a propagation path of the form of geometrically inscribed hops or, better, "chords" of the layer, as shown in Fig. 1. Based on certain theoretical

considerations⁽¹⁾ the chordal-hop path consists of a number of ionospheric reflections without the appropriate number of reflections at the earth's surface. In other words, the ray may be reflected along the ionospheric layer without touching the ground again before other corresponding inclination and refraction conditions cause it to be bent down at the correct distance from the receiving point.

There is every indication that this theory not only holds for frequencies near the lowest-usable-high-frequency (l.u.h.f.), as 3.5 Mc., but also for higher frequencies as long as propagation takes place via a layer. The author also found similar conditions with 7 Mc. DX communication during the same period.

In conclusion, it may be stressed that conducting this propagation research from Australia proved to be very advantageous, because propagation to two continents easily workable on

3.5 Mc., namely, North America and Western Europe, obeys representative and consistent rules under undisturbed conditions. It is very doubtful whether such experiments would have been equally successful from other points of the globe.

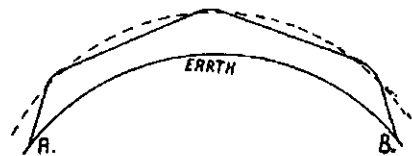


Fig. 1.—Principle of chordal-hop theory. Path from A to B: ——— Minimum height of layer: - - - - (Sketch only, not drawn to scale.)

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- (2) Hans J. Albrecht, Analysis of world-wide ionospheric propagation to and from Australia, 1953-54. "A.R." Vol. 24, Nr. 10 (1950).
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BOOK REVIEW

"TV FAULT FINDING"

This book, as its name implies, is written for the person who has to find faults in t.v. sets and by means of profuse illustrations of almost every conceivable fault, does just that.

It has been assumed that the reader has a basic knowledge of television theory and practice and by means of this book he should be able to recognise the characteristics of the fault in his t.v. set, and by using the fault-finding guide and profuse illustrations, put his finger on the fault.

It must be remembered that this book deals with the English positive modulation of the picture and amplitude modulation of the sound, but nevertheless only a small amount of the fault finding data will not apply to our Australian system.

We recommend this book as a handy reference on t.v. fault finding.

Our copy from Data Publications Ltd., 57 Maida Vale, London, W9. Price 5/- sterling.

"AN INTRODUCTION TO THE CATHODE RAY OSCILLOSCOPE"

By Harley Carter, A.M.I.E.E.

This book is another of the popular Philips Technical Library series and is written for the person who has only a nodding acquaintance with oscilloscopes.

It deals with the basic construction of the cathode ray tube, following with time base circuits, saw tooth linearity, and finally with amplifiers and power supplies for the oscilloscope.

No attempt has been made at mathematical treatment, the aim being to educate in a general way.

Circuits of four complete oscilloscopes are included together with examples of practical applications of the instrument.

This book is distributed in Australia by Philip Electrical Industries, 69-73 Clarence St., Sydney. Price 12/6 Sterling.

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AMATEUR TELEVISION

PART TWO

BY E. E. CORNELIUS,* VK6EC/T

THE VIDICON CAMERA TUBE

This camera uses a standard "Vidicon" type camera tube, available from most British and American makers of camera tubes. One British firm is releasing its substandard tubes through the British Amateur Television Club, at £25 stg., F.O.B. London. These substandard tubes have minor flaws, either a few spots on the photosurface or wall screen, causing small bright spots on the picture, or an overlong storage time, causing some "smear" on fast moving objects. Mine has five tiny spots, only visible when the lens is capped. As the new price of a perfect tube is of the order of £135 stg., the discount is considerable.

The tubes are easy to get going, sturdy and stable, have no "bugs" and give excellent resolution. Resolution to 5 Mc., and 400 lines or better, with sensitivity enough to give a reasonable picture under normal room lighting with an f.2 lens. Try a movie camera under these conditions! The pictures are perfect under good lighting, and one of my lenses is still much too fast at f.14 in sunlight.

For those interested, here is the method of obtaining one of these tubes.

1. Join the club by writing to:—

British Amateur Television Club,
L. A. F. Stockley, G3EKE,
4 Norbury Court Road,
London, SW16,

requesting membership, and sending 10/- stg. for a year's membership. This also entitles you to "CQTV," an invaluable little quarterly journal.

2. Obtain an Import Licence Form A.I.L. from the Department of Customs and Excise. Fill in details:—

Category: Item: 181 A1 B1:
Description: Television Camera
Tube Vidicon Type.
Unit Price: £25 stg.
F.O.B. Value: £A31/7/6.
Freight and Insurance: £A6/12/6
approx. (airfreight).
Total C.I.F. & E.: £A38.

Write a covering letter explaining that you need the tube for bona fide t.v. research, that the tube is a manufacturer's reject, and forward to your Collector of Customs. You should have no trouble obtaining the licence, and Sterling released.

3. Write to the B.A.T.C. requesting supply of the Vidicon tube, and send a draft for £25 stg. only. Keep a carbon of your letter.

4. Wait about 4 to 6 weeks, tube will arrive, and a covering air letter from B.A.T.C., indicating the exact cost of freight, etc.

5. Take original of Licence A.I.L., your letter advising despatch from B.A.T.C., and carbon of your letter ordering the tube, to the Customs for clearance. As this is more or less a private transaction, and no trader's invoice is available, you will have to explain that the B.A.T.C. as a Club is arranging, through the goodwill of the

manufacturer, to handle the British end of the deal. They require reasonable proof that the £25 stg. is the true value of the tube. Explain that the tube is not for resale, but for your own use in research, and is a reject unusable for commercial use, and no Sales Tax should be payable.

6. Collect tube from airfreight depot, beautifully packed.

7. NEVER allow the tube to be face (target) downward, as particles of cathode material, etc., may lodge on the wall screen or target, and cause spots on the picture.

The unit to be described consists of the camera proper and the viewfinder. They may be made up as separate units, with the viewfinder normally clamped to the top of the camera, but detachable if required. In a first design, the viewfinder may be omitted, but if the camera is used remotely, even a few feet away from the monitor screen, the viewfinder becomes necessary. See Fig. 5 for a block schematic.

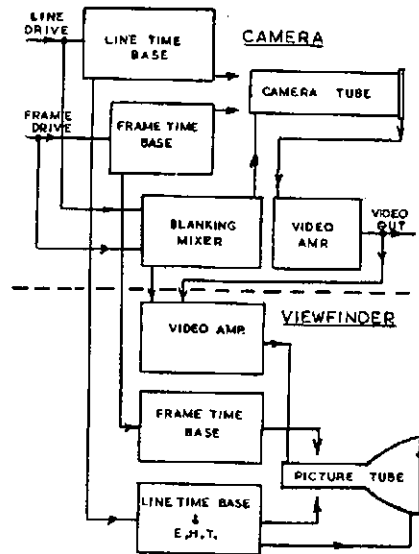


FIG. 5. CAMERA BLOCK SCHEMATIC

CAMERA

This consists basically of three parts, line time base, frame time base, and video amplifier. Line drive and frame driving pulses from the sync. generator are used in the two time bases, and the pulse trains are combined to give camera blanking. This avoids having to send composite blanking up the camera cable, saving one coaxial cable, and as the driving signals are shorter in duration than standard blanking, the picture is slightly larger than that transmitted, which of course is "cropped" later with standard blanking.

Fig. 6 shows the complete circuit, camera section at the top, and viewfinder at the bottom. Four signal leads

interconnect the two, amplified line and frame driving pulses, at high impedance, composite blanking also at high impedance, and a sample of video from the camera at low impedance. If it is anticipated that the viewfinder should be used some feet from the camera, the high impedance feeds will not do, and cathode followers interposed.

Time Bases

Two half 6SN7s, V1A and V3A act as driving pulse amplifiers, and feed high amplitude positive pulses to the two sawtooth discharge tubes, V1B and V3B. The amplified pulses also go to the viewfinder discharge tubes as outlined above. V2 is the line sawtooth current generator, feeding about 150 mA. to the vertical yoke, from the transformer. Width and linearity controls interact somewhat. A 25 ohm centre tapped potentiometer acts as a centreing control, being fed about 200 mA. of centreing current from the power supply.

V4, another 6V6, is the frame sawtooth current generator, with its output heavily damped, both at the transformer (300 ohms) and at the yoke with 2 x 750 ohms. Centreing is similar to the line circuit, but as the circuit is of higher impedance, and virtually resistive, the capacitors around the centreing potentiometer are not necessary. In each deflection coil feed a 10 ohm resistor is used for c.r.o. measurement, both of amplitude, and for some indication of linearity. The current is 100 mA. for each volt of c.r.o. deflection.

Focus Circuit

The camera tube focus coil has its focus current stabilised by a constant current pentode, which is shown at top right, and normally will be mounted in the camera control unit. Two alignment coils obtain current from this circuit, via centre tapped potentiometers, for beam alignment. Focus current will be about 40 mA.

Tube Circuit

The tube itself requires various potentials, obtained from the networks shown. The target potential potentiometer is normally in the c.c.u., giving from +10 to +60 volts, the lower the better. Overall control of beam current should be from the c.c.u. also, and the -105 volt terminal shown in the grid network will go to another beam current potentiometer in the c.c.u. As shown, electrostatic focus control is in the camera, while magnetic focus is controlled from the c.c.u. They are more or less interchangeable, and the c.c.u. should have main control.

Camera Tube Blanking

The camera tube must have blanking applied, or the retrace lines will show in all pictures. It requires 25 volts minimum positive blanking to the cathode, or 50 volts negative to grid. In this camera, the line and frame drive

* 157 Wood Street, Inglewood, Western Aus.

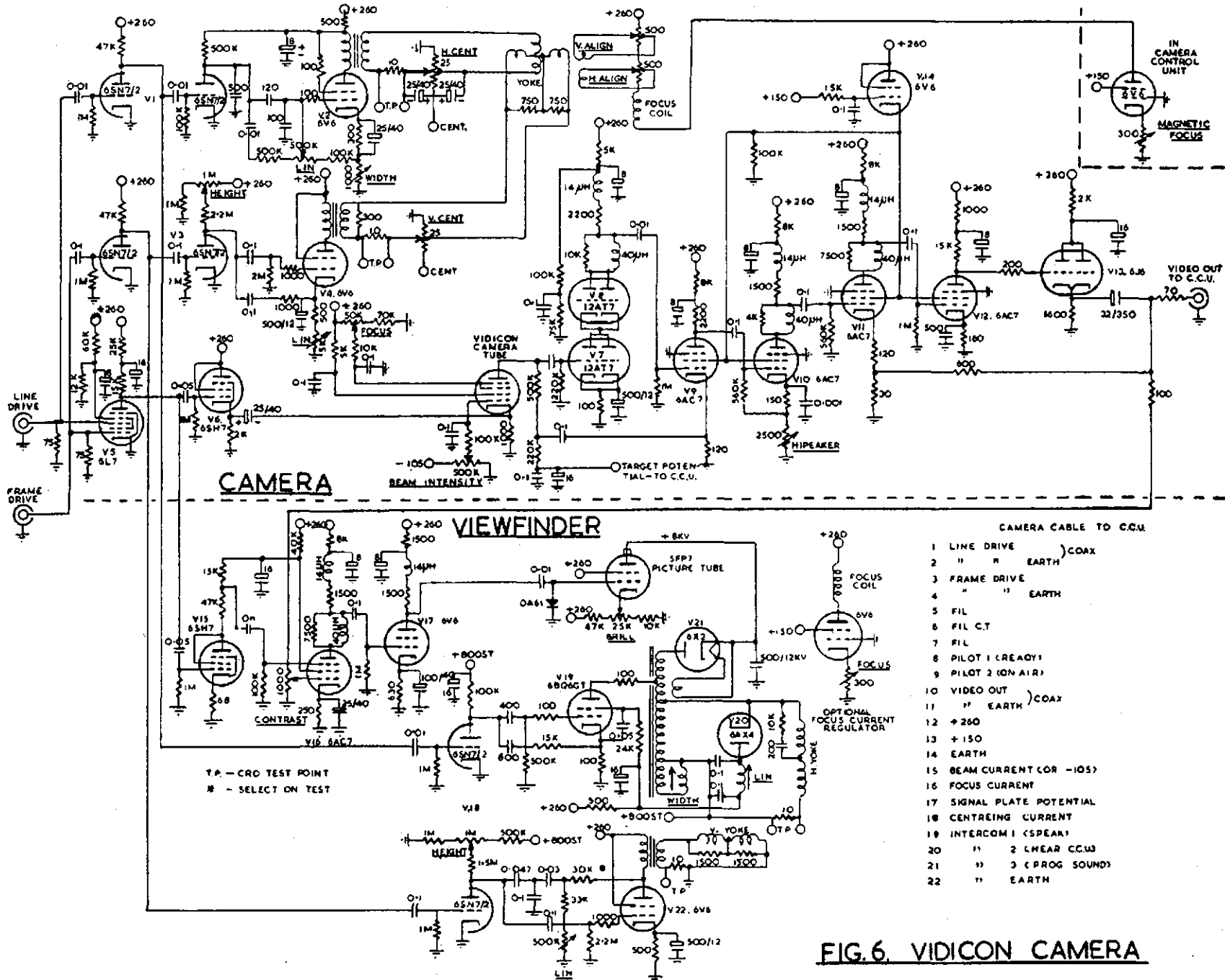


FIG. 6. VIDICON CAMERA

pulses are mixed in the 6L7, V5, and positive clipped pulses from its plate being fed via a cathode follower V6 to the camera tube cathode.

Video Amplifier

This uses a cascode input stage, four amplifying stages, with cathode follower output, and a voltage regulator for the screens of the pentodes. The amplifier was designed to provide more than adequate bandwidth, controllable high peaking, the correct gain for normal lighting conditions, and a high value of target load to minimise noise and microphony. Other features are a feedback input stage for stability and h.f. compensation, and a feedback output stage for low impedance.

For feedback amplifiers, the component values are rigidly tied to the tube types, and the method of design may be of interest.

For a target current of 0.2 μ A. (peak white) across 0.5 megohm load, 0.1 volts is applied to the input stage. An output of 1.0 volt p/p. was required, so the minimum overall l.f. gain was therefore 20 db. Allowing 20 db. more for low light level operation, the designed external l.f. gain was 40 db.

For a bandwidth of 5 Mc., and 20 pF. stray capacitance at target, $X_{C_{stray}}$ at 5 Mc. = 1,600 ohms. As the target load is 500,000 ohms,

$$\text{H.f. loss} = \frac{500,000}{1,600} = 312 = 50 \text{ db.},$$

therefore internal gain must be 40 + 50 db. = 90 db., with 50 db. of high peaking. This was allocated as follows:

Stage	Circuit	H.f. Gain	L.f. Gain	High Peaking
1	Cascode 12AT7s with 100% feedback	23 db.	0 db.	23 db.
2	6AC7	20 db.	20 db.	0 db.
3	6AC7 high peaker	20 db.	-7 db.	27 db.
4	6AC7-6AC7-6J6 feedback pair	27 db.	27 db.	0 db.
		90 db.	40 db.	50 db.

The 12AT7s (V7, 8) with 2,200 ohm load, and by-passed cathode, have a gain of $g_m R_a = 7 \times 10^{-3} \times 2,220 = 14 = 23 \text{ db.}$ Full feedback from the cathode of V9, gives an external gain of unity, and 23 db. of high peaking.

Stage 2 (V9) is orthodox, but with unby-passed resistor.

$$\text{Gain} = \frac{g_m R_a}{1 + g_m R_k} = \frac{9 \times 10^{-3} \times 2,200}{1 + 9 \times 10^{-3} \times 2,200} = 9.5 = 20 \text{ db.}$$

The third stage (V10, the 6AC7 high peaker) has an l.f. gain which is variable but is set to approximately 0.5, i.e. -7 db. H.f. gain is set by $R_k = 1,500 \text{ ohms, and } X_{C_k} = 31.8 \text{ ohms at } 5 \text{ Mc. By the formula above, gain at } 5 \text{ Mc.} = 10.5 = 20 \text{ db., and thus } 27 \text{ db. of high peaking.}$

The fourth stage is a feedback pair designed as follows: V13 is a 6J6 with $E_{ak} = 100 \text{ volts, } I_a = 17 \text{ mA., fixing the cathode load at } 6,600 \text{ ohms, and } E_k = 112 \text{ volts. Therefore } E_c \text{ will have to be } 110 \text{ volts. This sets the plate voltage of V12, and as } E_b = 260 \text{ volts, and } I_a = 10 \text{ mA. } R_a = 15,000 \text{ ohms. With } R_k = 150 \text{ ohms, by-passed only by } 500 \text{ pF.}$

From the formula above, the gain of this stage is 52. V11 is a 6AC7 with 1,500 ohm anode load, and a gain of 10. Hence the total internal gain =

$52 \times 10 = 520.$ The external gain required is 27 db. = 22, and set by the feedback loop constants of 660 and 30 ohms.

The feedback $B = 1/22$ and the feedback factor $1 + BA = 1 + (520 \div 22) = 24.$ Therefore the output impedance of the 6J6 =

$$\frac{1}{g_m} \left(\frac{1}{1 + BA} \right) = \frac{90}{24} = 3.7 \text{ ohms.}$$

This is adequately low, and built out to 75 ohms by the 70 ohm resistor in series with the output line.

For zero tilt at 50 cycles, and coupling constants of 0.1 μ F. and 1 megohm, decoupling component values of 7,500 ohms and 8 μ F. are required. By using different coupling time constants between the stages within the feedback loop, stability is improved.

The circuit shows all values nearly as computed, and is extremely reliable and easy to get going. If you use different tube types, recompute on the lines above.

VIEWFINDER

The sweep circuits are quite straightforward, embodying nothing new to normal receiver practice, with the exception that, as in the camera, there are driven time bases, not free running, and will close down on failure of the driving pulses. The constants in the output circuits may have to be modified to suit the transformers and yoke used, but the circuit is a good one, and gives good sweep linearity. Test

Stage	Circuit	H.f. Gain	L.f. Gain	High Peaking
1	Cascode 12AT7s with 100% feedback	23 db.	0 db.	23 db.
2	6AC7	20 db.	20 db.	0 db.
3	6AC7 high peaker	20 db.	-7 db.	27 db.
4	6AC7-6AC7-6J6 feedback pair	27 db.	27 db.	0 db.
		90 db.	40 db.	50 db.

points are provided for waveform inspection as in the camera.

The video amplifier uses two stages to build up the 1.0 volts of video from the camera to the required 40 volts or thereabouts needed for picture tube modulation. Additional blanking is inserted in the suppressor of the first tube (V16) via a 6SH7 (V15).

CAMERA DEFLECTION CIRCUITS

The camera tube requires special magnetic components, which are not difficult to make, although perhaps a bit tedious. The tube itself is shown in Fig. 7, all dimensions given being maximum. Some tubes have only the side exhaust tip, while others have both.

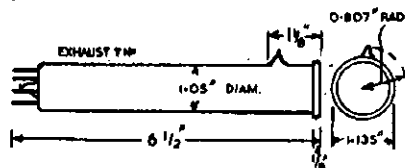


FIG. 7. VIDICON TUBE

Fig. 8 shows the assembly of the focus, deflection and alignment coils, with respect to the tube and each other. The front of the focus coil has a specially designed cheek, which is also the signal plate connector.

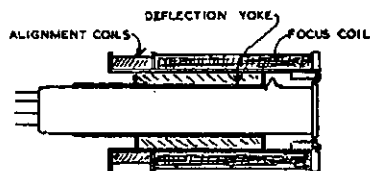


FIG. 8. YOKE & TUBE ASSEMBLY

Deflection Yoke

This consists of a former carrying an electrostatic shield and the deflection coils, through which the tube is inserted. The dimensions of the former are shown in Fig. 9. The tube is 1-1/16" x 1-1/8" paper based bakelite. The cheeks are of 1/8" Paxolin or similar, and a snug sliding fit inside the focus coil tube. The rear cheek is drilled for tags as in Fig. 9, the tags consisting of 18 gauge tinned copper wire, a tight push fit in the holes.

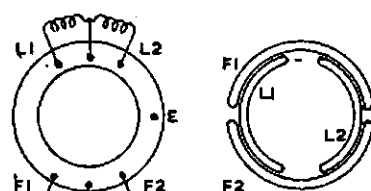
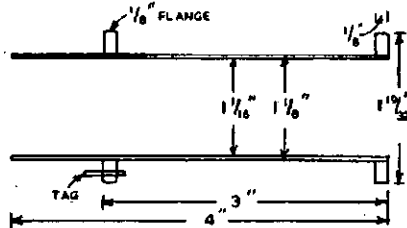


FIG. 9. YOKE ASSEMBLY

The electrostatic shield is a strip of 3 thou. shim brass, 1/8" wide, and about 3 feet long. It is anchored at the rear end, and terminated on the earth tag. It is then wound as a spiral up to the front of the tube, making sure that the edges of each turn do not touch. The front cheek is fitted next, with a circular shield of 10 thou. shim brass inside the cheek, and terminated to the end of the spiral. Scotch tape one layer over the spiral shim shield.

The Coils.—Make up the jigs as in Fig. 10, using 2" lengths of 1/16" Hitest welding wire as the 12 pins for the frame coils. Use 16 gauge aluminium or brass for the coil cheeks.

Frame Coils

Wind with a total of 620 turns each of 34 B. & S. double tough enamel wire, as follows: Insert four waxed threads in the slots (thin cotton) and

wind on 150 turns. Insert first row of pins, then 160, 150 and 160 turns on each set of pins in that order. Insert an additional 12 threads in the gaps between the pies at the corners, and tie all pies (16 in all), all knots being on the nut side of the jig.

Remove top plate (nut side), clearing the knots carefully after all pins and bolts have been taken out, and the core removed. On each side form the bulging wires to straight, and hold in place with a piece of Scotch tape in the centre of each side with the free end of the tape outside. Temporarily replace jig cheek over tapes, invert, and remove the other jig cheek. Carry the tapes around the coil on all four sides. Carefully cut all knots and remove thread, being careful not to cut the wire. During this process, the coil is very delicate to handle.

Make sure it is well shaped and flat, and dope lightly with shellac or similar. When nearly hard, form to an inside radius of 0.69" on a waxed wooden mandrel, bending the long side. Tie with thread till dry. The finished

sizes are shown in Fig. 10, but as long as the short side is under 2 1/4" it will go on the former.

Line Coils

These are wound with 105 turns each of 26 B. & S. double tough enamel. Place long waxed threads in the bottom of the slots, and wind on 26 turns. Tie at each corner, and wind on 26, tie, 26 more, tie, and finally 27 turns, and the last tie.

These coils are quite solid when removed from the jig, and after dopping, are bent on the 1 1/4" side, on a mandrel to a radius of 0.55".

Fitting.—The line coils are fitted to the former exactly opposite each other, and parallel to the axis. There will be a gap of some 3/16" between adjacent edges. Tape in position with Scotch tape, connect series aiding and terminate to the tags.

The frame coils are placed over the line coils, opposite each other, and at right angles to the line coils, see Fig. 9. They are best attached to a thin paper former, which is then slipped over the

line coils. This enables the frame coils to be rotated slightly to give a truly rectangular scan, and then cemented in position. Terminate to the tags as before. Fit a thin tube of paper over the coils, dope, and the yoke is complete.

Electrical Characteristics	Frame Coils	Line Coils
Ohms per coil	80	1.8
Inductance per coil, after shaping	17 mH.	0.6 mH.
Inductance — assembled — both coils	41 mH.	1.35 mH.
Resistance — both coils	159 ohms	3.9 ohms

Alignment Coils

These are far from critical and can be wound on a jig having a core 3/8" x 7/8" x 1/4" thick, with 500 turns each of 34 B. & S. enamelled wire. Outside dimensions are about 1 1/2" x 3/4", and curved to a radius of 1 1/4". Four coils are required, and mounted in the form of a small yoke, on the space provided on the focus coil assembly.

Focus Coil

The assembly of the former is very similar to that of the yoke, with paper bonded bakelite tube for the former, and cheeks of Paxolin or similar. Layer wind with 6,500 turns of 32 B. & S. enamel, over a 5 thou. tubular shim brass shield, with 10 thou. shim brass end pieces inside the end cheeks. Bring out an earth lead, and focus and alignment coil connections on tags in the back cheek, as for the yoke. See Fig. 11.

The front cheek is also the target connector, and is made of Paxolin or similar turned to the dimensions shown. Two steps are counterbored in the front, to accommodate the three phosphor bronze target connections. These are screwed in place and bent into the second step to support the tube, and to make connection to the target ring. The slot in the side is cut away to admit the camera tube side pip. This pip should lie in a horizontal plane. Outside dimensions of the end cheeks are not critical, and they may be square and screwed to a mounting base to allow the whole camera tube assembly to be rocked back and forth for optical focussing. This is normal practice.

The yoke should be a smooth sliding fit inside the focus assembly permitting rotation so that the scan can be rotated for correct orientation. The axis of the line coils will be approximately horizontal.

Tube Socket

This is a special—a small button ditetar 8-pin, and are unobtainable. You may prefer to dismantle an old socket and push the tags onto the tube pins, but a satisfactory socket is shown in Fig. 12.

A ring is turned from 1" diameter bakelite, 11/32" thick, and bored 3/8" in the centre for the exhaust tip. The dimensions shown are for tags taken from a Clix socket and may need to be modified for other makes. The punch is made from a part of a hacksaw blade and serves to punch out the last 1/32" of material for tag location.

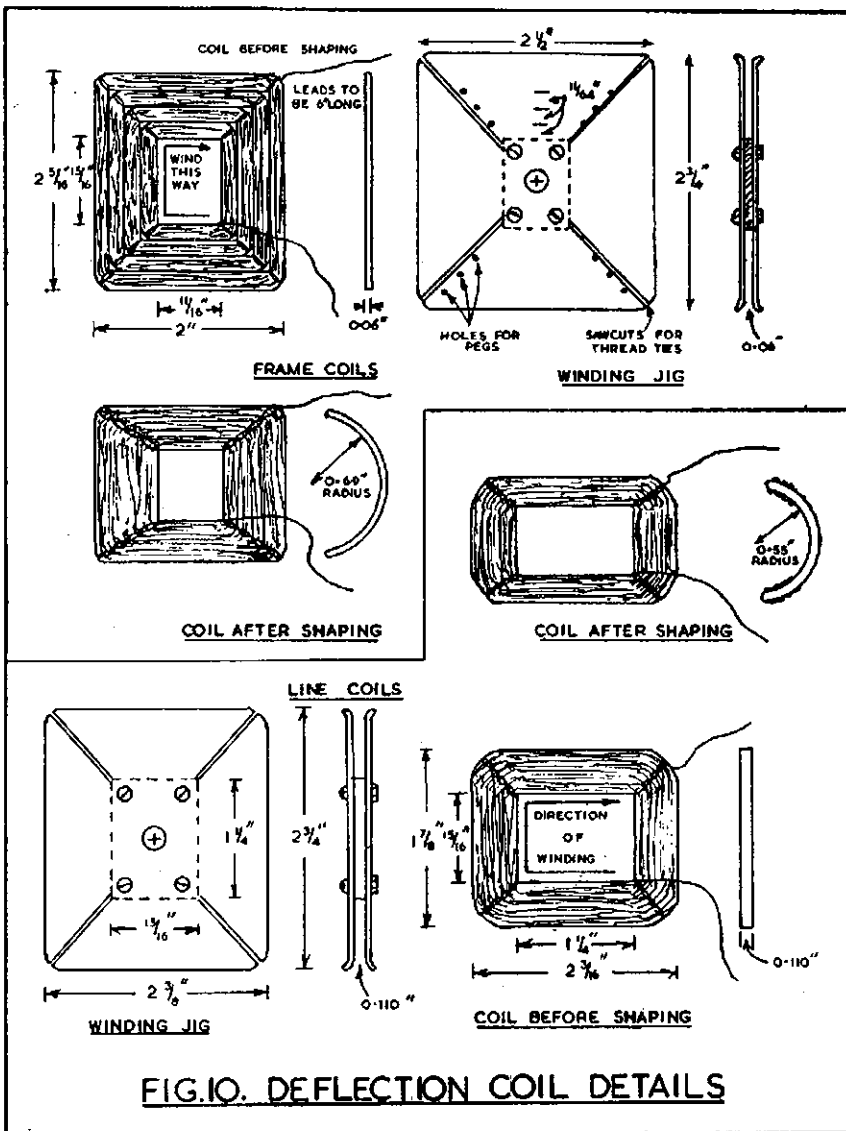
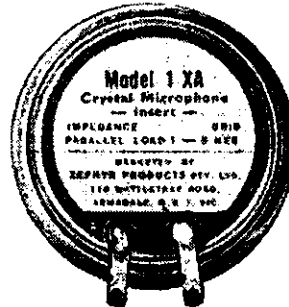
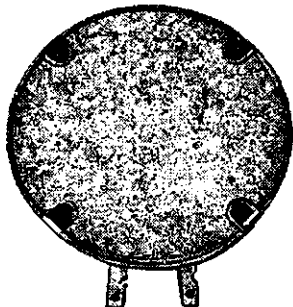


FIG. 10. DEFLECTION COIL DETAILS

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 "Zephyrifil" 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 "Zephyrifil" 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.

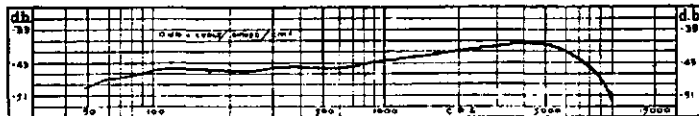
When mounted in a microphone cage, it is recommended that the insert be suspended in rubber, to eliminate shock and vibration.

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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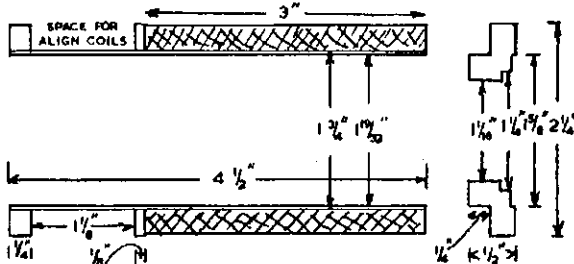
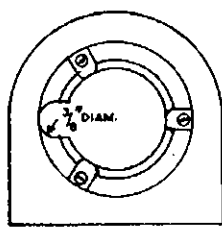


FIG. 11. FOCUS COIL ASSEMBLY

Transformers—Line

This is made using Ferroxcube, as follows:—

Core: Ferroxcube comprising—

- 2 only D36/22 IIIB1 rings
- 2 only D36/22 IIIB1 discs
- 2 only D36/22 IIIB1 9.8 mm. slugs with 2 only NK587.41 end plates and screws, and 2 only 88481 coil formers.

Wind each former with: Primary—380 turns 34 B. & S. double tough enamel; Secondary—88 turns 26 B. & S. enamel. Connect series aiding.

Frame Transformer

Core: Ex speaker transformer with 1" x 3/4" stack, and 1 1/2" leg length. Primary—3,300 turns 37 B. & S. enamel. Secondary—1,100 turns 32 B. & S. enamel; butt joint core.

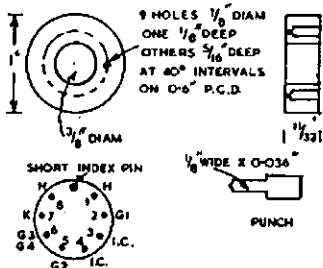


FIG. 12 SOCKET DETAILS

The Tube

I can do little better here than to summarise some of the maker's information, as it is not generally available.

General

- Heater voltage 6.3 volts
- Heater current (varies with maker) 0.35 and 0.6 amps.
- Target capacitance to all other electrodes 5 pF. approx.
- Useful photosurface 16 mm. diagonal
- Focussing method magnetic (Routine adjustment of focus via G3, 4 potential.)
- Operating position—any except face downward, horizontal scan parallel to side pip, and radius through short index pin.

Ratings

	Maximum
Signal plate voltage	125 volts
G3, 4 voltage	350
G2 voltage	350
G1 voltage	—125 to +0
Peak H-K voltage—	
Heater positive	10 volts
Heater negative	125 volts
Faceplate temperature	40°C.

	Typical
Signal plate voltage	+10 to +60 volts
G3, 4 voltage	+200 to +300
G2 voltage	+300
G1 voltage for picture cut-off	—45 to —100
Signal output current (normal range)	0.1 to 0.2 μ A.

For data on the operation of this tube, refer to "Television Engineering," Vol. 1, by Amos & Birkinshaw—brief but adequate.

Setting Up Procedure

1. Set G1 bias control for maximum negative bias to ensure beam cut-off, and apply focussing and deflecting power and the correct tube voltages as set out under typical operation above.
2. Set signal plate potential to +20 volts.
3. Focus an optical image on the photolayer and decrease G1 bias until a signal is produced and completely discharged by the beam. Failure to fully discharge the highlights will result in: (a) Clipping of the highlight signals, losing detail; (b) The remaining undischarged highlight signals will cause the affected areas of the target to rise toward signal plate potential. If the image is later moved, it will "smear" for several scans.

4. Alternately adjust optical focus and beam focus (G3 potential) for optimum resolution of the test image.

5. Adjust deflection amplitude and centreing until the raster just does not show the edge of the target ring and the image is central.

6. If the image is weak, open the lens, or increase the target voltage.

7. Cap the lens and observe the shading signal produced by the dark current. If excessive, lower the target voltage. Note that loss of resolution will occur with a signal current lower than 0.2 μ A.

8. Adjust alignment controls until the centre of the image does not move during beam focus adjustment. It will swirl around the centre, but the centre should not move.

Layout

No specific layout is recommended. Each to his own ideas. But plan to keep the tube toward the bottom of the camera in the coolest area. Allow for fitting a lens turret at some stage. The tube is designed for 16 mm. cine lenses, although one of mine is from a rifle sight. Keep the transformers away from the tube assembly, as it is susceptible to magnetic fields. Make sure the target end is well shielded

SMALL SHIP IN DISTRESS

VK7AJ Initiates Rescue

A Tasmanian Ham's alertness brought about the rescue of a luxury motor cruiser in distress off the New South Wales coast on Saturday, 18th January, 1958.

Athol Johnson, VK7AJ, of South Hobart, was listening on the small ships' frequency at about 6.15 p.m. when he picked up a very faint distress signal. He was unable to receive the name of the vessel but heard that she was three miles from some Head.

He telephoned the Overseas Telecommunications Commission's coastal radio station at the Domain and a search with directive aerials was begun, and the Navigation Department at Sydney notified.

Ships within 1,000 miles of the cruiser were alerted and a Navy crash boat from Jervis Bay was the first to her.

The freighter Watamura, on her way from Sydney to Hobart, turned back and towed the cruiser to Jervis Bay.

from stray electrostatic fields. Mount the first video stage as close to the target as possible and shield the whole amplifier. Allow for camera tube racking up to 3" for long focus lenses.

Camera Cable

When the camera is working on test, a short cable about 12 feet long will serve, but you will soon want to take it outdoors and a long cable is essential. I use two, one 12 ft. and the other 30 ft., but there is never enough.

As soon as the camera goes out on a long cable, you will see the need for another pair of hands and this is where the club or community effort comes in again. One cannot operate camera, camera control and the transmitter under these conditions and a team of at least two is desirable.

The 5FP7 viewfinder tube has a double cascode phosphor, with short persistence blue nearest the gun, and long persistence yellow near the glass. This last means serious smear on moving objects and may be overcome by means of a light filter. Using very thin wrapping cellophane, of a very dark blue, about the colour of the blue on the newer A.W.V. tube carton, cut a piece about 1" greater in diameter than the tube face. Clean and then wet the whole tube face and dip the cellophane briefly in water. Apply to the tube as you would a transfer, smoothing out all bubbles. Remove the excess water squeezed out and carry the extra width around the end of the tube. Fasten off with scotch tape, making sure that some of the tape width is in contact with the glass. This is permanent if well done and the resulting smear is negligible. More than half the brilliance is lost, hence the use of 8 kv. on a tube designed for 5.5 kv. With the filter a good bright picture results, and no viewfinder hood is needed indoors.

In Part Three I will describe the camera control, which relieves the cameraman of the need for four arms.

1957 VK-ZL DX CONTEST RESULTS

AUSTRALIA

C.W.—					
Call	Total	40	20	15	10
VK2GW	3920	355	2280	660	825
2BA	2605		1975	630	
2AIR*	2350		2350		
2JX	1580			1015	565
2ARD	1430		1160	270	
2VN	950			950	
2HZ	895			895	
VK3DQ	3125†	150	1440	1010	475
3AHQ	2615		1250	1070	295
3YD	770	770			
3RJ	680			135	545
3XB	680			680	
VK4NL	1350		1350		
4DO	1135		1135		
VK5KU	1920		1920		
5MY	1780		575	1205	
5WO	1650		825	715	110
5RX	740		740		
VK6RU	4375	100	1625	1770	880
VK7UW	2780		1140	1640	
7KM	2485	280	1045	810	350
7LZ	1055	25	360	460	210
7NC	750		750		
VK9XK	4045	145	1460	1345	1095

* Also 15 Metre Check Log.
† Includes 50 points on 80 Metres.

PHONE—

Call					
Total	40	20	15	10	
VK2AOU	1860	380	945	535	
2VV	1370	240	1130		
2AKV	835	25	395	415	
2AKF	615	50	395	170	
2JX	Check Log.				
VK3HL	825	275	550		
3LW	150	125	25		
3AJP	140	140			
VK4TN	2325	605	975	745	
4CB	1005			1005	
VK5WP	1410	405	385	620	
5LC	1095			1095	
5WO	1055	525	310	220	
5LG	80		80		
VK6RU	2790	25	915	1465	385
VK7LZ	1035	290	670	75	
7WA	720	75	645		
7NC	345	25	320		
VK9BW	305		110	195	

RECEIVING SECTION—

Phone	C.w.
VK2—D. Grantley	230* 1295*
VK3—E. W. Trebilcock	525*
VK4—C. H. Thorpe	1525*
VK6—F. H. Price	1015*
VK7—R. de Balfour	970*
VK9—R. Clark	950*
P. Reid	225* 475

G. R. Morris—Log incorrectly set out.
* Award winners.

AWARDS (Call Areas)—

C.w.—	Points
VK2GW—W. L. Woolnough	3920
VK3DQ—C. S. Donoghue	3125
VK4NL—N. H. Lawton	1350
VK5KU—E. J. Von Stanke	1920
VK6RU—J. E. Rumble	4375
VK7UW—S. H. Pattison	2780
VK9XK—S. R. Coleston	4045

Phone—	Points
VK2AOU—H. F. Ruckert	1860
VK3HL—A. T. Hutchings	825
VK4TN—A. Harris	2325
VK5WP—A. H. Watts	1410
VK6RU—J. E. Rumble	2790
VK7LZ—C. P. Wright	1035
VK9BW—W. H. Holland	305

AWARDS (Band)—

C.w.—	Points
80 VK3DQ—C. S. Donoghue	50
40 VK3YD—R. W. M. Ross	770
20 VK2AIR—A. J. Smith	2350
15 VK6RU—J. E. Rumble	1770
10 VK9XK—S. R. Coleston	1095

PHONE—

Metres	Points
40 VK6RU—J. E. Rumble	25
20 VK6RU—J. E. Rumble	915
15 VK6RU—J. E. Rumble	1465
10 VK5LC—L. E. Catford	1095

NEW ZEALAND

C.W.—					
Call	Total	40	20	15	10
ZL1AH	4870		2165	2020	685
1APM	2350			2350	
1AMM	1985		845	680	460
1MT	1610*	50	735	480	315
ZL2GS	3570		1495	1605	470
2ARL	1965	135	490	845	495
2AI	1790		1790		
ZL4GA	4085	175	3000	910	
4CK	2015		1820	195	
4MK	1080			550	530

* Includes 30 points on 11 Metres.

PHONE—

Call	Total	40	20	15	10
ZL2ATZ	325		325		

AWARDS (Call Areas)—

C.w.—	Points
ZL1AH—J. D. Wightman	4870
ZL2GS—H. E. H. Green	3570
ZL4GA—A. F. Frame	4085

PHONE—

Metres	Points
ZL2ATZ—P. W. Hitchcock	325

AWARDS (Band)—

C.w.—	Points
40 ZL4GA—A. F. Frame	175
20 ZL4GA—A. F. Frame	3000
15 ZL1APM—C. M. Rowe	2350
11 ZL1MT—W. A. W. Stevens	30
10 ZL1AH—J. D. Wightman	685

PHONE—

Metres	Points
20 ZL2ATZ—P. W. Hitchcock	325

RECEIVING SECTION—

Phone—	Points
ZL149—B. Thomson*	2445
ZL302—J. B. Holder	1470

OVERSEAS

* Award Winners.
† Check Log.

C.W.—

North America			
	Pts.		Pts.
W1BIH*	1475	W2AWH	685
W1JYW	1255	W2SZ	640
W1NLM	505	W3VKD*	2010
W1PWK	170	W3ZAO	1715
W2EQS*	1470	W4LZF*	1360
W2BVN	720	W4DS	655

North America (continued)

W4WSF	165	W8UVZ	910
W4HKJ†	165	W8OXA	635
W5VHR*	2295	W8JXY	545
W5LGG	1700	W8TTN	530
W5QF	1510	W8KMF	285
K5GRT	280	W8FIT	225
W6TT*	2680	W8WNK	220
W6YMH	1845	W9KXK*	640
W6ID	1260	K9ALP	480
W6ZMX	1130	W9JNO	455
W6ATO	920	W0RSL*	1850
W6UED	850	W0BMM/0	1560
W6YC	715	K0BSL	795
W6KNM	680	W0JMB	615
K6SXA	630	KL7BPK*	515
K6DDO	345	VE3HB*	490
K6LZI	345	VE3DDR	295
W6CLZ	235	VE1EK	110
W7PQE*	2245	VE3EGG	55
W8BHW*	2595	XE1PJ*	460
W8JIN	1475	XE1CM	220

South America

LU7AS*	620	PY7AN	520
CE3AG*	1200	PY3QX	465
YV5DE*	520	PY4AO	275
PY1ADA*	990	PJ2AE*	115

Europe

DL1KB*	1750	OE6RP*	615
DJ1BZ	1650	OE1HV	350
DL7AA	1525	OE8SH	280
DL9RK	1185	OH4NT*	985
DJ3JZ	1040	O22HG	675
DL7DF	1030	OH1TQ	660
DL1LZ	740	OH6OB	445
DL3DD	560	OH5RO	385
DJ2KU	520	OH6PK	285
DL2BW	470	OH2GS	120
DL1ES	225	OK1NC*	940
DL1YA	225	OK2KBE	745
DL9BG	169	OK2KLI	465
DJ3GE	110	OK1MP	220
EA3KT*	345	ON4PA*	1210
EI9F*	300	ON4CK	740
EI7D	110	ON4LX	555
F9DW*	285	OZ3FL*	1020
F8DF	110	OZ1W	525
F9BB	55	OZ4FF	400
G5R1*	1380	PA0TAU*	870
G3FXB	1355	PA0VB	860
G2DC	1205	PA0VO	845
G6XL	1195	PA0ZL	505
G5HZ	1055	PA0BW	480
G6CJ	810	PA0CF	185
G2AOL	290	PA0HP	55
GW3AHN*	695	SM3AKW*	1840
GI3JXS*	335	SM7MS	680
HA5BI*	860	SM5KV	110
HB9MO*	800	SM5CCE†	
HB9TT	755	SM8BDS†	
LA2Q*	620	SP3PL*	1510
LA6CF	170	SP8CK	470
LZ1KRF*	170	SP6XA	55

U.S.S.R.

UA3KBA*	690	UB5KAB*	745
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Asia

JA1VX*	1910	JA2WB	400
KA2MP	825	JA0GG	165
JA6TA	500		

Africa

CN8FD*	280	ZS5U*	400
FA3OA*	300		

Oceania

KH6CMM*	230	ZS5AL*	855
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(Continued on Page 12)

→ **You will See the Difference**



Servicemen, technicians and salesmen alike will see the difference the Radiotron Valve Manual makes to their valve characteristic problems.

For the first time under one cover the Amalgamated Wireless Valve Company presents the following complete and comprehensive technical data:—

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AMALGAMATED WIRELESS VALVE CO. PTY. LTD.

47 YORK STREET.

SYDNEY



PHONE—

North America

	Pts.		Pts.
W2BVN*	445	K6DDO*	1100
W3VKD*	1000	W6ZMX	565
W4KYI*	820	W0GEK*	425
W4HKJ	625	VE7AIH*	1530
K5JLY*	500	VE3HB	395
K5EDM	355	CO2HB*	540
W5PNG	55		

South America

CX3BH*	635	PY? L. J. Braga*	
PY1AKT	165		395

Europe

CT1PK*	310	OH2OV*	1290
DL1KB*	1595	OH5PE	1050
DL1FK	935	OH5NM	680
DL1UX	895	OZ3FL*	755
DJ1BZ	670	PA0FX*	620
F9RM*	385	PI1J	470
F8HR	230	PA0OTC	285
F3JI	55	SM3BIZ*	370
G5HZ*	675	SM5TR	250
GW3AHN*	405	SP8CK*	290
IIAMU*	900		

Africa

CT3AN*	170	ZS5OA*	625
VE3AHU/SU*	390	ZS5RB	565

Asia

JAIAS*	580	VU2RC*	230
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RECEIVING—

	Pts.
C.w.—	
Austria—OE1-710 W. Flor*	640
Czecho—OK2-3947 Z. Novak*	520
OK1-001307 W. Schon	405
England—BRS20317 W. E. Wilkinson*	1695
R. F. W. Thomas	1360
BRS20206 A. R. Smith	1270
BRS6604 E. H. Sherlock	940
BRS21246 N. S. Beckett	870
Japan—JA1-1362 K. Tsukahara*	1225
JA3-1363 K. Asano	1045
Switzerland—HE9RDX E. Heritier*	515
Nth. America—R. Fagen*	660

Phone—	Pts.
Austria—OE9CZ C. Zangerl*	400
OE1-710 W. Flor	275
Belgium—ONL610 Miss A. R. Delvaux*	685
Czecho—OK1-007820 Z. Prosek*	235
England—R. W. F. Thomas*	910
Germany—F. W. Kradepohl*	525
Netherlands—NL864 H. Frieke*	110
Sweden—SM5-2735 K. Nystrom*	610
Switzerland—HE9ERU H. Zimmermann*	165
HE9ERY R. Ochsner*	165
Nth. America—ISWL/K2-7079	
B. Adams*	450

HINTS AND KINKS

USEFUL OCTAL PLUG

A useful octal plug can be salvaged from burnt out metal type tubes. Remove the metal shell, then the electrode assembly. Drill and file an $\frac{1}{8}$ " hole in the top of the metal shell and insert a $\frac{1}{8}$ " x $\frac{3}{8}$ " grommet. The result is a neat, inexpensive and durable plug.

W.I.C.E.N. NOTES

The report brought back to Headquarters covering the activities in VK2 is most pleasing. The new Council is to be congratulated on its plans to extend even further the facilities at Dural. In the establishment of which the retiring Council and particularly Jim Corbin, VK2YC, laboured so hard and with such good results. Our thanks go to Jim and colleagues who wrought the miracle. We are sure events of the future will justify its existence.

Recent reports from VK4 and VK7 indicate that progress is being made in improving the status of Amateur activity in those States.

OPERATING PROCEDURE (Continued)

- 2.25 Each message shall be identified by its transmitted time.
- 2.26 The message shall consist of six parts: (1) Originator's Call, (2) Preamble, (3) The Address, (4) The Text, (5) The Signature, and (6) the Transmitted Time.
- 2.27 Address. Where it is possible to make prior arrangements for the predetermined distribution by the Control Station, such distribution should be made in accordance with transmitted code address.
- 2.28 Acceptance of a single message, intended for two or more addressees shall be permitted.
- 2.29 The priority accorded each message will be based upon 3.0 and the appropriate symbols shall be transmitted in the preamble.
- 2.30 Text. The text of messages shall be as short as practicable to convey the necessary intelligence.
- 2.31 Signature. Self explanatory.
- 2.32 Transmitted Time. The transmitted time is the time at which the operator reaches the time group in the message form.
- 2.33 Communications shall commence with a call and a reply when it is desired to establish contact except that, when it is certain that the station called will receive the call, the calling station may transmit the message without waiting for a reply from the called station.
- 2.34 After contact has been established, continuous two-way communication shall be permitted without further identification or call (if no mistake in identity is likely to occur) until termination of the contact, provided call signs are announced once in every five minutes.
- 2.35 When no confusion is likely to arise, a shortened form of procedure shall be permitted. For example, "Standby", "Over", "This is", "Roger" and other similar phrases may be omitted at the discretion of the operators after initial contact has been made.
- 2.36 An acknowledgment of receipt shall not be given until receiving operator is certain that the transmitted information has been received correctly.
- 2.37 When sending or receiving a message it will, when possible, be written on the official W.I.A. message form. Under all circumstances message should be laid out in the same style.
- 2.38 Alternatively it may be necessary to use the message form provided by State Civil Defence Service.
- 2.39 When an error has been made in the transmission, the word "Correction" shall be spoken, the last correct group or phrase repeated, and then the correct version transmitted.
- 2.40 Items shall not be repeated, unless repetition is requested by the receiving station.
- 2.41 The receiving station shall always request a repetition if reception is doubtful.
- 2.42 If repetition of an entire message is required, the words "Say Again" shall be spoken.
- 2.43 If repetition of a portion is required the operator shall state: "Say again before . . ." (first word satisfactorily received), or "Say again . . ." (word before missing portion) "to . . ." (word after missing portion), or "Say again all after . . ." (last word correctly received).

3.0 PRIORITY—

1. Messages relating to public safety and rescue work.
2. Requests for medical aid and essential supplies.
3. Requests for additional communication services.
4. Messages relating to location and requirements of rescue teams.
5. Telegrams in order of priority authorised by local Postmaster.

Note.—All messages must be initialled by person to whom authority has been delegated.

NATIONAL FIELD DAY RESULTS

AWARDS

C.w.—VK7CH, C. Harrison.
Phone—VK3ZCG, W. G. Francis.
Open—VK5LC, L. E. Catford.
Multiple—VK3LC/3AHD, A. W. H. Chandler/A. H. Downward.
Fixed—Nil entry.
Receiving—J. M. Hilliard.

LOGS

C.w.—VK7CH 48.
Phone—VK2AJO 43, VK3ZCG 117, VK3AUC 52, VK3ADL 33.
Open—VK5LC 179, VK7LJ 50.
Multiple—VK3LC/3AHD 137, VK5MK/5QR 93, VK5EC/5AV/5KL, Check Log.
Fixed—VK5JO, Check Log; VK3PR, Check Log.
Receiving—J. M. Hilliard 23.

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CANTERBURY, E.7,
VICTORIA

DX

Frank T. Hine, VK2QL
30 Abbotsford Road,
Homebush, N.S.W.

Those on the "DX" bands who have been looking forward to the increase in sunspot activity have probably been reflecting a little this month and crying "lay off" because DX in some of the VK districts has not been very plentiful due to Ionospheric disturbances which have quietened 14 Mc. activity quite a lot. However, the thinking of the 50 Mc. boys is probably quite the reverse in VK2, at least, as there have been a number of break-throughs to Japan on 50 Mc. and according to prediction charts, April should produce good v.h.f. DX. the m.u.f. for 50 Mc. for approx. 2,000 miles will be as high as 48 Mc. Whilst on this subject, XE1GE told 2FP he is most anxious to make a VK/XE contact on 50 Mc. XE1GE is located at an altitude of 6,000 feet which is quite a help and operates just inside the low end of 50 Mc. By now it is probably known that K8RNQ and ZL4GY have been in phone communication on 50 Mc. Some of the KH6 and W boys are beaming in our direction on Sundays. VK0KT on 50.19 Mc. is on the lookout for the mainland on Sundays between 1200 and 2130 E.S.T. and if not made before, April shows every possibility of contact with Macquarie Is. As these long range v.h.f. contacts are all DX news, let's have them for this column boys. Good hunting.

NEWS AND NOTES

Being the end of the VK2 financial year, I have not been able to watch the bands this month to any extent, so this section is rather limited.

SM8BJP/MP4T is expected to be on c.w. and phone from Trucial Oman commencing March (5RK).

ZK2AD in a letter asks that those who are waiting his QSLs be a little patient as he is waiting for some to arrive. He is anxiously looking for a contact with VK6 and VK9 to add two more zones to his total, the time being 0730-0830z.

PZ1AP is on 14140 Kc. phone (5RK).

Strange conditions existed on Sat. 22nd Feb. 26 Mc. was open to the North American Continent at 0200z and 50 Mc. was open to JA at that time. At 0730z, 7 Mc. was open to Europe and three hours later 3.5 Mc. was open to North America when I was able to make 17 contacts. So you never know.

It would be interesting to know the set up at J11AA and J11YL. Both these stations can be heard operating at the same time on both 14 and 21 Mc. and only about 50 Kc. apart, and they certainly don't wait until each other finishes a transmission.

ACTIVITIES

3.5 Mc.—2QL: W2*, W3*, W6*, W7*, W8*, KH6, DU7SV, KG6, 2JZ: ZL1ABZ*, 7LZ: VR2DA*. Rod de Balfour: ZL1ABZ.

7 Mc.—2AMB: FA8BG, DUBJO, V51CN, 2QL: G*, F, PA, all 0730z, W*, 5GM: phone JA1BA*, JA3MP*, JA4DN*, BE8S10S: EA-5BA, G, JA, KR6AK, OESRE, SM6ANC, SP-5IA, UA1BE, UA9KCC, UB5WF, ZS5BB, YO7DZ. Rod de Balfour: W, KH6, JA. Don Grantley: KM8BK.

14 Mc. C.W.—2AGH: ITITAI*, ISIFIC*, OK-1MB*, PJ2ME*, JZ0HA*, 3A2CD*, JT1AA*, LU-4ZF*, HE9LAC*, LU7*, LU6*, 2AMB: ZP5AY*, JT1AA*, FB8XX*, FB8CD (Comoro)*, VE8MX*, SV0WR, VP8CW, VQ8AM, XZ2TH, ZCSAL, XW8AI, FL8AB, FL8AA, VS4BA, KW6CM, ZC-3AC, 2JZ: UA0KFG*, DU1DR*, 2OW: ZK1AK*, 4X4GY*, 3V8AO*, MP4BBE*, HZ1AB, FB8XX, XV5A, HZ1VB, ZD6DT, UF8AM. 2QL: HSIC*, JT1AA*, J11YL*, 9K2AN*, CR7CI, ZD3G, VP2GJ, VQ3GJ, 2ZE: VQ4KRL*, HA2MF*, ZC3AC*, EA4ED*, EA4FO*, LAGU*, XW8AI*, ZK1AK*, FABCR*, HZ1AB, CN8BK and many Europeans. 4DO: SP3HC*, VP6PJ*, YU8RN*, VQ3CF*, ZS6DL*, ZC4IP*, VQ4KP*, XW8AI*, UA*, CR6FC, UC2AF*, KP4AJO*, XZ2TH, FB8XX*, FY7YF*, SV0WR*, S72AR*, ZB2X, ZC4CB, ZDEE*, FZ1AP, UL7KAA, ZD3G, 4WCHL, O68IE, U18AG, ZP5AV, CR5AC, ZD-2KCH, VQ2EW, CN2AY, CRAAH, FF3FC, UQ-2AB, EA6AW, CT5AB, CT3N, FQ8AJ. 5BK:

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

KL7CDF*, 5GM: W*, G*, UA0*, JA*, KP4AZ*, BE8S10S: EA8AM, FB8CD, FB8XX, FB8VY, FB8ZZ, HH3J, HL9KS, HSIC, HSLJN, HSLFY, HZ1AB, HZ1RH, IS1MM, JZ0HA, KP8AI, OD-5LX, MP4BBE, MP4BBL, PJ2ME, PY7VB, ST-2AR, SV0WR, TT2PZ, VP7NB, VQ3CF, VQ8AD, XW8AI, XV5A, ZCSAL, ZK1AK, 4XARE, 4STWE, Don Grantley: CN8FD, DU7SV, E14A, FK8AS, KP8AS, KP4AZ, KP4AJO, KP8AL, KV4AA, KZ5BB, PY4ZG, FX1DK, VQ4AQ, ZCSAL, ZK1AK.

14 Mc. Phone.—2AGH: CE0AG*, 2AMB: VS-1JR*, HP3FL, ZM6AF, CR5AC, VP9CY, FO-8AB, CX2AK, KR6BS, 4DO: ET2US*, VS9AD*, HK3PC*, VSSAJ*, VK9AD*, EASKB*, EA2DI*, KC4USA, VQ2EW, 5AITV, MP4BCC, VSSJL, 5WP: CN8EU*, CO7HC*, MP4BCC*, VQ2DI*, VSSAJ*, EASKJ*, EA3LO*, VS9AD, CN8MM, KSSAD, KX8AF, YALAA (s.s.b.), VSSJL, UA-0LA, 5GM: HK7LX*, HK9KT*, HP3FL*, VK-9AD*, BVIUS*, KP4ZC* and usual Europeans* and W*. 7LZ: CE0AG*, BE8S10S: EA3KB, EA4KB, FK8AS, VK9AD, VKOKT, VR2DA, XZ2DN, ZD6DT, ZK2AB. Rod de Balfour: VQ4AQ, VQ8AM, CN8MZ, CRAAU, ZS8I, HZ-1TA, OD5AV, ET2US, ISFL, MP4BCC, 8K2AN, 5AITV, AP2U, KX22WW, HL9KS, ZCSAS, VR3A, ZM6AV, VR6TC, BVIUS, TG9AL, VPSRS, HH-2Z, VP5AR, VP9CY, XQ8AG, GC2ASO, and on s.s.b. T12RC, KR6AF, XE2JK, TG9AD. Barney Smythe: VR4JB, HL9KS, CM9AA, ZK2AB, HK4KW, FK8AS. Don Grantley: BVIUS.

21 Mc. C.W.—2AMB: CE0AG, ZB1DZ, 2JZ: YU4OB*, 2QL: J11YL*, ZB1DZ, GD3FXN*, 2ZE: G* and DL*.

21 Mc. Phone.—2AMB: CE0AG, 2JZ: DL*, G*, 4X4FQ*, ZC4BE*, KR8AL*, ON*, HB*, CN8MM*, F*, Rod de Balfour: ON, HB, LX-1DC, I, G, GM, DU7SV, VU2CK, MP4BCC, VS9AK, KM8BK, HL9KT, 4S7GD, ZCSJT, CE-0AG, VP9CT, TG9AD, OAGN, VPSRS, VP6KL, OA4FY, HC1FG, PY3PA, CR5SP, VQ4BF, ZS5MP, ZS6BW.

28 Mc.—SAEL: W*, KH6*, JA4JU*, FK8AU*, HK3FV*, Rod de Balfour: XE1PY, KB8BF, KG8AGO, JA9BE, W, VE.

QSLs RECEIVED

2AGH: UI8KAE, CX2AK, ZL1ABZ, ISIFIC, ITITAI, EA8BM, PY2BAU, KP4CC, UA0KKB, UQ2AB, KC4USA, ZC4GT, UB5WF, UA0OM, 2OW: VQ3CF, CR8AC, 3W8AA, UA1KAE, 2QL: ZL1ABZ, 3A2BT, FK8AT, SV0WY, OQ-5EH, ST2NG, BE8S10S: OHXK/0, SV0WQ, ST2NG, HL2AM, KG4AE, UN1AE, UC3AT, ZL5AA (80 for the month).

My thanks to 2AGH who wonders why new rigs must develop bugs; 2AMB pleased with making his ZP contact at last; 2JZ who finds t.v. restricts his Amateur activities; 2OW bappy with his increase in confirmations, especially CR8AC; 2ZE who keeps the DX on its toes; SAEL, whom we welcome to the column, has low power and a GP to entice the DX; 4DO who found too many good ones got away; 5BK for his QSP of 5GM and 5WP and who hopes to get a little more DX soon; BE8S10S has now reached 238 confirmations; Rod de Balfour who always manages to find some good ones during his listening periods; to Barney Smythe who is anxious to see a Listening Group started in VK2, and finally to Don Grantley, who has returned from a spell in VK3. And that winds it up fellows. Don't forget the closing date for material for these notes is the last day of the month.

QTHs OF INTEREST

3A2CD—QSL via W4VFQ (2AGH),
JZ0HA—Box 420, Sorong, Dutch N.G. (2AGH).
CE0AG—QSL via K6GKU (2AGH).
W4IHW/KS4—Box 3, Sth. Miami 43, Fla. (2JZ).
ZD8EF—Box 88, Zomba.
SV1AD—Box 564, Athens (4DO).
ET2US—A.P.O. 843, N.Y. City, N.Y.

N.Z. HAMS QSY FROM EMERGENCY CHANNEL

Ayr, Queensland.—Action taken by a local Radio Ham, well known local medical man, Dr. J. A. Kelly, restored the radio link between Dalbeg and Millaroo, which had been jammed by New Zealand Amateurs operating on the same frequency.

When he learned the position, Dr. Kelly immediately contacted them and, on explaining the position to them, they moved to another frequency, leaving the channel clear.

PREDICTION CHART, APRIL 1958

Mo.	E. AUSTRALIA	W. EUROPE	S.E. Mo.
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21	---	---	21
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E. AUSTRALIA — W. EUROPE L.B.			
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E. AUSTRALIA — CENTRAL AMERICA			
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E. AUSTRALIA — S. AFRICA			
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E. AUSTRALIA — FAR EAST			
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7	---	---	7
W. AUSTRALIA — W. EUROPE			
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14	---	---	14
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W. AUSTRALIA — N.W. U.S.A.			
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W. AUSTRALIA — N.E. U.S.A.			
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W. AUSTRALIA — S. AFRICA			
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W. AUSTRALIA — FAR EAST			
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14	---	---	14
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VHF

Frank P. O'Dwyer, VK3OF
190 Thomas Street,
Hampton, Vic.

The patience and enthusiasm of 50 Mc. operators in all States continue to be rewarded and during the past month some excellent openings to JA from Adelaide north with poorer openings from southern VK3 delighted the boys, though it was March before the big opening came for the VK3 gang. Early March also produced another first with VK8 working into JA for the first time. VK8BE was well amongst them. Shortly after the first VK6/JA opening, VK8BE was QSO VK3ALZ on 28 Mc., tuned over 50 Mc., heard the JAs again and relayed their signals to VK3ALZ so that he could hear how they were being received. No sign of them in VK3 on 50 Mc. at the same time though. F2 daylight openings gave a hectic time to VK2s WH and ARG, together with other VK2s and VK4s. These openings were by no means infrequent with sigs. to S9 plus. The VK3 crowd found it frustrating on several occasions to hear the VK4s (off the back of their beams) working JA and giving 9 plus reports whilst nary a sign of them tickled the eardrums down south. VK5 has had quite a share of this JA activity, apparently being far enough north to escape the fringe conditions prevalent south of that latitude.

Friday, March 14, VK3 had their first good F2 opening from 1000 to 1200 E.A.S.T. with signals peaking over S9, making Ian VK3ALZ complain that some of them were blocking his receiver. Albert, VK3PG had the highest tally with 14 contacts.

KH6 came into the picture during the period March 9-11 with openings to VK4 where in one case 5 watts to a dipole was all that was needed to make contacts. Information on these openings is sketchy at present, but it is understood that one occurred at 1955 E.A.S.T., if so, the first VK4/KH6 evening break-through. At one period KH6 stations were working into VK4 and JA at the same time, confounding the theory that long distance openings to the north and south from any given point just do not occur at the same time.

VK0KT, Macquarie Island, is reported to have heard a W6, more information when full details are to hand. Probably many openings to who knows where are missed because of the limited occupancy of the band. This is not due to laxity on the part of those who work 50 Mc., being caused by the vastness of our continent and the relatively few Hams we have to cover the area. Quite a few of the 50 Mc. fraternity have taken to rising early for a look-see at the band before they go to work, and many an XYL has found the OM landing home for a quick lunch and another investigation of what is popping on 50.

Mr. George Palmer, of Williamstown, recently heard a mobile Kansas Police car pounding in on 45 Mc. The set-up Geo. has with his 100-ft. tower covered with beams from the top down and his receivers lay-out is a Ham's dream and a visitor's delight. Though holding no call sign now, in former years Geo. was a very active and well known Ham, but nowadays concentrates on the reception, logging and tape recording of v.h.f. DX signals with video reception from the B.B.C. and Honolulu confirmed.

Now that the hue and call of the Ross Hull Contest has abated for another year it is time for all those interested in the Contest to re-examine the rules, decide how the new ones worked this time, and try and make up their minds what they want for next year. When you reach that stage, make sure that the Federal Contest Committee hears about it. It is a tough job trying to please everyone when you do not know what they want. It is in your hands. One leading question could be: "Is the Contest a DX Contest or a V.h.f. Contest?" as recently argued in VK3. The former was indicated by the original rules, whilst if the latter, it could degenerate into a farce, or rather a series of local contests with v.h.f. interest killed in remote country locations. The original rules provided winners from four States in five years, emphasising the national aspect of the Contest. But how you want the rules is up to you alone, the Contest Committee is trying to please you all and provide what you want. Here is one point of view, from Vern VK4LK, of Charters Towers: "The one thing I raise strong protest over is the unfair advantage of the v.h.f.

groups in the more closely settled areas (that is those with favourable distances for 2 mx contacts) being able to amass points in excess of the faintest hove the fellow on the outside fringe area has. By all means have the 2 mx addition, but as a separate entry."

NEW SOUTH WALES

Meeting.—The usual monthly meeting of the V.h.f. and T.V. Group was held at Gore Hill Technical College on Friday, 7th March, at 8 p.m. The lecturer for the evening was Barry Goodman, 2ZAG, who, although still suffering from the effects of his recent illness, lectured for nearly two hours on "Practical Aspects of Vacuum Tubes." Barry implemented his lecture by exhibiting many types of valves, some of which many of those present had not seen before. Many thanks Barry for a most interesting and informative evening.

The Monthly Day Fixture was held on Sunday, 16th Feb. This was a new type of mobile event in the form of a progressive mobile fox hunt. Apart from one or two weaknesses which the experience of the day revealed, it may be said that the event was a howling success and it is to be regretted that more stations did not participate.

The hunt, which commenced at the Bear Farm at 10 a.m., followed a route through Castle Hill, thence Rooty Hill and devious other ways to Wallacia where all participants met for dinner. Until lunch time the original fox (Bob 20A) had managed to remain uncaught. After lunch, the hunt moved into the Hoxton Park-Liverpool area and finished finally at Silverwater Park on Parramatta River. During the afternoon, the first fox for the day, as yet uncaught, was trapped by Jim 2PM who then became the next fox. He, in turn, was caught by 20A who again became the fox only to be caught again by 2PM who in turn was caught by Dick 2ZCF who was unlucky enough to be caught a few seconds before the end of the day by 20A. Scores were: 20A 9 points, 2PM 4 pts., 2ZCF 3 pts.

The Monthly Night Fox Hunt was held on Wednesday, 28th Feb., the starting place being Mobbs Hill. This was a straight hidden tx event. The fox was Dave 2AWZ who hid the tx in the West Seven Hill area. The scores were: 1st, 20A/2ZAV, who found Dave in 55 minutes; 2nd, 2PM (60 min.); 3rd, 2ANF/2ABZ (90 min.). Others participating were 2ZJC (Kurrajong) and 2HL.

During the month of February several stations have been active on 576 Mc. and although only cross band (2 mx) contacts have been noted, it does appear that before long two-way contacts on 576 will be well established. Several stations have also been active on 6 mx DX, very many JA stations logged.—2ER.

VICTORIA

V.h.f. Group Meeting.—Stan 3AFL gave a description of a transistorised communications rx at the Feb. meeting. He had used parts, including the transistors, that are readily available—and the rx went up to 12 Mc. too. However Stan warned that it was necessary to select the transistor used in the local osc. After the demonstration, the meeting showed its appreciation in the usual manner and then Herb 3JO went on to the general business for the evening. It was nice to see some new faces present in David 3ZFK and Jack 3AJH, and some old ones in Alf 3IE, Donald (senior har-

monic at 3IE), and David 3ZAY. Let us hope we see more of you in the near future.

Field Day.—Despite there being 15 stations out in the field on 28th Jan., only five logs were received—not very encouraging. So next time, no matter how small your log, send it in. It helps checking. Results: 1st, 3ZAE, portable Kinglake, 58 pts.; 2nd, 3ZCG, portable Bass Hill, 52 pts.; 3rd, 3VF, portable Mt. Donna Buang, 30 pts.

The field day on 2nd March was very poorly attended, only four stations known to be out. The last event for this season will be on the 20th of this month.

Band Jottings.—Regular operators got another chance to work VK5 and VK7 on 144 Mc. on Monday, 24th Feb. This time Col 7LZ worked 5ZAG for his first VK5 contact on 144. Some of the Melbourne gang recently met Col when he was over on business. He mentioned that up to date he has worked 57 VK3 stations on 144 Mc.

Warwick 3ZBD and Peter 3ZAF have fired up on 50 Mc. but so far the DX has eluded them. Not so John 3ZAI. He worked JAZAH one Sunday morning about 11. Jack 3AJH also finally caught a JA in JAZZY. At this QTH three JA stations heard but only JAZZY fully identified. It's a pity the JA operators rush their call signs, but who can blame them for getting excited, and none of us can even attempt to speak Japanese. At least I haven't heard anybody try.

Gerry 3ZBN of Nunawading, has finally contacted Ken 3AEJ at Ashburton on 288 Mc. Gerry has also recently managed to work Alan 3AMT at Ringwood. I believe Alan now has a 16 el. array up which helps things along a bit. Rumour has it that 3ZDJ is on the band but I haven't heard you about yet David.

V.h.f. 100 Award.—In the Jan. issue of "A.R." the holders of the V.h.f. 100 Award were listed but unfortunately an error was made. Certificate No. 5 was shown as awarded to Alan 3AEL but it should have been to Laurie 3ALY. My apologies Laurie. The corrected and amended list is as follows: Certificate No. 1, 3ABA; No. 2, 3FO; No. 3, 3YS; No. 4, 3ZAQ; No. 5, 3ALY; No. 6, 3AEL; No. 7, 3ZAE.

Special V.h.f. Group Meeting.—The Special Meeting to discuss Ross Hull Contest rules was held on 9th March. The turn-up was a little disappointing, 22 being in attendance at the rooms. The metropolitan area was represented by 3JO, 3LN, 3OF, 3OJ, 3ALY, 3ALZ, 3AWU, 3ZAE, 3ZAF, 3ZAI, 3ZAQ, 3ZBI, 3ZCC, 3ZEN, 3ZEO, 3ZEP, 3ZET and 3ZFA, whilst the Eastern Zone was represented by 3ZCG, 3ZDD and 3ZDP. The S.W. Zone's sole member was 3ZCN from Ballarat. No other zones were represented and since no communications were received on the subject, it was assumed that the meeting was fully representative of all interested parties.

The decision arrived at, and passed unanimously, was that separate scoring tables be used for 50 Mc. (for 50 Mc.) and for bands above 100 Mc. and that all other rules be as before. The meeting decided that the present scoring system (i.e. as for 57/58 Contest) was satisfactory for 50 Mc., but that a table on the lines of the following be adopted for each band above 100 Mc.

For stations up to 50 miles distant—	2 pts.
" " within 50-150 miles dist.—	1 pt.
" " " " 150-250 " " "	— 1/2 "
" " " " 250-350 " " "	— 1/4 "
" " " " 350-450 " " "	— 5/8 "

A bonus of 20 pts. to be awarded for each new call area worked on each band.

Note.—The value of each contact within a distance limit to decrease by one for each succeeding contact with any station within that distance until a value of 1 point is reached and thereafter each contact with any station in that distance limit to be worth one point.

Note.—The foregoing is only a recommendation of the VK3 V.h.f. Group that is to be forwarded to the Federal Contest Committee via the VK3 Divisional Council and therefore should not be taken as the new rules for the 58/59 Contest.

With this lot of notes my term as scribe ends and John 3ZAI will take over from next month. Help him to write the notes by giving him all the information you can as soon as you can. Before I finally lay down my pen I would like to thank all those who helped me during my period as scribe. In particular my thanks to Mrs. May, 3OJ, 3OF, 3YS, 3ZCG, 3ZDM, 3ZBN, 3AEL and 3QO.—3ZAQ.

SOUTH AUSTRALIA

The kerbside v.h.f. meeting had one outstanding subject and that was the JA breakthrough on 6, there were those present who made contacts and those who hadn't, so the banter was much like a piscatorial convention. Someone even indicated that he was going to nudge a bit off his crystal to get higher in the band to get away from JA QRM!

There is a bit of a tendency with a couple of the boys to turn the gain up a bit when

REPORTS OF 50 Mc. RECEPTION

One of the many useful contributions that the Amateur can make in the matter of ionospheric research is the supplying of data concerning propagation conditions. Of recent months there have been some interesting results on the 50-54 Mc. band, recently temporarily released for Amateur use.

Federal Executive has been approached by the authorities in regard to this and in view of the many ramifications concerning this and other bands occupied by the Amateur Services in the v.h.f. and s.h.f. section of the spectrum it would be most advisable for this data to be supplied.

Executive would be most grateful if Federal Councillors could supply FROM AS MANY 50 Mc. OPERATORS AS POSSIBLE the following:—

Date, time, station heard/contacted, signal strength in/aut, weather conditions (if possible), other remarks.

As this has a considerable bearing on the Amateur band position, Amateurs are requested to send these reports to their Federal Councillor who will welcome reports from the time of the opening of the band in 1957.

the real DX is running, to the detriment of others on near channels. Not very sporting, most 6 mx work does not require that and in any case, it is not good operating practice to try and modulate beyond the capability of the final.

A word on using some more of the band than the first meg. There are a few hardy souls on 51 and a VK4 on 51.12 Mc. or was it 51.27, forget which at time of writing, but tune up there sometimes, or get a rock and go up also for we must use the four megs if we want to hold them and in any case it's less noisy there and certainly clearer of QRM of all kinds. It is really worth serious thought and action for those reasons, so give it a go.

Back to the JA break-through. On 2nd Feb. SMT, 5MK, 5RO, 5QR, 5EF, 5ZAW were all heard working the JAs on 6 mx with some fairly decent sig reports being given too. Then again on the 12th, a further batch were worked with the band being workable at time varying between 1200 to 1530 hrs. C.S.T. daily right up to the 23rd. A real "field" month for those who could be at it. Keith SMT had his holidays during that period, so was in it daily.

On the 22nd, which seemed to be the peak here, there were JA1, JA7 and JA8 stations being heard at 40 over 9 (not at my QTH unfortunately), so those who missed out on the earlier days caught up then and from "over the air" information all the 6 mx gang have made contact with at least some of the districts, and a few with the lot. Col 5RO and Keith SMT seem to have the highest scores.

Ron 5MK advised that on 23rd he was hearing VK2, VK3, VK4 and a solitary JA up to midday, then by 1235 another break-through occurred with JA1, and JA3 topping the poll for strength. In the midst of all this, a lone DU was heard calling Reg 5QR on c.w., which he may have worked, but didn't hear him do it from here.

It is interesting to note that the JA boys themselves have worked the following areas this year: W, VE, VK, ZL, KW, KH, LU and KL7, and according to the latest advice here, ZL2DS from the 20th onwards has worked W and KH6 as well as VK and JA.

4XJ has some information about Test transmissions from WBYD, KH6UL and KH6UK, but as the figures, etc., here on them don't tie up, suggest all interested contact him for details or look carefully through VK4 v.h.f. notes where it should be reported.

Sorry if we have missed 2 and 1 mx this month, but due to above, most of the listening has been done on 6 mx, so cannot report on those other bands this month.—SEF.

WESTERN AUSTRALIA

The 144 Mc. Fox Hunt on 8th Feb. was conducted by Don 6ZAV and Roy, about 7 or 8 cars got away to a flying start right on time. Frank 6CC was in first, using an xtal converter instead of the super-regen., followed by Don 6HK and Stan 6ZAS. The tx was hidden about 50 yds. or so from where the gang started in King's Park. Supper followed at 6ZAV's QTH, winding up another good evening's entertainment.

On Saturday afternoon, 15th Feb., members of the V.h.f. Group were shown over D.C.A. Radio Installations at Guildford Airport. The D.M.E. and marker set-ups were of great interest to all and our thanks go to Ralph 6ZAO for the work put in to organise the visit and in particular the explanations of the various installations.

The V.h.f. Group meeting took place on Monday night, 24th Feb., at D.C.A. Workshops as usual. After the business side was dispensed with, a junk sale was conducted to raise funds for the Group—very successful. Dennis 6AW brought along a recording on tape and, possibly, gave the majority of members their first impressions of the American satellite transmitting on 108 Mc. Thanks Dennis, we know you have put a lot of time into gear, etc., for this occasion.

Don 6ZAK and Len 6ZAT, after much study during the last twelve months, obtained their leaving certificates, which gained for them positions as Cadet Engineers with D.C.A., and also four years at Melbourne University in Electronics. They take with them the best wishes of all Group members, and by the time this appears in print, should be well and truly settled in.—6ZAV.

TASMANIA

50 Mc. hasn't been the best for sporadic-E QSOs, but this has been made up for by other unusual openings. 7AB became the first VK7 to work a JA station in January, actual details not to hand, but was around midday. 7LZ and 7BQ worked into VK3 for some short hop QSOs. The outstanding feature was the aurora openings between VK5, VK2, VK7, VK3 on 11th Feb.

7LZ is not in a favourable position for visual sighting of aurora, but had been reading an article and saw a bright flare in the west, so turned beam south around 2100 to hear a garbled modulated signal which sounded like 7AB. Col answered on c.w. and a contact was made, what is believed to be the first VK 50 Mc. auroral QSO. 3ALZ came up on the frequency to work 7LZ. Col then worked 3AHL, 3AHJ and heard a VK5, but no contact, but 7AB worked him. 7BQ came on to work 3ALZ and found at that time with his beam west gave the best signal with less noise. As signals decreased, 7LZ again worked 7AB on phone to round off the evening.

144 Mc.—A sharp decline in activity resulted at the end of the Ross Hull Contest. On the VK3 Field Day, 3ZCG was putting an S9 signal into Launceston, from a portable location, and worked 7LZ and 7PF. It wasn't until 24th Feb. that conditions improved. 7LZ worked 3ZDD, 3ZD, 3VL and 3ZCG. Col heard a carrier for two hours before he identified and made contact with 5ZAG to make his first 2 mx VK5 QSO. 7BQ was on but was unable to make it.

7BQ now has a 10 element long yagi which is about two S points better than the older beams. 7EF may soon be operating from Devonport and hopes the location is good for v.h.f.—7PF.

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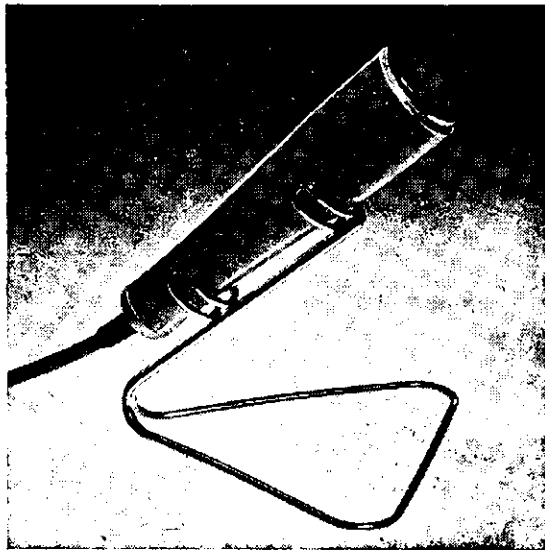


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Northcote, N.16, Vic.

How about giving a fellow a go and dropping me a line telling me of YOUR doings and thus give me something to write about. If some of you don't provide me with something as a basis for these notes, I can assure you that it will not be long before there will be no s.w.l. notes at all included in the magazine.

S.W.L. Groups.—During the past several months I have noted comments indicating that there has been a little interest in the organisation of S.w.l. Groups in other States besides VK3, VK5, VK6 and VK9. However, apparently nothing much has come of it. I have not received any news from VK5 or VK9 for quite some time so how about those Groups coming to light with some news. I also feel that most of our readers would be very interested in hearing how the plans of other States are progressing with regard to Groups. Can't somebody write and tell us please?

I have received a letter from Eric Hardwick, of 26 Streatley Road, Rivervale, Perth, Western Australia, who advises me that a Group, known as the "Short Wave Group of W.A." has been formed. This Group, which consists of initially 14 members, is, I believe, seeking affiliation with the Western Australian Division of the Institute, and we all hope that they will be successful in their efforts along these lines. The Group has appointed pro-tem a President and Secretary, namely Eric as President and his XYL, Rose, as Secretary, for a term of three months. No doubt they will be able to keep each other up to the mark and thus provide plenty of action within the ranks of the Group office-bearers. We wish this new Group every success in their activities. Any of you W.A. s.w.l.'s who are interested in this Group might contact Eric at the above address.

Group News.—The only Group news this month comes from the VK3 Division. At our February meeting there were 13 members present including a new member, Ted Wickett of Niddrie, which to the uninitiated is the same place as East Kellor. Very pleased to see you Ted, and we hope you will continue to honour us with your presence. Amongst the others present we were pleased to welcome John Campbell of the VK5 Division Group and also Angelo Harris who we haven't seen for some time.

It was also reported that the Group President, Len Foynter, and Secretary have at last begun the A.O.C.F. course. It looks like at the next election of office-bearers there will be vacancies in these positions. Let's hope the exams are not too stiff anyway. After a discussion of contests to be run by the Group, the meeting closed and members began their usual after-meeting ear-bash session.

Contests.—As a result of the February meeting, the Group has decided to run the following Contests:

(1) Card of the Month Contest. To enter this contest, it will be necessary for you to forward to the organising Secretary of the Group any QSL card or cards you have received during the past month. The cards will all be judged by the organising committee and the best card for the month chosen. The appearance of the card, location of the station forwarding the card, and any other features considered by the committee to be unusual or of especial interest will all be considered. The winner of this contest each month will not receive any special award, but his name and any other interesting details about him will be published in these notes each month.

(2) DX Ladder. This contest will also run continuously. To enter you must forward to the organising committee any QSL cards you have received from any overseas stations during the post-war period. The contest will be divided into two sections, namely Amateur, to cover QSLs received from any Amateur station, and Short Wave Broadcast, to cover QSLs received from S.W. Broadcast Stations. Each QSL confirming reception will count as 1 point. No award will be issued for this contest, but a list will be published in these notes from time to time showing the position of each contestant on the ladder in a similar manner to the DXCC list for transmitting Amateurs. (I wonder what we'll do if Eric Trebillock, BERS195, WIA-L3042, decides to enter?)

(3) Marathon Contest. This contest will run for a period of a year, commencing on 1st April and continuing till 31st March, '59. It includes reception of broadcast, short wave broadcast, and Amateur stations. Keep your QSL cards carefully until the year is finished and after that time submit them to the Group organising committee for judging. The contest is open to all s.w.l.'s throughout Australia, although a nominal fee of 2/6 will be charged to any entrant who is not a member of the Wireless Institute of Australia or an affiliated club.

A multiplier in the form of the number of QSLs submitted multiplied by the number of countries represented by the QSLs will be applied to all cards confirming reception of stations below the frequency occupied by Television Channel 1. For reception of stations above this frequency the same rule will apply with the addition of a multiplier of two for reception of stations on v.h.f. over a distance of 10 miles and up to 100 miles, a multiplier of three for such stations from 100 to 1,000 miles distant and a multiplier of four for stations received from a distance of over 1,000 miles. So you can see that no matter what type of listening you do you can still enter in this contest. However, you must remember that if you are forwarding QSLs through the post you must include return postage on the cards. That applies to each of these three contests.

Visit to VK3OM.—On Wednesday evening, 12th March, seven members of the Group journeyed to Glen Waverley to visit 3OM, owned and operated by Ron Fisher. The evening enjoyed by the boys can only be described as fabulous. Ron and his good wife, Lynnette, spared no effort to ensure that everyone had a good time. George 3AOM had brought along his double conversion BC348 which was set up together with an AR8 in a room adjoining the shack. He kept the boys busy tuning around on these while each member took his turn at conducting a QSO from 3OM.

Ron's home-built 80 through 10 mx tx, which uses a Geloso v.f.o. to drive a pair of 6146s in the final, is truly a masterpiece of craftsmanship. His SX42 rx is a delight to handle.

After working many stations, a lavish supper was served and Lynnette must have worked very hard to prepare all the good things. It was most enjoyable. We would like to express our sincere thanks to Ron and Lynnette for arranging such a wonderful evening and to George for coming along and showing his interest in the Group.

The Group intends to hold more visits of this nature in the near future, so if you are interested come along to our meetings and find out all about it. We meet at the Institute Rooms, 191 Queen St Melbourne, on the last Tuesday of each month at 8 p.m.

Y L

Phyl Moncur
235 Union Road
Ascot Vale, Vic.

"Squawker", of New South Wales, has forwarded the following:

Since last writing in this column, I have been taken in hand by the OM who regards my knowledge of Radio Hams and OM's as deplorable. Following a little elementary instruction, a well known Radio monthly was thrust at me with instructions to (a) Read it from cover to cover, (b) See if the diagrams therein didn't mean something to me. (Anything, he said, was better than nothing at all.)

This approach, I felt, was a little sudden and a bit harsh, too, but, being a dutiful XYL, I complied with his wishes. The OM, meanwhile, embraced his moth-eaten relic and prepared to tune in to the "boys".

"Chassis for Little James" I read as I turned a page, according to plan. What a chassis! All I could think was that Little James was some boy with all that stuff in his chassis. Having not set eyes on one of these before, I felt quite lost, therefore ventured to ask the OM a few questions. "This chassis certainly looks interesting," I began. "Just look at those gaps in it." The OM was delighted at my interest. "Oh, you mean the sockets for the valves, dear," he chuckled. "Yes, but whoever heard of a chassis with valves sticking out of it?" I asked. "Not only that, but whoever heard of a square one?"

The OM seemed a bit puzzled. "Well, it's not exactly square, you know," he said, "It's

CORRESPONDENCE

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publishers.

S.S.B.

Editor "A.R.," Dear Sir,

Referring to "A.R.," Feb. '58, the article "Mathematical Considerations of S.s.b.," in the conclusion the author uses the phrase "ask yourself honestly have you ever heard an s.s.b. signal that really sounded like a.m.?"

This seems to be an ever-recurring phrase, which I and others of the s.s.b. fraternity fail to understand.

What does a.m. sound like for the purposes of this comparison? Is it the a.m. signal with the 50 cycle f.m. component, the a.m. signal with speech f.m. or possibly the signal with up to 20 db. of speech clipping, or even the hi-fi addict with 20 Kc. bandwidth? Is it the signal with 10% or 110% modulation? Is it the signal whose frequency sweeps 10 Kc. in 10 minutes or the one that jumps 1 or 2 Kc. every so often?

May I suggest that anybody in this day and age who still believes that s.s.b. does not sound like a.m. (an odious comparison) should visit some of his friends or acquaintances who have a receiver selective and stable enough to receive s.s.b. properly, and have a good listen to s.s.b., including the good, bad and indifferent signals, all of which vary in quality according to the resources and technical or operating ability of the individuals concerned.

Then may I further suggest that on the same receiver they listen to a.m. signals on "Exalted Carrier Reception."

But afterwards please don't say "a.m. does not sound as good as s.s.b."

I bet 35 years ago somebody said, "You know this new fangled c.w. isn't so good to copy as good old spark."

—C. B. Edmonds, VK3AEE.

OBLIQUE STROKE F.O.C.

Two further letters from Mr. W. H. Windle (G8VG), Chairman F.O.C., and Mr. Roth Jones (VK3BG) have been received. It is considered this matter has been covered and no useful purpose can be served by publication of further correspondence. The subject is now closed.—Editor.

more of a rectangle." This floored me. "What" I exclaimed. "Why that's worse. How would you like your chassis to be rectangular with valves bristling out of it?" The OM promptly took a fit. That's the only way to describe the peculiar motions he went through in the next few seconds. Coupled with mutterings of "Oh, no, oh no." The scene was quite alarming. One good thing came out of it though. I don't have to read the book any more.

This radio craze pervades your whole life once it catches your man. Take my last afternoon tea-party. Talking in confidential tones to Mrs. Black, a very proper lady, about the noisy neighbors next door, who she says ought to be banned from the world altogether. I am rudely interrupted. "VK such and such, here, Mac," bellows a lusty male voice as the OM twiddles the dial. Mrs. Black spills tea all over my best cloth as the shack hits her. Then, in a quiet whisper comes the next instalment from the OM's session, as one of the "boys" gives someone else certain information in some foreign language, which the OM seems to understand.

One minute I am shouting above the din, the next, I am whispering. At times I find my shouts coinciding with their whispers. No wonder the neighbors complain. Ah, well, readers, have just bought the OM some fishing gear.

NOTES

FEDERAL

RE-ISSUE OF CALL SIGNS

A Divisional enquiry was recently received by Federal Executive concerning P.M.G. policy governing the re-issue of call signs.

For the information of members on this question, the following extract is published from a letter dated 29th October, 1952, from the Acting Director-General, Posts & Telegraphs:

"It is the present practice, when licences are surrendered, to reserve the station call sign in the name of the licensee for a period of twelve months. The Department is prepared, however, to arrange that:-

(a) Where licences are relinquished because of the death of the licensee, call signs shall not be re-allocated for a period of five years, unless to a member of the family of the deceased; and

(b) Call signs relinquished for other reasons will not be re-issued except to the previous holder for a period of two years.

"These reservations will be conditional on submission of an appropriate application in each case.

"A former licensee seeking the re-issue of a licence after inactivity extending beyond the aforesaid period of two years will be granted the use of his previous call sign if still available, and a licensee who changes his place of residence from one State to another will, on request, be allocated the same call letters in his call sign if they have not been assigned to another station. This is the general practice at present.

"It is agreed that the periods mentioned above shall not include periods during which Amateur activity is banned other than for breaches of licence conditions."

PULSE MODULATION PERMITTED ABOVE

288 Mc.

Following negotiations between Federal Executive of the W.I.A. and the Controller, Radio Branch, the Postmaster-General's Department has announced that pulse-modulated transmissions will be permitted in all Amateur frequency bands above 288 Mc.

The Department stipulates that the length of each pulse and the nature of the emitted wave-shape shall be such as to restrict the radiated sidebands within the limits of the Amateur frequency band in which the transmission is taking place.

log to R.E.F., B.P. 42-01, Paris R.P., France. These copies are valid for ulterior application for any French award without any need to forward the corresponding QSL.

It is stated that Austine, VK3YL, has received her QSL from JT1AA. This completes her W.A.Z., which could be the first W.A.Z. ever to be issued to a YL.

P.A.C.C. Contest: This contest will be a help to obtaining the P.A.C.C. Certificate. All Amateurs will try to work as many PA stations as possible. Contest periods: C.w.—last week-end of April; Phone—first week-end of May. Both week-ends from 1200 GMT Saturday to 2400 GMT Sunday. Logs must be mailed not later than June 15 to P. V. D. Berg, V.E.R.O.N. Contest Manager, Keizerstraat 84, Gouda, Netherlands.

W2CTO will be in Vermont from May 29 to June 1 inclusive, signing W2CTO/1 Vermont, along with K2BU/1. They will be using c.w. on 14010 and 14110 Kc. and s.b. on 14270 Kc. Here's a good opportunity to secure that elusive State for W.A.S. All contacts will be confirmed.

Cards have been sighted from SV0WQ. Stewart Fason (W6GHM, DL4AAP) operated SV0WQ on Crete for a short period and managed to pile up a large number of contacts with a 500 watt rig and a Geloso 207 receiver.

The following par from the January issue of the "Telegraph Chronicle" (P.M.G.), shows the potentialities of modern communication methods: "An outstanding feat was performed on 29th Nov., '57, by Mr. A. R. Colliver, a Telegraphist attached to the Chief Telegraph Office, Melbourne, when between 11 a.m. and noon on that day he transmitted a total of 156 telegrams to Sydney by teleprinter. This total, required Mr. Colliver to serially number, teleprint and endorse transmission particulars at an average rate of 2.6 telegrams per minute throughout the hour. So far as can be established, this total is the highest hourly output ever achieved by direct teleprinter keyboard transmission."

—Ray Jones, VK3RJ, Manager.

NEW SOUTH WALES

The monthly meeting of the New South Wales Division was held on Feb. 28 at Science House, Gloucester St., Sydney. As is usual for this meeting each year, the lecture was on v.h.f. The lecturer was Mr. John Lark, VK2ZAV, a member of the Divisional V.h.f. and T.v. Group, who gave a very good introduction to v.h.f. techniques and described how to go about designing and constructing converters, transmitters and antennae for the 144 Mc. band. There was also a display of v.h.f. equipment comprising g.d.o.'s, converters, complete receivers, various types of transmitters and a 4-element beam.

A vote of thanks was moved by Bill 2YB for an interesting and informative lecture.

During the business side of the meeting the President, Pierce Healy, 2APQ, suggested that the fund, to enable a representative to be sent to the I.T.U. Conference at Geneva in 1959, be opened in the Division as quite a number were remitting an additional £1 with their subscriptions. After a short discussion, Council was given approval to open such an account.

Other business transacted was the voting on various items arising from the Federal Convention held last Easter. These items included

the interchange of members between Divisions, interchange of Life Members between Divisions, the purchase of a typewriter for the Federal Contest Committee, and that a Federal Convention be held in Melbourne during 1959. These points were agreed to by the majority of those present.

Following the agreement at the meeting for the fund to be opened, an appeal was made by the Divisional President during the Sunday broadcast from VK2W1 on March 2, pointing out how necessary it was for all Amateurs whether they belonged to the Institute or not to contribute. As the Wireless Institute is the official recognised Amateur body, such moves which would have to be made would be through the Institute.

Already donations had been received and the Associate members were doing their part in subscribing to the fund.

It was also suggested that an effort be made to have all donations passed in by the beginning of July.

VICTORIA

At the last meeting on 5th March we were privileged to hear a very fine lecture from Mr. Eric Anderson (3KH) on the communications side of the Department of Civil Aviation activities.

Eric is a very competent and knowledgeable lecturer and every word was followed with rapt attention. He set out to explain to us what D.C.A. does in the communications field and how it does it and many eyes were opened at the ramifications of their activities.

In the first place, except for a very small area in Western Australia, the Department has a network of stations scattered throughout the mainland of Australia and adjacent islands which with a multiplicity of transmitters and receivers and what seems to be herds of frequencies enable them to provide a 24-hour seven-day-a-week service between stations and stations and planes.

Naturally, this service is most exacting, considering what is at stake and in order to obtain the different grades of service required at the various locations, equipment is duplicated and sometimes triplicated to meet the requirements.

D.X.C.C. LISTING

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

PHONE

Call	Cer. No. ries	Call	Cer. No. ries
VK3WL	14 211	VK3EE	10 163
VK3ATN	26 204	VK9DB	31 161
VK4FJ	21 202	VK4WF	16 160
VK6RU	2 194	VK4RW	23 157
VK4HR	12 192	VK3JD	1 155
VK3BZ	3 176	VK4KS	9 152

C.W.

Call	Cer. No. ries	Call	Cer. No. ries
VK3KB	10 235	VK3XU	48 213
VK4FJ	29 234	VK3BY	45 202
VK3FH	15 226	VK2EO	2 191
VK3CX	26 223	VK3YL	39 190
VK3BZ	6 222	VK6RU	18 177
VK4HR	8 218	VK5RX	23 176

Amendments

VK9XK .. 41 154

OPEN

Call	Cer. No. ries	Call	Cer. No. ries
VK2ACK	6 250	VK3XU	61 221
VK4FJ	32 238	VK3JE	12 210
VK4HR	7 233	VK3ATN	69 210
VK3BZ	4 231	VK3HG	3 201
VK3WL	45 225	VK2NS	16 195
VK6RU	8 224	VK9DB	59 182

Amendments

VK9XK .. 54 156 VK4BG .. 66 130

New Members

VK2AFA 70 102

FEDERAL QSL BUREAU

Cards handled by the Federal Bureau for the year ended February 1958 totalled 45,000, as compared with 40,000 for the previous year.

The 1958 French Contest is scheduled for phone from 1st March, 1200 GMT, to 2nd, 2400; and for c.w. from April 13 to 14, same times GMT. This is an opportunity for working French Departments (D.D.F.M.), French Provinces (D.P.F.), and French Union Countries (D.U.F.). Code is RST (c.w.) or RS (phone), followed by the number of the QSO (e.g. 579014). A French station identifies its department by figures, or its country by letters, which are sent after the call when the prefix alone is not sufficient for identification: e.g. FBDU/78 for department Seine-et-Oise and province Ile-de-France, FASBG/OR for Oran in Algeria, FQAG/MC for Moyen-Congo in French Equatorial Africa. Points: 3 per QSO. Multiplier: the sum of all departments and French Union countries worked on all bands. Score: Total points for all QSOs multiplied by the multiplier. Send a copy of the station

CONTEST CALENDAR

Compiled by W.I.A. Fed. Contest Com.

★

W.A.E.D.C. 1958—

Phone Dates: 1800 GMT, 4th April, to 2400 GMT, 6th April.

Bands: 14, 21 and 28 Mc.

R.E.F. 1958 (c.w.)—

Dates: 12th and 13th April.

VK-ZL DX 1958—

1st and 2nd Week-End October.

R.D. CONTEST—

Dates: Saturday, 16th August, 1800 hrs. E.A.S.T.; Sunday, 17th August, 1759 hrs. E.A.S.T.

The most remarkable thing of all, however, is that all of the stations operated are remotely controlled due to the inaccessibility of most locations. Apparently the only thing they can't do remotely with the equipment is to walk it up and down the racks. Every other function is controllable.

Both the v.h.f. and h.f. spectrums are used throughout the service, the former for distances up to 100 miles from the airfield, and the latter up to 250 miles and greater. International aircraft are often picked up, of course, over very great distances on the h.f. band.

As is to be expected International control exists for this type of radio communication and it is interesting to note that amplitude modulation is the order of the day for all equipment due to technical difficulties which would be introduced by the more modern varieties now in use.

It was not surprising to find that aeriols occupied quite a prominent position in Eric's lecture and we gained some very interesting information on dipoles, rhombics, yagis and other types of antennae, together with the transmission lines which feed them. In this connection, it was very interesting to learn that where a number of antennae are required, provided they are within plus or minus 10% of the fundamental or harmonic frequency of their neighbours, they may be stacked one above the other without appreciable loss of performance. This should prove to be a handy piece of information for those who need a cheap antenna farm.

A wealth of equally interesting and informative information was provided by the lecturer and some most enlightening supporting data was shown on slides, including some very good slides of what is obviously a showpiece station situated above the snowline in Tasmania. Suffice to say that the lecture was very much appreciated. It was a pity that more of the members did not avail themselves of the opportunity to learn of these activities.

From the tone of the questions fired at the lecturer it was easy to see that the boys are preparing to put some of the excellent subject matter to work in their own spheres of activity.

George Glover moved a motion of thanks which was carried most heartily. The indications are that we will be seeking more information on D.C.A. activities by further lectures in the future.

There were no new members listed for admission at this meeting, but we were pleased to welcome Len 1ALR and Col 7LZ as visitors. If Col hasn't already done so, it is expected that he will be making arrangements to see that D.C.A. station in his own State.

An appeal was made to the meeting by the Penal Department for four or more members of the Institute to volunteer to give radio instruction to selected prisoners at Pentridge. There is no remuneration except perhaps fares on public transport. Anyone interested should get in touch with the Chief Training Officer of the Penal Department. The hours of training are between 5.30 and 8.30 p.m. and quite good facilities for training are believed to be available.

Rumour has it that another handout is being arranged, but more of that later when details have been sorted out.

The S.w.I. Group reports that on 12th of this month (April) at 2.30 p.m. they will be visiting the Army Transmitting Station at Diggers Rest. Intending visitors should get in touch with Mrs. May at the rooms or Ian Hunt. Numbers are limited and preference will have to be given to members of the group, but don't let that deter others from applying as there is expected to be room for all interested.

Don't forget the Annual General Meeting to be held on 2nd April.

EASTERN ZONE

Only seven turned up at the last monthly meeting on Friday night, 28th Feb., at David's QTH, 3DY at Maffra. We have two more successful candidates, L. Russel, of Yallourn, and P. Myles, of Sale, who are awaiting their call signs. Congratulations to you both.

Hope everybody had a very enjoyable time at our Convention last month. A full report of the Convention will be made in May's issue.

SOUTH WESTERN ZONE

The Zone has been fairly busy organising the Convention. Chris 3AXU and Gordon 3AGV have helped in every way possible but many who could have given a lot of assistance did not make themselves available. Be in it chaps and spread the work. Gordon 3AGE hopes to be able to devote a little more time to Ham Radio from now on.

I am afraid the green-eyed monster has got most of the chaps by the short wool, but for how long? Whilst on television, if there is anyone interested in Amateur Television, contact Bill 3BU who will be only too glad to tell you all about it.

GEELONG AMATEUR RADIO CLUB

A most successful Marathon Tx Hunt was held recently at Werribee. A good crowd attended and the results were as follows: Hunt No. 1—Len 3LN and family, 1st; Laurie 3ALY and Bert Stebbins, 2nd; 3ZEN, 3rd. Hunt No. 2—3LN, 1st; 3ZBU and Ray Price, 2nd; 3ZEN, Phil Endick and Bert Stebbins, 3rd. Hunt No. 3—3ZDW, 1st; 3AJ, 2nd; 3ALY, 3rd. Hunt No. 4 (Fox Hunt)—Ray Price and 3ALY tied for 1st place.

The Geelong lads, who hid the tx's are to be congratulated—Dick 3ABK, Peter 3ZAV and Fred 3ALG. Also Alf 3AJF, Jim 3ABT and Rodney Ellis.

Bob 3IC did a fine job as liaison officer, whilst Chas. 3XH is to be thanked for loan of equipment.

Because most Geelong members were engaged in hiding the gear, only one participant, Bill 3BU, was a hound. Other members of the club were noticeable by their absence, but their excuse was "preparation for Warrnambool Convention."

Club members recently visited the shack of Len 3LN and XYL and were regaled with all facets of electronics. The wide array of Amateur equipment in his new shack was beautifully designed. It shows that care and skill can produce equipment comparable with commercially made gear. A list of items studied would be insufficient here, but among interesting highlights were Amateur tx and a "super" receiver. Later there was a hi-fi demonstration, then some excellent films—one good one of 3LN's Junior on skates, and then to rejuvenate us for the road a fine repast was served. The President, Jim 3ABT, thanked the host and hostess and we are looking forward to the next visit in 1959—hoping however we can reciprocate same in Geelong.

Wedding bells are the order of the day and we must congratulate Keith Wines and Kevin Mills on their recent marriages.

There is renewed activity in Geelong on 2 mx and 3ABK, 3BU, 3ALG and 3XH are newcomers operating frequently.

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MOORABBIN AND DISTRICT RADIO CLUB

The last general meeting of the club was held on 21st Feb., when club member Milton Crompton, recently returned from an overseas tour, gave a very interesting lecture on "Trends Overseas in TV." Milton spoke about current systems in use in Britain, France, America and several other European countries, with particular reference to the development of colour television. We saw a number of very attractive coloured slides illustrating various colour receivers in action, and a few fine shots more of tourist value, including several showing the t.v. antennae mounted on the Eiffel Tower. The lively questions and discussion which followed showed how well the talk was appreciated by the good attendance of members present. Once again, Milton, thanks very much.

The forty metre club hook-up on 28th Feb. was not so well supported, and members will have to give more support if they wish this function to continue. Better success was scored with the Natter Night on 7th March, when an enjoyable evening was spent with 3APC on two metres. Contacts could have continued for quite a time after we decided to shut down. Thanks to those stations who contacted us, and look for us again the first Friday of each month.

We have pleasure in recording the arrival of a first harmonic at the home of Peter 3APD. Congratulations Peter and Mary, and we hope to hear a junior op on the mike soon!

QUEENSLAND

With the Easter week-end just around the corner, the retiring Council has instigated proceedings which, we hope, will provide encouragement to members and friends and renew the enthusiasm required to make our 1958 Ham Convention an even bigger success than in previous years. It is no mean task to organise even "a simple outing," but the success of any such venture remains with members themselves and the degree of loyalty shown by the final attendance figures. I have never seen the boys and their families and friends enjoy themselves quite as much as did that happy group at the recent barbecue at Cash's Crossing.

In the beginning, Vince 4VJ reminded us at a meeting, of the two very successful barbecues that were held at the last Palm Beach show! We thought that in addition to this, we could give some of the boys an opportunity to secure some practice in blind-fold tx hunts and perhaps a hidden tx event, with the five, already spiked, waiting at the tx. Unfortunately, we didn't get the numbers of Hams with car loads of gear and the evening program was altered to suit those present. The blind-fold hunts which were run off under unusual conditions, drew quite a lot of interest from other groups of picnickers and a few cows! As you can well imagine, there were some unusual obstacles.

However, Tom 4ZBH emerged as champion of the field and was awarded a prize given by John 4FF, who, a champion himself, had retired from that event. Mention must be made of the magnificent Charleston display given by John (time roughly 8 p.m.) and I must confess that I have never seen such an energetic performance, either on the screen or stage! We had the excellent services of Alan 4ZBF and his piano-acordion and many were the songs that we sung around the fire that evening. Car seats were brought out and the smell of hamburgers and steak on the grill brought forth many an appreciative murmur! Vince as chef, surpassed himself, in fact it was a terrific barbecue. Thanks, sincere thanks, go to all the ladies who came and (I doubt if this is the right expression) "to a man" rolled up their sleeves and "pitched in." To Vince, we would like to convey our thanks for a job done as well as his steaks. I, myself, would like to have another barbecue in the not too distant future, and I think that I can say that on behalf of everyone who attended.

At our last general meeting, Rick 4VR gave a lecture which went a long way towards solving the many problems that beset the average Ham when it comes to erecting his antenna masts and poles. The many hints about rigging and guying a 60-ft. mast made the whole job look like child's play. Rick, who is a rigger (after the lecture one has to say) by profession, had a solution for every problem that the boys dreamed up. In fact, one Ham who hitherto had thought that the erection of a suitable mast to take a 12 element beam was, with the exception of moving the house, an improbability, because of the unusual geography of his allotment, had his problem "lifted from his shoulders" by an uncommon, although slightly varied, method of rigging suggested by Rick. A valuable man to keep

in mind felix. Many thanks Rick, for the much appreciated and informative lecture.

The next general meeting will be the Annual General Meeting and the present office-bearers will have completed another term of office. Many of these "willin' horses" have been serving continuously for many years and in one case a councillor has been on Council since 1948 or 1949—so long now that even he is not altogether sure! The "task" of being a councillor is always held in awe, but all those chaps who get up on their feet at general meetings have what it takes to be on Council. After all, Council merely discusses all the various problems and suggests the best possible answers to suit the organisation of this Division as a whole. So what about it boys?

By the time this goes to press we will have had our Annual Dinner, which, all of you know by now, falls on the Saturday night after the Annual General Meeting. There will be more news about that in due course.

Stan 4SA informed us that the last examination for the A.O.C.P. was, according to the students who sat, rather searching in nature and to date the boys are anxiously awaiting the results. Good luck, boys, and don't let the papers get you down if you strike a tough one that may pull your percentage down, just get stuck into it. You'll get there!

As this is more or less the end of our financial year and there will more than likely be new faces on Council, I think that we should make a determined effort, each and every member, to further the principles of Amateur Radio and more specifically, put them into practice in our Division by loyal support and active participation in Institute activities.

MARYBOROUGH

Grahame 4DJ is now interested in High-C. Yes he is now on a coastal ship and away half the time. Has built a converter for 6 mc (xtal job) and is getting a rig ready. Noel from Scarness is now 4ZBN and is also due to appear on six, using a four-stage rig with an 815 final.

Arch 4CB reports hearing many JA stations on his t.v. receiver. Worked a V55 on 10 mc for a new one. 4BG finished his grid dipper, so it looks like a beam check coming up. Keith Avery, ex-4KG, made a brief appearance in the old town. Is on transfer to Malaya, so look out for Keith under a V52 call.

TOWNSVILLE

February meeting of the T.A.R.C. was well attended and after usual business was disposed the members settled down to discuss their troubles and asked for information from the rest of the gang. Ted 4EJ came up with a poser of why he lost an 809 in the modulator because of an open circuit in the oil filled fly-pass condenser. 4MF and 4FF are being troubled with parasites and now all OK, but fingers permanently crossed. 4RW complaining of too high a current at resonance unloaded and requires better Q in the coil.

Nine members have sent in their subs to the W.I.A. so far besides belonging to the local club. The boys are settling down to the classes being run by the R.A.A.F. and looks like this time next year our ranks will be swelled with chaps with brand new tickets. The more the merrier, will get at least a local ragchew when conditions are poor. That reminds me, all bands seem very erratic and nowhere has come up to expectation in the I.G.Y.

Eddie 4WH, our Secretary, again goes to hospital for further operations while this is being read by his many friends. Ted 4EJ leaving this month for Sydney to have his eye attended to. He certainly suffers at times; good luck with it Ted.

Nothing much has been heard of the Z boys on 144 Mc., only two attended last meeting. John 4DD still away in Sydney on holidays. Speaking of holidays, who blew in last week but Harry 9HO from Rabaul in brand new car, all the way overland from Sydney. Was trapped by the flood waters south of Mackay and lost a few inches in the girth. Must have been the worry of flooded creeks, etc. Had his wife and family with him; didn't stop long as he was anxious to make Cairns before dark.

Claude 4UX been busy building a mobile outfit to take on holidays when he leaves for the south at the end of March. Has been putting out f.b. signals on flea power with it too. Claude also an expert on prose and making up verse whilst talking over the mike.

Basil 4ZW is a very busy man these days studying algebra. Anything to do with two pi and peas is up his alley. Harry 4ZP has been in the flood area and gave some vivid descriptions of the damage caused in his area due to floods. Fortunately, however, Harry did not suffer any loss although waters were very close. Vic 4BJ back from car holiday to Melbourne, became interested there in t.v. but has not

yet decided to get a one-eyed monster; still swears by his super pro, Vern 4LK also been busy building mobile rig which he is trying out. Still listening and working them on 50 Mc. His beam took a bad battering during recent minor cyclone in the Towers. Bob 4TK still building up the all-band rig; also knocked together a c.r.o. with everything in it but the proverbial kitchen sink. Andy 4BW still in charge of the morning 7 Mc. hook-up. Has returned from his holiday at Port Douglas and Atherton and is now a grass widow, while Mrs. BW is away on holidays. John 4DK only heard about once weekly in the 7 Mc. hook-up, but active on other bands where his signal is likewise "loud and clear." Came to the fore during the local flood and had honorable mention in the daily press. Alec 4MA has not been heard of much since school started. Harry 4HK only heard occasionally from Atherton, likewise Bert 4BP. They break in sometimes on 7 Mc. Bob 4RW came in on the hook-up recently in the afternoon on 7 Mc. Says he worked too hard, in fact is the only one who does at his place.

Don 4PW been heard around the north quite well working several stations. He is needing a 500 ml. choke. Going into business in the electricity supply game with it probably! Mick 4WT since going into double harness is rarely heard. How long does a honeymoon last? Ted 4MH has another hobby as well and it is chasing the big 'uns on the Barrier Reef. Gets them sometimes reports Basil 4ZW. Ken 4XD has been disposing of some of his gear. Hear he is not in the best of health at present.

SOUTH AUSTRALIA

The Annual General Meeting of members, the usual monthly meeting and the final kerbside v.h.f. group gathering all took place, in that order, at our last get-together.

The attendance was good, the debates lively, and general interest displayed was pleasing to see, for the President was in good form, and nothing put up to him went unanswered or in any way upset his usual calm approach.

John gave us his report, which as usual was complete, but short and to the point, without losing any of its value, and covered everything from numerical strength, through finances, committees, specific and general activities, to a feature all liked to hear, namely that there was no intention of increasing subs.

Our membership now reaches 400 (including 233 full members, 152 associates, and 15 new ones at that meeting), the growth being a healthy sign for the future, a great deal of credit for this must go to Norm Colman for his energy in this regard and to the class instructors who have coached the newer members.

Finances continue to remain healthy, in spite of rising costs all round, a great measure of credit for this is due to Treasurer Jim 5FO who has watched that side of things for us with efficiency. Unfortunately, Jim was not present to hear the President sing his praises, nor to hear Doc 5MD read the financial report. The confidence placed in Jim as Treasurer was reflected in the ballot for Council held later, wherein he topped the poll.

Secretary Brian 5CA came in for his share of appreciation, and it was something to see his humble expression and downcast glance when words of commendation were being expressed. He has done a magnificent job as Secretary in a term of increasing membership, conventions, sputniks, W.I.C.E.N. organising and so on. Ask him some time where he retired whilst the question of an honorarium was being discussed.

The Federal Convention was mentioned, same being attended by Gordon 5XU as Councillor with Rex 5DO as observer. Rex has since been appointed Federal Councillor, and later in the monthly meeting took up the Federal matters in a way that indicated not much will get past him. We have always had good Federal representation, Gordon did a great job there and Rex is a worthy successor.

Jim 5JK and his band of W.I.C.E.N. boys came into the picture and their set-up and progress was considered satisfactory—the main item being that more practice was needed; the Exhibition was dealt with and thanks given to those who loaned their gear, assisted in setting it up and working same.

John then reported on the operation of the Advisory Committee and the time they voluntarily contributed to our benefit, on the SWI weekly broadcast conducted by Gordon 5XU, the equipment officer, disposals committee, T.V.I. Committee, and the programme organisers, all of whom had assisted in the running of a successful year, special mention was made of Jack 5JT for his work on the Federal net and the volume of traffic he had handled; QSL Officer it was stated had handled 20,000 QSL cards for the year.

It should be noted that VK5 again provided the hard working Contest Committee under the management of Rex 5DO, who during the year had continued in the formulation of rules, checking of logs and sending out all awards — by the way, there is scope here for anyone who is contest minded and not afraid of a bit of work to join in that committee; it's a very interesting chore.

The notice of motion regarding alteration to Clause 29 of the Constitution of the Division was passed, with but minor amendments to the "verbage", our cautious Secretary considered one was necessary and the floor of the house decided "Junior Associate Member" was a better sounding name, and more descriptive, than "Listener Associate". So now our rules enable us to have three grades of membership, namely "Full", "Associate", and the new grade, the latter being "Juniors" up to the age of 16 years, who do not qualify for the other grades.

Oh yes, we re-elected Mr. Piper as Auditor, figuring that his job must have been done well to scare (?) the Treasurer away from the meeting! Then finally the ballot for Council was determined, this being conducted to fill the nine positions vacant on rotational retirement, and same resulted in the following being elected:

Jim Vivian, 5FO; Brian Austin, 5CA; Comps Daw, 5EF; Gordon Bowen, 5XU; Les Duncan, 5AX; "Doc" Barbier, 5MD; Lloyd Brice, 5OK; Bob Roper, 5PU; and Jim Sullivan, 5JK, to whom is added the immediate Past President, John, 5KX, and Federal Councillor 5DO, who retain Council membership by virtue of their retiring office.

The voting was reasonably close and those six who were not successful need not be discouraged from trying again.

At the general meeting the formal business included the approval of membership of the 15 new applicants, and unfortunately one resignation; advice of the new Advisory Committee, which was G. Bowen, 5XU; Reg Harris, 5RR; and B. A. Palk, 5FQ; Rex then brought us up to date on Federal matters, which introduced the matter of representation at I.T.U. at Geneva. There was no doubt in the minds of those at the meeting that a representative should go and when Warwick 5PS got up and pointed out the possible cost of same, he was smartly sat down by many who left it in no doubt that the cost was the last thing they were thinking about. The possible loss of rights by not being represented was considered the real meat of the subject and cost came a bad last. It will be interesting to hear the result of the ballot on this matter, but it should follow the pattern of those present who voiced their opinions and expressed approval of the Council recommendation.

Gordon 5XU then gave us the latest information on the U.S. Satellite "Explorer", both mechanical size and radio detail, which he had received from the authorities that day, and it is interesting to note that it is 7 ft. long with 3 ft. of satellite and 4 ft. of burnt out rocket. The 108 Mc. antenna is a single dipole at the nose and the 108.03 Mc. antenna is four dipoles at 90 degrees at the 3 ft. point where the case joins. It is interesting to note that the orbit of this vehicle is such that the height difference between max. and min. also rotates, so that on some trips over Australia it is only 300 miles away, that is the time to tune up those converters. Gordon tried to tell us that it gets down to 300 ft.!! He must have been on moonwatch the night before, anyway if it got that low even 5PS would hear it!!

If you are interested in these things and in the progress of tracking them, etc., listen to 5WI each evening at 1800 hours or 2100 hours E.S.T. on 7 mc. when the exchanges of information are given between 3WIA, 2WH and 2ARG. Then, in addition to that, K3CYA (Freddy Frell) is on s.s.b. 14,250 Mc. at 2100 hrs. C.S.T. giving the latest from U.S.A. and proves most interesting listening.

The slow morse given by Doc 5MD each Sunday night has brought forth a few letters of thanks to him from as far afield as VK2. If you are using this service, drop him a line and tell him how you are getting on, for it must be tough not knowing if you are even being heard. There have been one or two "timid" outbursts on c.w. by some of the gang since Doc started this service, so at least that will indicate interest to him if nothing else.

Bram 5AB has at last had his 200th country confirmed, congrats. Bram, must be the new Z match you have in use.

At the time of writing the exact details of the vote on the I.T.U. Conference are not known beyond that members wholeheartedly backed the Council recommendation that a member be sent, so it will be interesting to see how the other States voted.

WESTERN AUSTRALIA

The first Divisional meeting for 1958 was held on Tuesday, 18th Feb. Mr. Ray Dival, of the National Instrument Co., gave an interesting and instructive talk on instruments.

Wally 6AG showed some 35 mm. slides of oscilloscope patterns and a competition was held, members being asked to describe what they represented. I gather the XY's sewing machine slipped in a few stitches somewhere! 6EC and 6ZAC benefitted by an 807 each.

Slow morse transmissions are again being sent out from VK6W/P on Wednesday evenings at 2000 hours on 80 mx.

The Sunday morning news is broadcast by 6WI on 40 mx and 56 Mc. bands and the latter is relayed by 6BO on 80 mx. During the past few months conditions have often been poor on 80 and 40 mx. The transmissions were at 1000 hrs. but the I.f. bands are now improving earlier and in future the time will revert to 0930 hrs.

The stormy weather on 2nd March caused a power line failure at 6WI and a portable battery rig was used.

Activity on 80 mx is increasing as usual at this time of the year, and already 6MO has been heard working ZLs, and 6CL getting out to VS2. Apart from the usual regulars 6AG, 6TL, 6BO, 6LG and 6BE, 6EJ and 6BS are again heard. Francis 8WD of Hyden is a newcomer we are glad to see on the bands. He was putting in a good signal from Hoptown/P on 40 mx during early February. 6JR is now in Perth, having done some shack visiting on the way from Katanning.

6AJ has a new QTH in South Perth, and after a short spell QRT is heard on 80 mx c.w. Geoff finds QRP c.w. a change from his daily QRO phone routine. 5BE on long service leave, has been heard from 6CL's. Bob has been building a new final with a 237B driven by a TTI1 and remarks on its high power sensitivity and stability with only 1 mA. drive.

20 mx has been spasmodic but at various times it has been noted that DX stations have worked VK6 including 6CL, 6CP, 6KW, 6JG, 6WT and 6WU. 6RU and 6VK are working s.s.b.

Congratulations to 6ZAY on passing the morse test. Plenty of room on the I.f. bands Frank!

50-54 Mc.—This band is showing interesting results and those who have not tried it are urged to do so and your Federal Councillor, 6KW, asks for reports as follows: Date, time, station hrd./wrkd., sig. strength in/out, wx condx., and any other remarks. This information will be forwarded to Federal Executive who have been asked by the authorities for reports on Amateur observations during the I.C.Y. The results will possibly influence the position of the Amateur in this section of the spectrum.

TASMANIA

NORTH WESTERN ZONE

I have been under the impression that as we went up in frequency, the static and noise, which we put up with on the low end of the spectrum, disappeared, so that by the time we reach 56 Mc. we are down to the like of tube noises.

Seems that Geo 7XL turned on his new 6 mx rx the other night during a visit from Hon. Sec. Max Ives. A tremendous burst of noise greeted them as the tubes heated up. After a period of practically wrecking the set, and making terse remarks about the Aurora Australis, U.S. Satellites, and scatter propagation, Geo's harmonic came up with the info. that Mum had nearly finished making a beaut. cake. Guess what!

Ted TEJ has gone all v.h.f. too and is interested in working anybody on 6 mx apart from Geo.

Sid 75F receiving strong tv. sigs at Burnie recently. Disconnected one leg of the beam as sigs overloading set. Disconnected other leg and still receiving on a dipole. Careful Sir, or you'll be able to hold the tube in your hand and point in the direction of Melbourne to receive a sig.

Associate David Searle has seen fit to take himself off to the West Coast looking for precious metals. Watch the weather, David, its very changeable. Associate Johnny Lee busy winding field coils on a motor when last seen, but tells me he is studying hard. David Sloane is another Associate who is tackling the study problem, and is putting effort into the mathematical side of it.

Lee 7KC has had the satisfaction of seeing a pattern on his home-brew t.v. set; good work, Lee, perhaps a 21 inch tube is the next project. As mentioned last month, Ray

Schulze's No. 19 works OK—on the receive side anyway. Believe Associate Terry Longs can obtain large scale maps of the N.W. Coast at 5/- a time. Very good for field days, I'm told.

PAPUA-NEW GUINEA

I'm late again as usual but as we hold our meetings at the end of the month it is a rush to compile notes and get them off early. However, there has been little activity up in this region; two important functions have taken place, namely, our Annual Dinner and the Annual General Meeting.

Bob 9SB is back in Port Moresby with his fixed portable and has been operating on 10, 15 and 20 mx and is looking around for old acquaintances. Bill 9BW has been trying his luck on 50 Mags, but so far his only signal has been auto ignition. Swing your beam Moresby way, Bill, Doug 9DB is also on 50 Mags and in the near future ex-VK3ZBF, Des Francis, will also be operating the band. Des should have his gear here soon. It is rumoured that Norm 9NT has his rig on the air again. How about putting some "wallaby hop" into the final to get you across the range, Norm? Bill 9WP has been heard on c.w. blasting away with his 9 watts. Quite a good effort, Bill.

The National Field Day was not a success here. A few members went out hoping for the best, but alas, the only noise they heard was the breaking of 807s.

The rules for the R.D. Contest are still a bone of contention with this Division in respect to the allocation of points and the method used to assess these points, and until VK9 is put on a more equal footing it is felt interest cannot be aroused in this Contest.

The annual meeting was held on Thursday, 27th Feb., with eight members and two associates attending. The main business was the election of councillors who now are Les 9HI, Frank 9FN, Russ 9XK, Doug 9DT, Doug 9SB, Errol 9EF, Ruth 9RD and Bob 9BS.

We now have some new members on the Council. It is hoped it will be realised that it is new blood which is the essence of success in any organisation.

Over the past year it has been found that members have lost interest in their Sunday morning hook-up, although they are still very keen Hams. This is a strange state of affairs and is one of the first problems the Council should attack because without the co-operation of members the Sunday broadcast is just a farce. The cause of this should be sought out and removed to pave the way for a successful year.

In conclusion we wish to congratulate the new councillors upon their election and will do our best to help them make 1958 a bumper year for this Division.

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3 x 3 x 1	11/7
3 x 3 x 2	17/10
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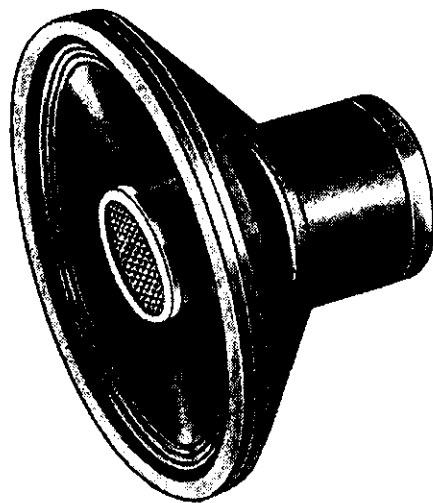
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EDITORIAL

★

“. . . to Elect a Committee and Appoint a Chairman”

The average Ham, long before he gets his licence, realises that Amateur Radio occupies narrow strips of territory sandwiched between covetous neighbours, and from an instinct for self-preservation, if for no other reason, he joins the W.I.A. Unity, he feels, is strength, and every one more member means added strength and added assurance of the quiet enjoyment of his hobby.

It is likely, however, that few Hams ever get to know every detail of the internal operation of the Institute. Overall policy, for instance, is determined by Federal Council. Federal Executive is its operational instrument and through Federal Executive it maintains contact with the Authorities and with Amateur bodies throughout the world.

Within this framework of course each Division has an independent organisation of member Hams. And within these Divisions are the Zones,

carrying on in varying degrees of activity, functions of their own.

Besides this there is the Federal QSL Bureau, the Federal Contest Committee, the Civil Emergency Net, the Satellite Reporting Organisation and the Federal Traffic Net. There is a Committee for publishing your journal and the Australian Call Book. There are within the Divisions organisations for conducting the Sunday morning news broadcasts, producing Divisional newsletters, transmitting slow morse for learners, and producing fox hunts, transmitter hunts, scrambles, and social functions.

It is unlikely that any other field of spare-time activity so vitally stimulates the British impulse to elect a Committee into an extremely happy family, but simultaneously trains a large body of first-class technicians, whose value to their community cannot easily be calculated.

FEDERAL EXECUTIVE.

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Tests with Multiband Components and the VK2AOU Triband Beam

BY H. F. RUCKERT,* VK2AOU

LISTENING on the DX bands shows that the triband beam aeri-als are by far the most popular and very successfully used arrays. But it is also noticed that there is a lot of argument as to the actual function of these beams and several unanswered problems seem to remain after listening to an account from those who have not achieved the expected results with their home-made beam.

We will, therefore, describe simple tests everyone can copy with a calibrated grid dip oscillator (g.d.o.) and a few pieces of wire and cable. The tests show quite clearly the properties of the beam components and how the functions can be combined to achieve triband operation. These tests will also demonstrate how Amateurs can do developmental work with their limited facilities.

The second part of the paper brings the description of a triband beam the writer used with very satisfactory results during the previous year. Most of the tests can also be made indoors where it is far more convenient. It does not matter if we get a small error due to the increased capacity of the dipole to the walls, etc. We are also aware of the fact that especially at v.h.f. the diameter of the dipole conductor has some effect on the resonance frequency.

Despite all this, and the not-too-great accuracy of the g.d.o. calibration, the results will be clear enough to show the principles involved, and that is the main purpose of the experiments and this paper.

The wavelength, being measured in cm. or m., will therefore require use of the following system to describe the tests:

- 1 cm. = 0.3937 inch
- 1 m. = 39.37 inches
- 1 m. = 3.281 feet

DIPOLE RESONANCES

1st Test

A piece of wire 7 m. long is erected, insulated at both ends and at least three feet away from walls or other objects. In the middle we bend the wire to a small loop to facilitate the coupling of the g.d.o. coil to this dipole.

The resonance indicated by the g.d.o. will be near 19.5 Mc., 60 Mc. and 100 Mc., etc., if our g.d.o. goes high enough in frequency. This means that a dipole has, besides its fundamental resonance, a resonance at the third and fifth (etc.) higher odd harmonics. This is quite logical if we plot the current distribution along the dipole as this is shown in Fig. 1. We get in principle the same result if we use a shorter dipole which may have its fundamental at 50 Mc. We will now find the next higher resonance at 150 Mc.

2nd Test

Several types of minibeam use inductive-loaded dipoles, for example an inductor in the middle. We now place in the middle of the 7 m. long dipole a coil with about 5 μ H. (13 turns, 4.3 cm. diameter, 4.5 cm. length). The g.d.o. is now showing resonance near 14 Mc., 42 Mc. and 70 Mc., etc., again at odd higher harmonics.

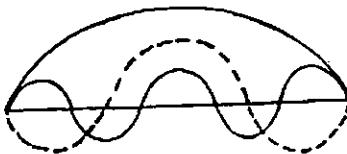


FIG 1 7m long dipole. Fund. 5th harm.
Res at: 19.5, 60, 100mc etc.

If we repeat this test at v.h.f. we can use a 1.9 m. long dipole which has a resonance near 75 Mc., insert a small coil in the middle to get the fundamental resonance at 48 Mc. The next higher resonance will now again be at about 3 \times 48 Mc. We see that a small loading inductance does not disturb the fundamental law: that a dipole has only odd harmonics.

STUB RESONANCES

3rd Test

Less well known is the fact that a stub behaves very much like a dipole as far as the resonances are concerned. A closed stub is actually equal to a folded-up dipole. We take a 2.2 m. long piece of 300 ohm twin lead and put it up, insulated, as we did with the dipole. At one end a small loop closes the stub. It is important to hold the g.d.o. near this loop at the end of the closed stub to get the resonances we are interested in. We should now measure the fundamental at about 29 Mc., and 10.3 m. is the corresponding wavelength. The stub is an electrical quarter wave long.

By comparing the geometrical and the electrical length we get the velocity factor of the cable, $4 \times 2.2 \div 10.3 = 0.83 = 83\%$, which is not too far from the true value of 81%. The harmonics indicated by the g.d.o. are the third at 86 Mc. and fifth near 145 Mc.

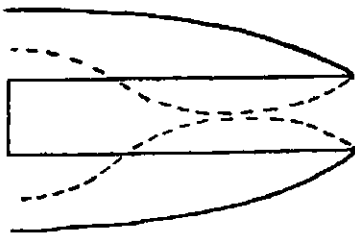


FIG. 2. Closed $\frac{1}{4}$ stub. Fund. 3rd harm.
Res at: 29, 86, 145mc etc.

This or similar tests with 70 ohm twin lead or co-axial cable will always have the same principle results, namely that besides the fundamental, only odd harmonics are present. With a 9 m. long stub of 300 ohm ribbon, all odd harmonics up to the 13th can be found between 7 and 91 Mc.

If we hold the g.d.o. near the centre of an open or closed stub we will also find resonance but these are different and not interesting with regard to our present problem. Fig. 2. We cannot, therefore, measure open stubs by coupling inductively the g.d.o. to the cable. But it is the usual practice to close the stub at one end and measure the resonances, which are identical to those of an open stub formed by the same cable.

4th Test

We have seen that a dipole is detuned when a reactance coil is placed in the centre, that a closed stub looks similar to a folded-up dipole, and that both have resonances at odd harmonics. It is, therefore, interesting to find out what resonances an open or closed stub will have if at one end an inductance or a capacitance is connected.

We use again the 2.2 m. long open stub made of 300 ohm ribbon. A small coil (7 turns, 4 cm. diameter, 2 cm. long) is connected to the open stub at one end. We will now find very different resonances (compare 3rd test) at 19.7 Mc., 40.5 Mc., 62 Mc., 113 Mc., 170 Mc., etc. The frequencies are by accident nearly now at even harmonics.

Changing the coil shows that we can shift the resonances over a wide frequency range by connecting a reactance across an open stub.

5th Test

The coil is now replaced by a 47 pF. capacitor and again different resonances are found, now near 35.5 Mc., 86 Mc., 140 Mc., etc. Using stubs of various length and of different cable (co-axial for example) will always have principally similar results.

6th Test

Repeating the tests with the same coil, or the capacitor, but closing the other stub end had the following different results: With coil—37.5 Mc., 88 Mc., 140 Mc., etc.; with capacitor—13.8 Mc., 58 Mc., 112 Mc., etc.

We know that an open stub is often compared with a series tuned circuit, and a closed stub with a parallel tuned circuit. We have now seen that both types of stubs are detuned by connecting reactances to them, as is so well known from both types of tuned circuits with lumped LC components.

It is therefore useless to tune a stub on its own at first and expect to maintain the resonances when this stub is connected to reactances like LC or dipole elements. We know that tuned

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

Circuits are not detuned if a resistive component only is connected to them; only damping takes place.

The other case is when two tuned circuits with identical resonances and identical or different L/C ratios are connected in parallel, here again no detuning takes place (Fig. 3 and Fig. 4). This should be remembered if we wish to use a series tuned circuit or open stub as wave trap. They should be connected to a matched feeder, for example, which will not detune the trap.

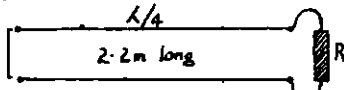
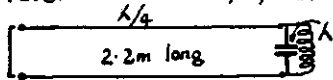


FIG. 3. Res. at: 19, 86, 115 mc etc.



Open & Closed stubs not detuned.

We know that closed quarter-wave stubs are widely used as tanks of v.h.f. transmitters for example, and that the capacitive loading (valve, trimmer or tuning capacitors) is often reducing the stub to a small loop which is no longer regarded as a stub but as an inductor only. It may therefore be expected that a quarter-wave open stub connected to an inductor may in some way act like a capacitor and no longer as a wave trap. We get the well known combined effects of dipole, tuned feeder and aerial coupler, and we may therefore expect similar tuning effects and complex combinations if we use dipoles, inductive loading and stubs.

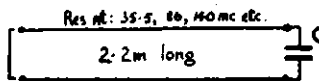
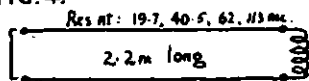


FIG. 4.



Open & Closed stubs detuned.

LOADED DIPOLES WITH STUBS OR L-C CIRCUITS

7th Test

We use the 7 m. long dipole. The resonances, before the loading coil is placed in the centre, are: 19.5 Mc., 60 Mc. and 100 Mc. We are not interested in harmonics of higher order at this stage. The 5 μH. coil, as already described (test 2), now changes the resonances to 14 Mc., 42 Mc. and 70 Mc. We now connect various lengths of 300 ohm twin lead parallel to the loading coil. In each case the capacity of the open stub is measured, which can be done with the help of the g.d.o., a suitable coil and a calibrated air capacitor. After closing one end of the stub we also determine with the g.d.o. the lowest resonance frequency of the stub. Fig. 5 shows the interesting result of this test.

The accuracy of the various measurements is good enough to see the principle effects of the combined components. The 5th harmonic disappears as

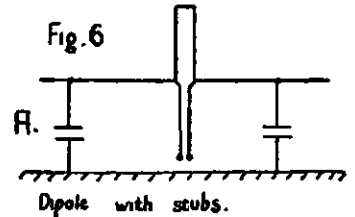
soon as a sufficiently large capacity replaces the open stub. This is important, because we see the L-C dipole has less resonances at higher and usually not wanted frequencies.

The most interesting fact is that over a wide range the open stub can be replaced by a capacitor of identical capacitance, as was expected (6th test). At about 2.4 m. stub length or at 40 pF. the resonance curves show a sudden jump near 10 Mc. and 20 Mc. 40 pF. together with the coil produces a lower resonance frequency, which is too low for the dipole length, and near about quarter-wavelength (geometrical dipole length), and the lowest resonance disappears. The stub dipole has a similar critical point at the second resonance. For the application discussed here, we do not have to investigate these critical points, because dipoles longer than quarter-wavelength are usually used to get satisfactory efficiency.

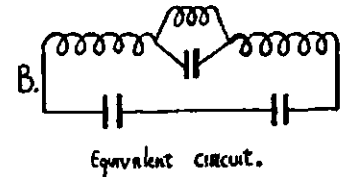
We see that the open stub, used to tune a dipole to a certain frequency, can be replaced by a lumped capacitance. The open stub is not a wave trap or aerial switch. It may also be mentioned that the coil could be replaced by an inductor of any other kind like closed stub, twin boom with shortening bar, or co-axial closed stub.

8th Test

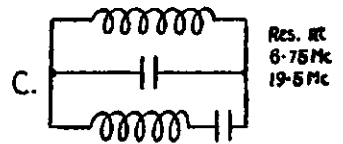
It can be demonstrated and it is generally accepted that an aerial is an open tuned circuit with distributed L and C. Fig. 6 shows the dipole with the capacity to ground and the capacity between dipole halves. We see also an equivalent circuit of the dipole with the parallel tuned circuit con-



Dipole with stubs.



Equivalent circuit.



Two-band tank. (multiband.)

A.B.&C. three similar arrangements.

nected to it. The closed stub is replaced by a coil and the open stub is shown as a capacitor. Finally, we see at the right the combination of the series tuned circuit (dipole) and the parallel tuned circuit (open and closed stub), which is nothing but the well known tank.

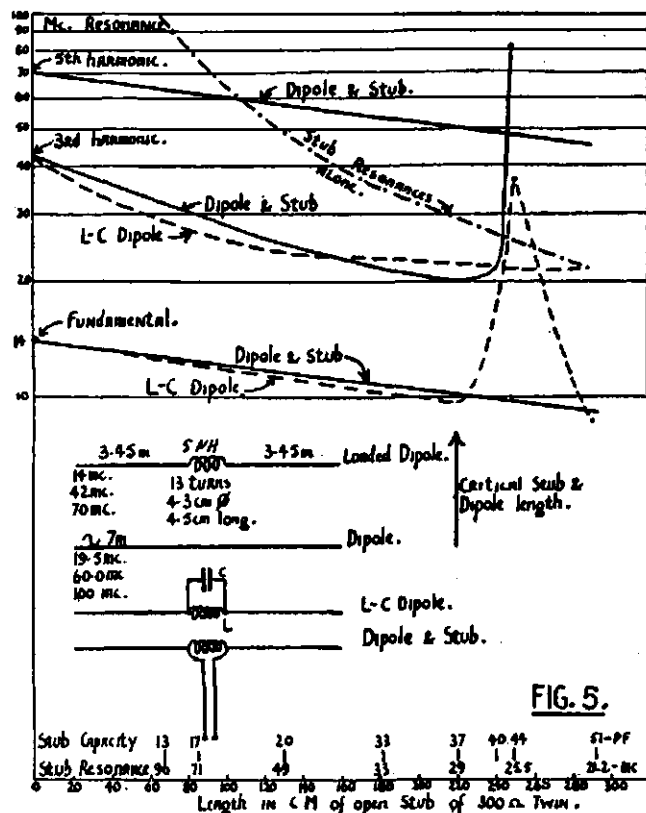
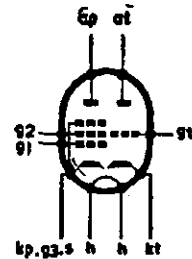
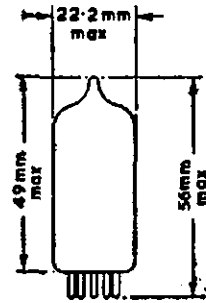
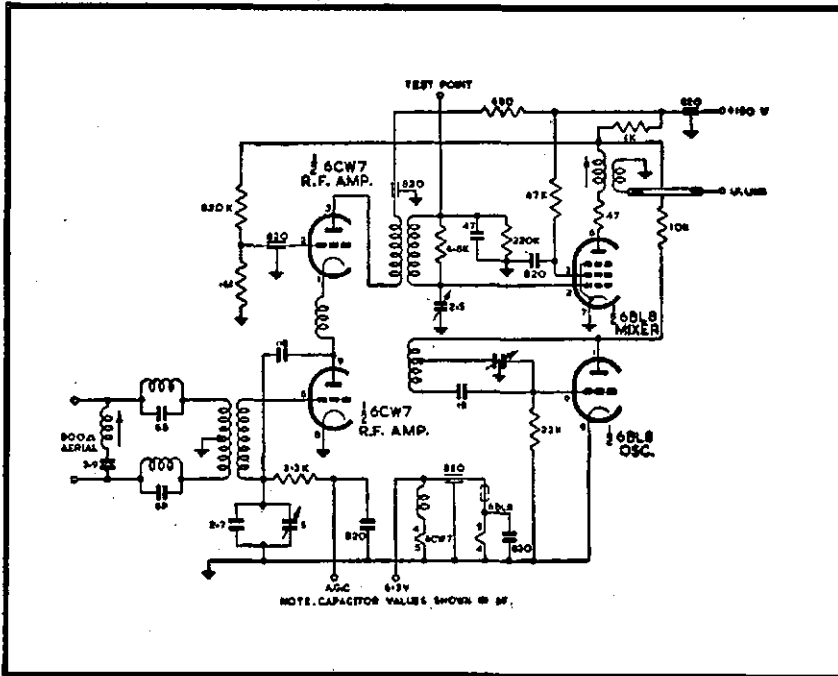


FIG. 5.

Mullard TELEVISION VALVES

6BL8 TRIODE PENTODE

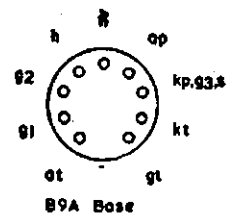


CHARACTERISTICS

	Triode Section	Pentode Section
V_a	100V	250V
V_{g_2}	—	200V
I_a	14.0mA	7.0mA
V_g	-2.0V	-3.2V
g_m	5.0mA/V	5.5mA/V
μ	20	$g_1 - g_2$ 47
r_a	4.0 Kohms	900 Kohms

HEATER RATINGS

6.3V at 430mA



The 6BL8 is a VHF triode-pentode specially developed for oscillator-mixer applications in television tuners. The use of separate cathodes and internal screening, however, makes the 6BL8 eminently suitable for a wide variety of circuit functions. Indeed there are no less than fifteen possible television applications for this versatile multi-purpose valve.

Additional data is available to design engineers on request.



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MS7

Many of us use multiband tanks in transmitters and we know that they always have two resonances at the same time. The following test will convince us: The parallel tuned circuit consists of a 25 pF. capacitor and a coil (24 turns, 3.5 cm. diameter, 6 cm. in length). The series tuned circuit is formed by a 25 pF. capacitor and a smaller coil (15 turns, 3.5 cm. diameter, 3.5 cm. length). The g.d.o. will measure resonances near 6.75 Mc. and 19.5 Mc. It is well known that with variable capacitors of 120 pF. resonances from 3 to 30 Mc. can easily be achieved if suitable coil sizes are chosen. The same should be true for a dipole with a parallel tuned circuit in the middle. This is therefore the way to construct an aerial which can be used on two Amateur bands like 14 and 21 Mc. for example.

9th Test

A few v.h.f. tests are also very instructive. We use a dipole of 2 m. length which has a self resonance of about 75 Mc. We place a small coil in the middle of the dipole so that now the lowest resonance frequency lies at 50 Mc. and the next harmonic will be found near 150 Mc. A 58 cm. length of 70 ohm twin lead gets closed on one end, and the g.d.o. will measure a resonance at 75 Mc. for this electric quarter-wavelength of cable, which will now be used as open stub (removing the short at one end).

Some inventors claim that a stub parallel to the inductor will cause the dipole to have now 50 Mc. and 75 Mc. resonances. From the foregoing tests we know that we can expect very different results, and we are not surprised to find resonances near 36 and 108 Mc. (Fig. 7.)

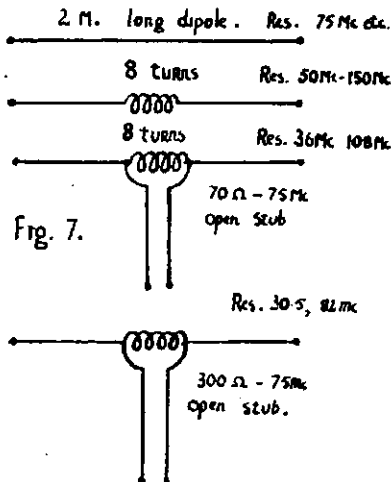


Fig. 7.

According to that which has been published as "Switching Stub Theory," it should not make any difference what type of cable is used to make the open stub, as long as the stub is tuned to the original (shortened loading inductance) dipole resonance, because we also know that any type of cable is suitable to make a stub which resonates at the required frequency.

We therefore repeat now the test with a 86 cm. long piece of 300 ohm twin lead 75 Mc. open stub. The resonances are again different and near 30.5 Mc. and 88 Mc. We could repeat the

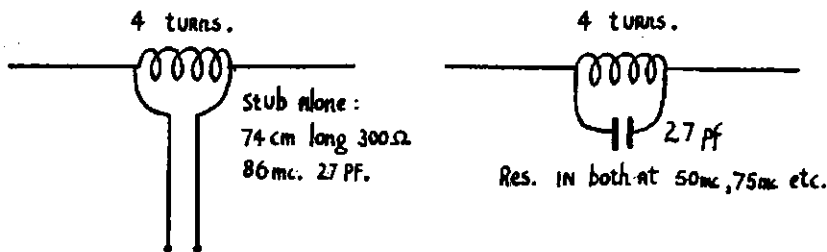


Fig. 8. Resonance of 2m long dipole with 4 turn coil (without stub) 56 mc. & harm.

test with co-axial cable, etc., and we will always see that the resonance of the stub alone has nothing directly to do with the resonances the loaded dipole will exhibit. It is the capacity of the cable only which counts in these cases.

10th Test

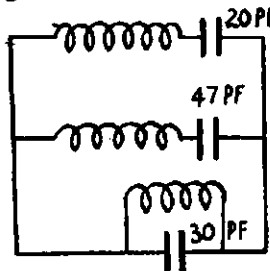
We have so far been using a coil with 8 turns of about 1.5 cm. diameter between the dipole halves. Reducing the coil to 5 turns, using an open stub of 300 ohm twin lead (74 cm. long, of 27 pF. and 86 Mc. self resonance) parallel and the 2 m. long dipole gives now resonances at 50 Mc., 86 Mc., and 153 Mc. Using only 4 turns had the desired result, because the resonances were now at 50 Mc. and 75 Mc. and also at higher frequencies. The inductor had to be greatly reduced so that the dipole with the 4 turn coil—without open stub—resonated at 56 Mc. (no longer at 50 Mc.). Replacing the stub with a capacitor of identical capacitance of 27 pF. resulted again in the 50 Mc. and 75 Mc. resonances (Fig. 8).

From this example we can see that it must be possible to make a two-band dipole for 14 Mc. and 21 Mc., or 21 Mc. and 28 Mc., applying the found principles, e.g. placing a parallel tuned circuit in the middle of the dipole. The length of the elements is not critical because the tuned circuit can replace lacking C or L, as is often done by using an aerial coupler, tuned feeder and dipole.

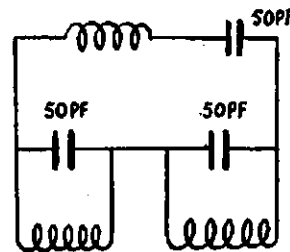
TRI-RESONANT CIRCUITS

We have seen that the combination of two capacitors and two inductors gave a two-band tank or two-band dipole within a 1:2 frequency range. The writer was now looking for possibilities of achieving three resonances simultaneously within this range. A

Fig. 9. A. Res. 5-15, 12-5, 22Mc.



B. Res: 4-5, 6-7, 19-5Mc.



L-C Combination with 3 Resonances or equivalent circuits for tri-band aeriels. [dipoles].

suitable combination of three capacitors and three inductors should make this possible. Two methods were investigated. Fig. 9 shows the tri-band tank circuits developed by the author. In (A) three tuned circuits are connected in parallel, two are series and one is a parallel tuned circuit.

11th Test

Two coils have 15 turns and one 24 turns, the coil diameter is 3.5 cm., the coil length is 3.5 cm. and 6 cm. The capacitors used have 20 pF., 47 pF. and 30 pF. capacity. Three resonances were found with the g.d.o. near 5.15 Mc., 12.5 Mc. and 22 Mc.

In Fig. 9 (B) two parallel tuned circuits are connected in series and to these a series tuned circuit is connected in parallel. The abovementioned coils are again used and three capacitors of 50 pF. each are employed. With the g.d.o. resonances near 4.5 Mc., 6.7 Mc. and 19.5 Mc. are found. These are only examples showing two possibilities of how to make a tri-band tank which may also be considered as equivalent circuits for tri-band aeriels. In this case one of the series tuned circuits can take the place of the dipole. The parallel tuned circuits may either be of lumped components or open and closed stubs.

TRI-BAND DIPOLES

12th Test

We will now describe several versions of the practical design employing the two principal circuits.

Fig. 10—The 7 m. long dipole is again used and the 5 μ H. coil and an open stub 2.15 m. long of 300 ohm ribbon are connected to the centre. The dipole forms a series tuned circuit and the coil with the stub represents a parallel tuned circuit. The resonances are 13.9 Mc., 22-Mc., 54 Mc., 69 Mc., 100 Mc., etc.

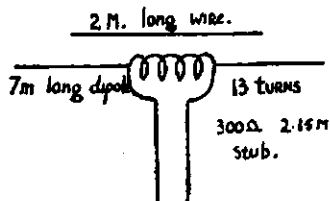


Fig. 10. Res without 2m wire, 13.9, 22, 34, 69, 100mc. With 2m wire, 12.8, 21, 40mc etc.

We now fasten close to the dipole a 2 m. long insulated wire, which is a further short dipole closely coupled to the main dipole. A similar arrangement has become well known as proximity dipole. Now the resonances will be found near 12.8 Mc., 21 Mc., 40 Mc. We see the strong detuning effect the short dipole has. This method may be one way to get three resonances close together.

13th Test

The same stub, coil and dipole are used, but the short dipole is replaced by the series tuned circuit formed by a 5 pF. capacitor and a coil with three turns and 4 cm. diameter. The first three resonances are now near 13.4 Mc., 23 Mc., 34 Mc., which means that they are fairly close to the frequencies we are interested in (14, 21 and 28 Mc.). The same resonances were achieved after the open stub was replaced by a 38 pF. capacitor. This was the capacity of the open stub.

It is quite possible that a metallic mounting channel holding dipole, coil and stub, has a similar effect as the short dipole or small series tuned circuit (Fig. 11).

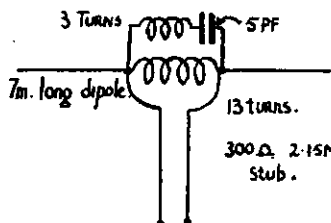


Fig. 11. Res. at 13.5, 23, 34, 96mc.

14th Test

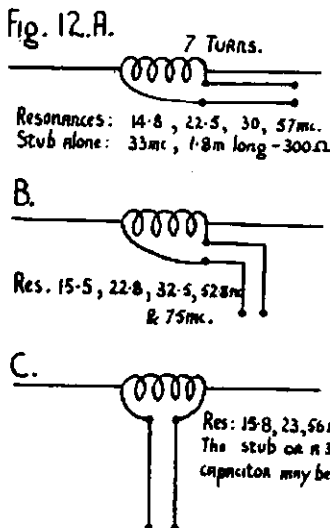
The 7 m. long dipole has this time a smaller coil (7 turns, 4 cm. diameter, 4 cm. length) in the centre. An open stub of 300 ohm ribbon (1.85 m. long, self resonance at 33 Mc., capacity of stub: 34 pF.) is connected in parallel to the coil. The stub is hanging straight down from the horizontally supported dipole. The resonances are 15.8 Mc., 23 Mc. and 56 Mc., etc. (Fig. 12c).

If we now fasten the open stub close to one dipole wire to get maximum coupling, the resonances are very much different (Fig. 12a). The g.d.o. shows 14.8 Mc., 22.5 Mc., and 30 Mc. as the interesting resonances, the next higher resonance was at 57 Mc.

In this particular case we had a dipole with resonance at or very near to four Amateur bands. In practice one would use tubular dipole elements and the open stub would be pushed

into the tubing. As already mentioned we can also use a twin boom as closed stub or loading inductance. If we push the open stub down the tubing of a twin boom, used as closed stub, the result would be somewhat similar as far as the resonances are concerned.

If we place only half the open stub along the dipole and the other half is hanging down perpendicularly, the resonances are again different, as expected, and now near 15.5 Mc., 22.8 Mc., 32.5 Mc., 52.8 Mc. and 75 Mc. (Fig. 12b).



By selecting a certain dipole length, coil size, stub length, stub cable type and position of stub to the dipole or closed stub, we can change the resonances of the multiband dipole in various ways and over a wide frequency range.

15th Test

Many tests were made with the other version, where two parallel tuned circuits are in series and both are in parallel to a series tuned circuit. Fig. 13 shows the set-up.

The dipole was made from 1/4" dural tubing, and each half was 97 cm. long. One parallel tuned circuit had a 4-turn coil of 1.5 cm. diameter and 27 pF. were placed in parallel, whilst the other circuit was formed by a 2-turn coil of the same diameter and a 15 pF. capacitor was parallel connected. Without being connected to the dipole the tuned circuits had resonances near 58 Mc. and 90 Mc. The dipole with shortened circuits had a resonance near 75 Mc., whilst with the parallel tuned circuits functioning, the resonances were at 50 Mc., 75 Mc. and 100 Mc. as desired, and no other resonances could be found, which is an important feature.

Several aerials were built and investigated applying this principle of tuning a dipole to three desired frequencies which do not have to be harmonically related. If a dipole has resonances at several predetermined frequencies, it is no problem to combine several of these L-C tuned dipoles to form Yagi type arrays with the radiator, reflector and any number of directors. But other

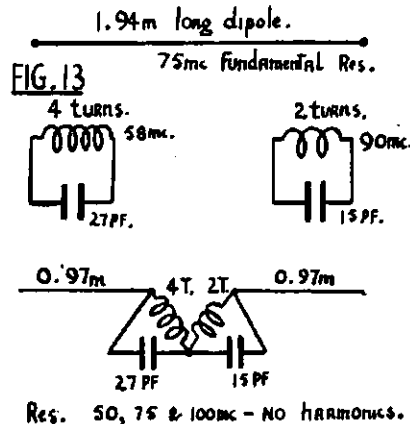
aerial types may also employ the tuning principle outlined.

Tests were made with a small oscillator and dipole as transmitting aerials working at v.h.f. As receiving aerials various arrangements were used to compare the gain and effectiveness of a full size reference dipole, shortened dipole, two and three element full size, load and L-C tuned beams. This number of tests could be made easily with the v.h.f. set-up, because the aerial had only to be a few feet high and distances of several wavelengths were easily accommodated in the backyard.

Since the frequency ratio of 50 Mc. to 75 Mc. and to 100 Mc. is equal to the ratio of 14 Mc. to 21 Mc. and to 28 Mc., the v.h.f. tests gave a good idea of what could be expected at lower frequencies.

Summing up, it can be said that the test results were so encouraging that the writer decided to convert the three element 20 m. minibeam, which had done a fine job the last two years, to a tri-band beam with L-C tuned elements similar to Fig. 13 and as just described.

The tests and measurements discussed may have changed the way of thinking of quite a few readers as far as the function of multiband beams is concerned. The different possibilities indicate that we are now only at the beginning of a new development. It is hoped that other Amateurs make tests along similar lines to check the various published theories and to develop further multiband aerials.



Res. 50, 75 & 100mc - NO HARMONICS.

This paper refers only to those types of multiband beams where in any case the full length of the elements is radiating energy (unlike the W3DZZ type). It is also quite possible that other multiband beams will be described in technical magazines in the future which can be analysed in the same way and which may use the same principles outlined above. Before commercial use is made of these principles it may be advisable to check the patent situation with the authors of these publications, even when we know that most of the patent applications will never become a patent because they are often neither new, technically correct nor an invention.

The tri-band beam now in use at VK2AOU will be described later.

AMATEUR TELEVISION

PART THREE

BY E. E. CORNELIUS,* VK6EC/T

THE CAMERA CONTROL UNIT

This unit serves three purposes in a t.v. transmission chain:—

1. To process the camera signals and make them suitable for transmission.
2. To provide monitoring and supervision of the outgoing signal.
3. To relieve the cameraman of much of the electronic controls of his camera, for which he has neither the time or the hands.
 - I. The video signals from the camera, as monitored on the viewfinder, will need supervision and correction of the following:—
 - (a) Setting of black level,
 - (b) Provision of set-up,
 - (c) Insertion of standard blanking,
 - (d) Addition of composite sync.,
 - (e) Control of relative sync. and black level,
 - (f) Grey scale (gamma) correction.

2. Monitoring involves a good quality picture viewed under controlled lighting conditions, as compared with the viewfinder which is not, and a calibrated c.r.o. presentation of waveforms for checking of 1 (a) to (e), continuously during transmission.

3. The camera control unit can take over from the cameraman, control of focus, beam current and target potential, as well as correct the video level changes due to changes of lighting and scene. The cameraman is fully occupied with pan and tilt and dollying of his camera, and the maintenance of optical focus. The c.c.u. provides all these functions, and a block schematic is shown in Fig. 13.

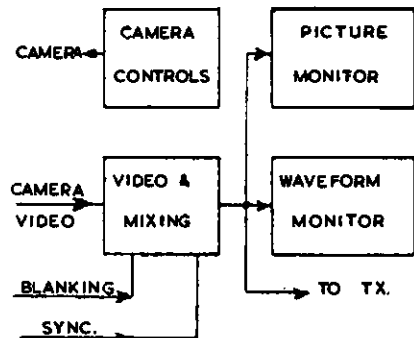


FIG. 13—C.C.U. BLOCK SCHEMATIC

The camera control unit also acts as distribution point for power and driving pulses to the camera. The four pulse trains from the sync. signal generator are best distributed in light 75 ohm co-axials, although a co-ax. type of microphone cable, of impedance about 100 ohms is available quite cheaply. I distribute these pulses via 6-pin plugs, with pins 2 and 5 earthed to the shields. The camera control unit, mixer and monitor all require sync.

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generator pulses. By looping in and out of each unit, a termination can be applied at the last unit. See Fig. 14.

A dummy plug, with terminations for sync. and blanking can be used in the c.c.u. output socket, when these are not to be extended further. The camera terminates line and frame drive.

Fig. 15 shows a circuit diagram of the unit, with the four parts clearly indicated. The video section will be discussed first.

Video and Mixer

Video from the camera sees a 75 ohm termination in the input Video Level potentiometer, which should be a carbon type if possible. A 100 ohm pot. with a 300 ohm carbon resistor in parallel will serve. This is a front panel control. The first video amplifier V1 is a 6AU6 delivering a black positive

This stage is followed by another clamp V8, clamping the grid of V9, which is arranged as a gamma correcting stage. A short discussion on gamma may be useful. Overall gamma may be roughly defined as the ratio of brightness of two points on the reproduced image, as to their ratio in the original scene. An overall gamma less than unity would result in a washed out picture, like an underexposed negative, and a gamma greater than unity gives a "soot and whitewash" picture lacking detail in the blacks.

Any picture tube has a gamma of the order of 1.5 to 2.0, resulting in this black compression. This must be compensated in the transmitter chain. The vidicon has a gamma slightly less than unity, but further correction is needed.

The 6AU6 (V9), without the gamma network in the cathode, has a gain

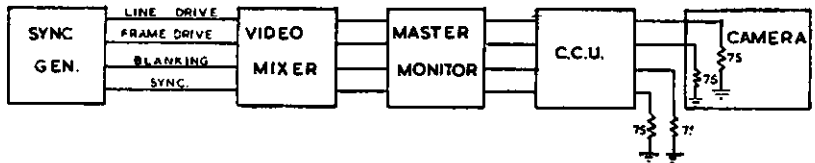


FIG. 14—PULSE DISTRIBUTION

signal to V2. In this stage, blanking is inserted from V3, a 6SN7, by means of the common 750 ohm resistor in the anode circuit. The two halves of the 6SN7 act as a blanking clipper, to clean up any "grass" on the incoming blanking signal, and for polarity inversion. The Clipper control is preset, its adjustment being discussed later.

V4 and also V8 and V11 are keyed clamps, providing line-by-line clamping. A discussion of their operation would be out of place in this paper, but they are treated in full in any standard textbook. But among other features, the clamp suppresses hum, and restores d.c. transmission characteristics at the point of connection.

The 6AU6 (V5) is a blanking clipper, and sets black level for the system. The front panel control Black Level adjusts its bias, and hence the clipping level, via the clamp V4. The 6H6 (V6) acts as a white clipper, and should be a 6AL5 for best performance. It clips off white "spikes" which would cause negative polarity overmodulation of the transmitter, and intercarrier buzz in an intercarrier-type of receiver. The preset control White Clipper is set to clip at the equivalent of 12½% modulation. Note that the true plate load of V5 is 400 ohms, plus the internal impedance of the 6H6 clipper, and of the voltage regulator V7B. The voltage regulator V7 stabilises the screen voltage of V5 via V7A, and its anode voltage via V7B, enabling the white clipper control to be set and forgotten; V6 can be replaced by two germanium diodes of the 150 volt type.

slightly less than unity, and this applies at low level inputs, when the gamma diode is biased off. The polarity is such that low level corresponds to white and light greys. As the input voltage increases running towards black, the diode starts to conduct, and increases the gain by reducing cathode degeneration, thus "stretching" the blacks, and compensating for the picture tube compression. The Set Gamma control is preset, and once adjusted may be forgotten.

The cathode follower V10B is designed for use as part of the gamma correction circuit, with a gain control in its cathode circuit. Thus the set gamma control sets the onset of correction, i.e. at which part of the grey scale, and the gain control sets the ratio or law. As yet this last has not been incorporated, but if required would consist of a 1,000 ohm pot., 1,000 ohm resistor, and 100 μF. 40 volt electrolytic, all in series, from the cathode of V10B to earth.

This stage is followed by another clamp V11, then to the feedback output stage V12, 13 and 14, which is essentially similar to the output stage in the camera, although the 6V6 has additional output capability to deliver 1.4 volts peak to peak composite video to a 75 ohm line. It need not be discussed further.

Composite sync. is added in V15, with a panel control Sync. Level to control the sync. amplitude to the desired —40 units referred to black level.

The 6SN7 V10B inserts a fixed amount of blanking, termed "setup", which ensures that no black picture

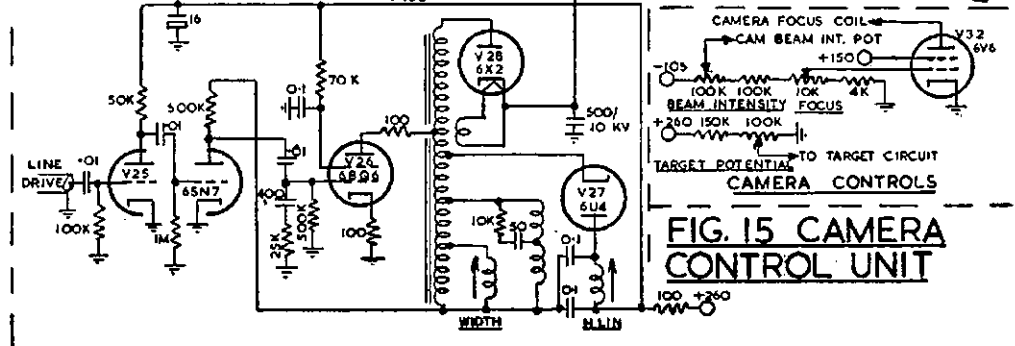
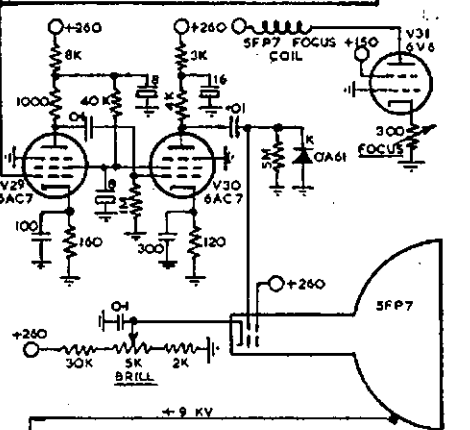
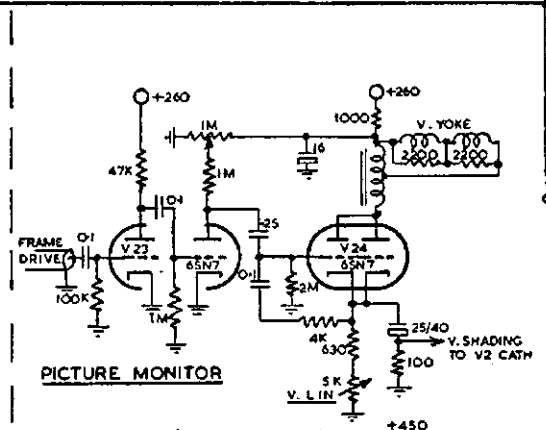
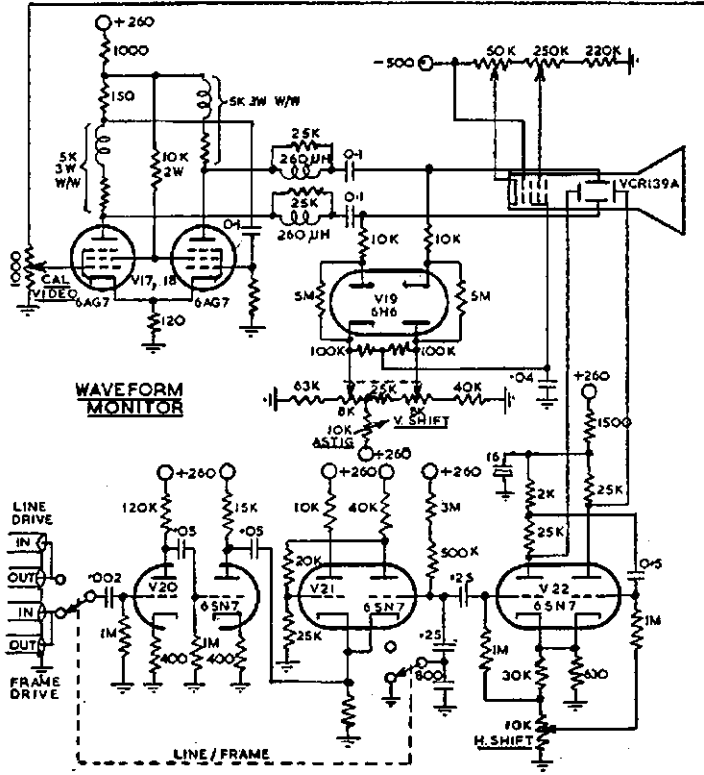
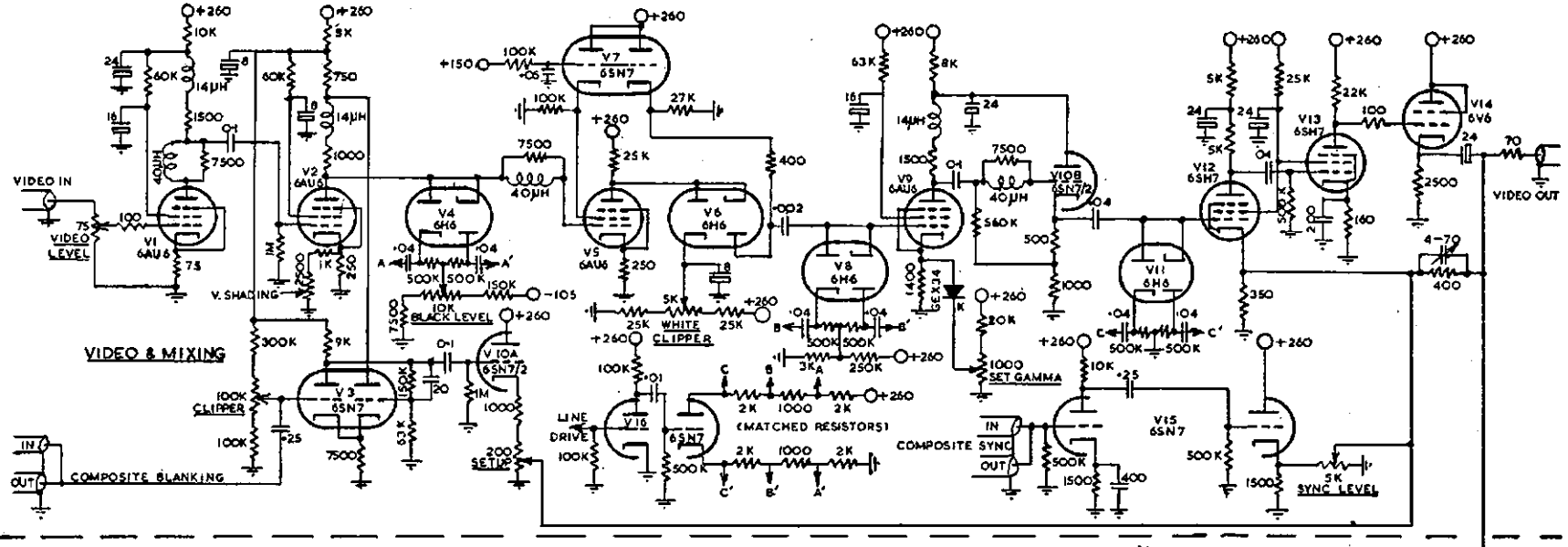


FIG. 15 CAMERA CONTROL UNIT

signals ever encroach on the sync. area, no matter how the black level control is set. A preset control **Setup** sets this to about 5% of picture level.

The clamp keyer tube V16 supplies keying pulses to the three keyed clamps and must be connected such that the positive going pulses from V16B cathode go to the clamp anode side, and the negative pulses from V16B plate to the clamp cathode side. In this circuit clamping occurs on the blanking pedestal in synchronism with line drive, which is early. Ideally we should clamp on the back porch, and a circuit is being devised to delay the pulses to do this.

The next unit to be described is the waveform monitor, a c.r.o. designed especially to obtain the maximum useful information from the video waveform displayed.

The horizontal deflection is by a reasonably orthodox time base, with a multivibrator designed to synchronise at one-third line rate, displaying three lines, Fig. 16A, and one half field rate (25 c.p.s.) to display one complete frame of two fields (Fig. 16B). The change from line to field display is by means of a switch, and the sawtooth constants are adjusted such that each display will be about the same width on the tube.

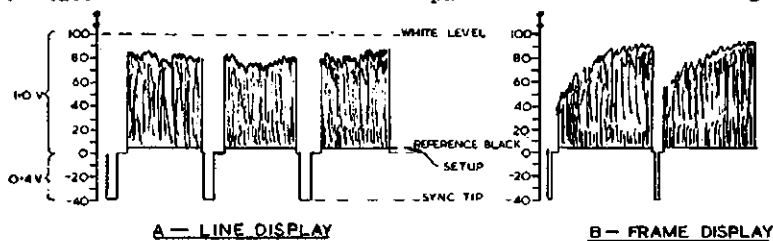
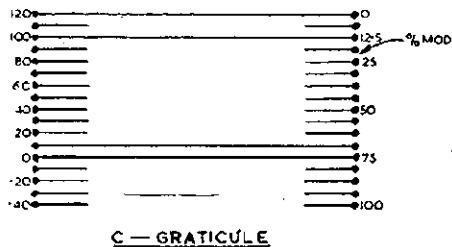


FIG. 16—WAVEFORM MONITOR



C—GRATICULE

The c.r.t. plates are direct coupled for horizontal deflection, and horizontal shift is obtained by a preset control in the grid cathode circuit of the 6SN7 output tube V22.

The vertical deflection amplifier is of course a wideband video amplifier. It is designed to have a slow roll off, and down 3 db. at 2 Mc., in accordance with R.T.M.A. standards. The anode load resistors need 60 μ H. of peaking inductance in series, and this was found to be fulfilled reasonably well by the use of I.R.C. 5,000 ohm 3 watt vitreous resistors—wire wound. The component values in the anode of the left-hand 6AG7 (V17) should be checked to give equal drive on the grids. Adjust the **Cal. Video** control for full graticule deflection at 1.4 volts peak to peak with sync.

The outputs are capacity coupled to the c.r.t. vertical plates, with a clamping circuit (V19). As a graticule is used in front of the c.r.t., calibrated in

modulation percentage, and percent. of reference level, the black level must be stable. See Fig. 16C for graticule design. To clamp the black level in register with the reference line on the graticule, regardless of picture content, the 6H6 and its associated circuit is used. The dual 8,000 ohm pots. were used because they were on hand. 10,000 ohms would probably do. Preset controls **Shift** and **Astigmatism** are adjusted for black reference, and minimum deflection defocussing respectively. The e.h.t. for the VCR139A tube used is -500 volts, quite adequate if the tube is set back about 1 1/2" from the front panel, inside a blackened tube. The e.h.t. network is right for the tube and voltage used. **Intensity**, **Focus** and the **Line/Frame** time base switch are the only panel controls. The display should be poled such that the black (sync.) is downward.

The picture monitor section is essentially similar to that in the viewfinder, and needs little discussion. A minor addition is the vertical shading facility. A 100 ohm resistor in series with the cathode bypass of the vertical output tube V24, develops a 1.6 volt p./p. sawtooth across it at field rate. This is taken via a shielded lead to the cathode circuit of V2 in the video section. The panel control **Vertical Shading** enables

Layout.—This is again a matter of convenience, but is controlled mainly by the two cathode ray tubes and the panel controls. The panel layout used is shown in Fig. 17, as one basis of design. The video and mixing section is along the bottom, with the main controls, video, sync. and black level at the bottom of the front panel. The next most important, the camera controls, are right centre.

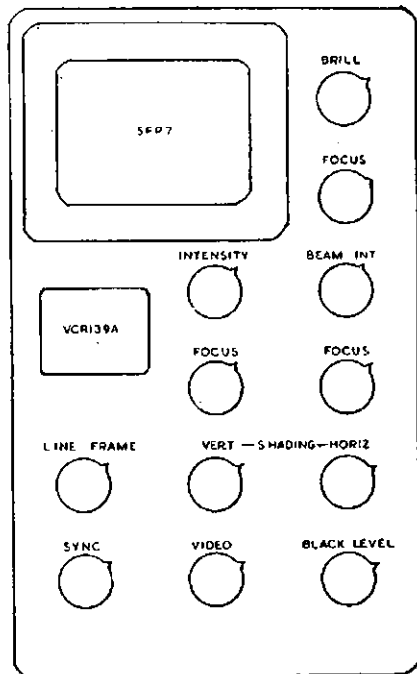


FIG. 17—PANEL LAYOUT

Simplification

In this case it is largely one of omission. A picture and waveform monitor are needed at some point in the chain and this is the most logical. But either or both may be omitted. Any of set-up, gamma correction, and white clipping may be omitted, but the clamp at the output of V2 is essential. Initially you need to retain V1, 2, 3, 4, 12, 13, 14, 15 and 16 in the chain, the omission of the two video stage V5 and V9 retains the correct polarity for the system.

Initial Adjustment

This assumes that the camera or a pattern generator is delivering a picture signal between 0.5 and 1.5 volts p./p. to the input. Check the waveform monitor for correct operation by removing V14 and injecting about 1.5 volts p./p. at say 1 Kc. into the output connector. This should give a c.r.t. display and bars on the picture monitor. Replace V14 and terminate the output in 75 ohms.

Turn off the video input by the **Video Level** control, reduce **Sync.** to zero. Advance the **Black Level** control and adjust the preset **Clipper** control for a display of blanking pedestals (downward) with no tilt on the horizontal parts. See that the **Black Level** control has sufficient range to raise the pedestal to the full 1.0 volts on the c.r.t., and reduce it to zero. Reduce to

(Continued on Page 17)

the top of the picture to be made brighter than the bottom, and may be necessary to offset the inverse effect from the camera.

The video amplifier is somewhat different from that in the camera in that the first 6AC7 has low gain and a rising h.f. response. The second has high gain and reasonable voltage output by virtue of the 4,000 ohm anode load resistor. This stage has a falling frequency response, to complement its mate. This method is practicable because signal high frequency components rarely have high amplitude and the second stage is not overloaded. The overall response of the amplifier is flat to 6 Mc.

Camera Circuits.—The c.c.u. has panel controls for camera **Focus** and **Beam Intensity**, and a preset control for **Target Potential**. These were discussed when describing the camera, and an optional focus circuit shown.

ZEPHYR MICROPHONES

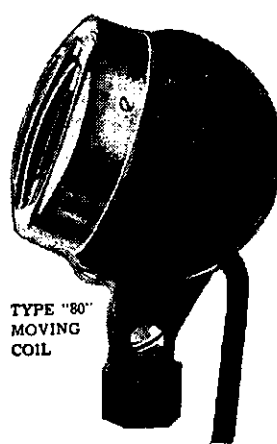


"THE MICROPHONE THAT SPEAKS FOR ITSELF"

TYPE "80"

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- Ideal for transmission of voice or music.
- Good appearance.
- Solid cast case, finished in stoved black enamel, full tilting head.



TYPE "80"
MOVING
COIL

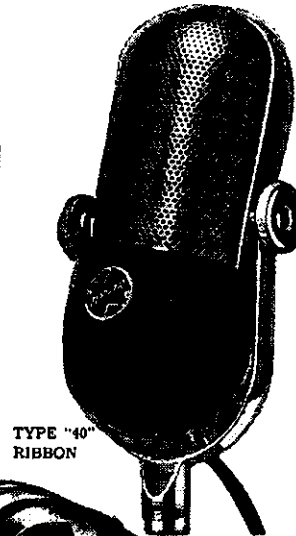
TYPE "8XA"

A quality Crystal Insert with "Zephyrfil" filter.

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



TYPE "8XA"
CRYSTAL

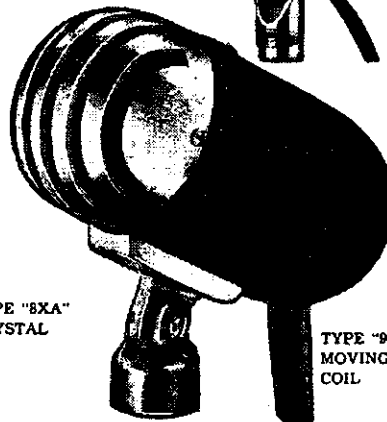


TYPE "40"
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TYPE "40"

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

- Imported magnets, highly efficient generator.
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- Chrome copper cage, black bakelite base, and steel gimbles.



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COIL

TYPE "90"

Precision built Moving Coil Generator provides good quality reproduction.

- Light weight, durable chrome and baked enamel metal case.
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Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publishers.

S.W.L. GROUPS

Editor "A.R.," Dear Sir,

As an active short wave listener and an associate member of the Victorian Division, W.I.A., I am very interested in the growth of s.w.l. activity within the W.I.A. as a whole.

However, I am rather perturbed at the apparent lack of interest in States other than Victoria, in the promotion and encouragement of Short Wave Listener Groups within the various Divisions of the W.I.A.

I might also add that this lack of interest does not apply only to the official bodies of the W.I.A. but to a large extent to individual Amateurs both members and non-members of the W.I.A. This state of affairs is regrettable.

For the benefit of those individual Amateurs I recommend that they take a look at the fourth point of "The Amateur's Code." This states, and I quote: "The Amateur is friendly . . . friendly advice and counsel to the beginner . . ." etc. "These are marks of the Amateur Spirit." Whilst taking a look, many may benefit from reading the whole six points of the Amateur's Code through several times, and then asking themselves if they can truthfully say that they always abide by this Code of Conduct. So much for the individual.

It is now to the position of the W.I.A. that I wish to refer. This body has pledged itself to as far as possible protect the interests of Amateur Radio. It cannot do this and ignore s.w.l.'s. The s.w.l. of today is the raw material of the fully fledged Amateur of tomorrow. If new blood is not infused into the Amateur ranks, and fostered and nurtured in an organised manner the day when the Amateur will be a historical curiosity is not very far away.

With more and more services desiring more and more frequency allocations, and the number of active Amateurs slowly and surely decreasing, this is bound to happen if something is not done about it, and done NOW.

It is up to the W.I.A. to do its level best to see that this does not happen, and the most efficient method of carrying out this phase of self preservation is for each Division to ensure that it has an active organised S.w.l. Group within its administration.

Of course it will mean hard and, perhaps at first, almost heartbreaking work for some person or persons, but would not the result be worth the effort if it aids in preserving the present Amateur bands?

In each State where there is as yet no such Group active, I can name several keen s.w.l.'s. who have personally written to me decrying the fact that they do not have such a Group.

Perhaps the officials in these States will say they have tried, but the question is, "Do they realise the value in having such a Group, and have they tried hard enough?"

I am afraid that I have seen little or no publicity given to the proposed formation of Groups in the States con-

cerned. WHY? If it is due to sheer lethargy on the part of office-bearers, it should not be tolerated by members. In that case the members have the remedy in their own hands.

Within the Victorian Division results since the formation of an S.w.l. Group have been encouraging. The Group was formed a little over three years ago and already approximately 16 of its members have passed the examination for either their A.O.C.P. or A.O.L.C.P. The Victorian Group has on its books 60 s.w.l.'s. registered with the Division. Assuming that 50% of these listeners were over the age of 16 years and financial for the three year period, and that I believe is a quite conservative estimate, it would mean that an amount of £220/10/0 had been paid by Group members in fees.

There are, of course, many other facets of S.w.l. Group activities which I cannot go to the lengths of enumerating here.

The fact is that on the basis of the matter laid out above, it is not a matter of "Do we want an S.w.l. Group within our Division?" but "Can we afford not to have an S.w.l. Group within our Division and miss the opportunities offered?"

I ask all right thinking and foresighted Amateurs to ask this question of their own Division.

There are several unselfish individual Amateurs doing their best to assist s.w.l.'s. and coach them for the exam., and to these gentlemen I wish to pay tribute.

—Ian J. Hunt (WIA-L3007).

[We commend this letter to the attention of all Divisional Councils.—Executive.]

AMATEUR TELEVISION

Editor "A.R.," Dear Sir,

I am interested in Amateur Television transmitting and have just received film strips from the British Amateur T.V. Club and hope to receive lecture tapes from the club soon.

I am endeavouring to contact others interested and hope, with the W.I.A.'s help, we may be able to exchange information with other enthusiasts and perhaps form a t.v. group similar to the British one.

At the moment I only have simple flying spot gear, a 931A phototube and a 5FP7 c.r. tube.

Anyone interested could contact me on 7.1 Mc. at 1230 or 1800 hours, on most days, or at 75 Gheringhap Street, Geelong (Phone X 5674), or contact VKs 3ABK, 3AUX or 3AAK who are active in Amateur T.V.

—Bill Brownbill, VK3BU.

A WORD OF EXPLANATION

Editor "A.R.," Dear Sir,

For some time I have been interested in the complete explanation of s.s.b. and after a lot of delving into books, etc., I finally developed the explanations I was looking for and hence wrote the article.

As has been pointed out, the "proof of the pudding is in the eating." S.s.b. signals do seem to have much more "punch" behind them than would be expected and this I find it hard to explain. There are three possible reasons I can think of: (1) The peak power of the s.s.b. signal on the air is much

higher than that stated. (2) When an s.s.b. signal is tuned it is tuned so that the sideband is in the centre of the resonance curve of the receiver, whereas in tuning an a.m. signal the carrier is in the centre and the sidebands are attenuated somewhat. Even the broadest receiver has a reduced response at plus or minus 3 Kc. (3) Some receivers are less sensitive to signals with weak carriers and hence give better performance with strong injected carriers. I think there may be more to it than this and I would be interested in any better explanation.

To suggest that the peak power of an a.m. signal is 400 watts and therefore a peak sideband power of 400 watts can be used is erroneous. The 400 watt peak is only instantaneous and does not represent the power contained in either the carrier or the sidebands. Using a similar argument it could be concluded that a peak s.s.b. power of 150 watts would be legitimate.

I trust I have left no hard feelings with the s.s.b. gang for I am actually quite partial to the system. The wording of the article may have been a bit drastic.

—J. A. Adcock, VK3ACA.

NATIONAL FIELD DAY CONTEST

Editor "A.R.," Dear Sir,

Judging by the amount of space devoted in the March issue of "Amateur Radio" promulgating the result of this year's Contest, one can only assume that the number of entries was very much smaller than in previous years.

I know the Federal Contest Committee has endeavoured to make this event more popular (and to please everyone), but they appeared to have achieved a reverse effect.

Twice in the last three contests the rules have been loaded against portable equipment NOT operating on two metres.

While the two metre stations can work placidly the numerous others on this band in and around the capital city, the station on (say) 7 Mc. has to battle against QRM for many more operating hours to obtain a similar number of contacts. However, the latter station does have solid Interstate contacts in addition to Intrastate ones and so proves the general efficiency of his equipment under adverse conditions.

I would like to point out that the frequencies used during emergency work over the past few years were mainly in the region of 7 and 3.5 Mc. and it is considered safe to assume that similar frequencies would be the most reliable in future emergencies under the W.I.C.E.N. organisation.

Minor roles might be allotted to v.h.f. stations for close contact work, but I consider the foregoing emphasises the point I am trying to make and that is—as the v.h.f. and low frequencies are like poles apart, they should not be brought into competition with each other in our N.F.D. Contest.

Taking into account the number of participants and the overall general interest, I would say that the Contest staged under the 1957 rules was the most successful for many years.

May I suggest to the Contest Committee that they cease varying the rules each year and settle on one set of rules to govern the competition. Even the rules of a few years ago were con-

sidered satisfactory, the only objection being that it was of 24 hours duration.

However, perhaps these are only my views; those of other participants, and particularly of those who have dropped out of the Contest over the years, would be of interest.

—Geo. E. Every, VK3GE.

ZL AND VK CONTACTS

Editor "A.R.," Dear Sir,

Greetings from Cambridge. It may interest your members to know that during the year 1957 I had 723 contacts with New Zealand and 192 with Australia.

The star station was—as usual—Jim ZL2BE with 410 QSOs.

Other main scorers in my log were:

ZL1WT	7	ZL3BG	5
ZL1GJ	6	ZL3IE	5
ZL1VY	6	ZL4KE	30
ZL2AFA	11	ZL4BX	29
ZL2AHM	6	ZL4HE	22
ZL2RR	5	ZL4HJ	12
ZL3RB	14	ZL4IG	9
ZL3TH	11	ZL4LZ	7
ZL3BL	7	ZL4GC	5
VK2AMG	29	VK3BK	6
VK2WT	10	VK3HG	5
VK2OQ	6	VK3JA	5
VK2ASQ	6	VK3KL	5
VK2ALL	5	VK4BG	6
VK3JK	6	VK5MS	8

—B. M. Scudamore, G6BS.

OBLIQUE STROKE F.O.C.

Since publication of last month's magazine a letter has been received from F. T. Hine (VK2QL) on the subjects of F.O.C. and related matters.

Although the matter of Oblique Stroke F.O.C. has been closed, W.I.A. Federal Executive's comments are of interest:

"The attention of all licensed Hams is drawn to the obligation imposed on them to conform at all times to the Regulations, since this is a condition upon which licenses are granted.

"It is probably not inappropriate, also, to draw attention to the six articles of the Amateur's Code."

AWARDS

WORKED ALL YUGOSLAV REPUBLICS—W.A.Y.U.R.

The W.A.Y.U.R. Award is granted by Saver Radioamatera Jugoslavije to each Amateur throughout the world who submits proof of having established contacts with Amateur stations in each of six Yugoslav federal republics.

Overseas Amateurs other than from European countries must make two contacts per republic (12 contacts in all), working various Amateur stations (different call signs) of each Yugoslav federal republic.

Contacts with the Amateur stations in each federal republic must have been made on two Amateur bands at least.

The call signs of the federal republics are as follows:—

- YU1—Srbija (Serbia).
- YU2—Hrvatska (Croatia).
- YU3—Slovenija (Slovenia).
- YU4—Bosna i Hercegovina (Bosnia and Hercegovina).
- YU5—Makedonija (Macedonija).
- YU6—Crna Gora (Montenegro).

Contacts may be on c.w. (T8 at least) and/or phone (R3 at least) after 1st February, 1950.

QSL cards must accompany applications, and a summary sheet with following data: call sign, received report RST or RSM, Amateur band, and 5 I.R.C.'s. (for foreign Amateurs).

Applications for the W.A.Y.U.R. Award, together with QSL cards, summary sheet and coupons should be sent to S.R.J. (for W.A.Y.U.R.), Post Box 324, Beograd, Yugoslavia.

EMERGENCY NETWORK OPERATES AFTER QUEENSLAND CYCLONE

You will have all heard via the radio news and newspapers that a cyclone had again struck in North Queensland during the evening of 1st April, doing tremendous damage of over one million pounds. The township of Bowen and surrounding district was severely hit. Wind gusts of up to 110 miles an hour were recorded.

At 11.30 a.m., April 2, Don VK4PW, who is situated at the Coalfields at Collinsville, 53 miles from Bowen, came on the air with emergency traffic from the Police Department as all means of communication had been disrupted. After calling for a long time, he was heard at 1.30 p.m. by Harry VK4LE, of Adventure Downs, who in turn relayed to Police at Springsure. They immediately contacted Rockhampton Police, giving a survey of the damage.

At 5 p.m., VK4RW had his aerial re-erected after being blown down the previous week and was ready to take messages from Don VK4PW for broadcast over Radio Station 4AY re river heights, which was promptly relayed by Railway Department telephone to Ayr. The Railways also being alerted.

Third message received at 6.4 p.m. and relayed to John VK4DK at Ayr 6.20 p.m., who, after being alerted, came on the band. VK4WI came on at 7.10 p.m. to get information for Authorities in Brisbane, and heard contacting VK2WI to keep channel clear on 7060 Kc.

Bert VK4WI again came in at 9.30 asking for repeats of messages 2 and 3, stating that he could not find Bowen River on his map. Last message for the night of the river height was passed at 10 p.m., when Bowen River had risen to 56 feet. Stations signed out at 10.45 p.m., after making schedules for 7 a.m. next morning.

At 6.55 a.m. John VK4DK and Bob VK4RW contacted Don VK4PW and advised the river had risen to great height. There was no reading as communication with Birralee had been broken. Next sked at 9.30 a.m. to take two Police messages and message from Postmaster seeking permission to send public telegrams.

Bob VK4RW passed messages to the appropriate channels and alerted the Radio Inspector, who came in at 10 a.m. with VK4AA and arranged for a patch line to the P.M.G. Townsville operating room. Don VK4PW was kept busy during the day handling P.M.G. traffic with the assistance of the local Postmaster.

John VK4DK came on at stated times to obtain river reports; the highest reading taken before gauge was covered being 70 feet. Vern VK4LK did yeoman service on the Flying Doctor Service network, collating reports from outside stations.

P.M.G. traffic ceased about 5.25 p.m. when VK4AA made schedules for the evening, leaving the receiver running until midnight. Bert VK4WI called in again on the hook for latest information at 7.45 p.m. and arranged for Jim VK4PR to listen in case VK4WI was required.

The schedule at 9 a.m. on Good Friday was held by VK4AA, VK4RW,

VK4PW with Mark VK4MJ on the side fence; Mark had monitored at all times. Sergeant Gill, of Collinsville, came on the mike at VK4PW and personally thanked the following stations: VK4AA, VK4PW, VK4LE, VK4RW, VK4DK and others who had helped. VK4AA thanked the Sergeant on behalf of Radio Amateurs and said that is the aim of the boys to give assistance when needed.

As telephone communication, at the time of writing, will be out for a few more days, only Don VK4PW will be working with VK4AA.

"Well done gang!"

Low Drift Crystals

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AMATEUR BANDS

ACCURACY 0.02% OF STATED FREQUENCY

3.5 Mc. and 7 Mc.

Unmounted £2 10 0
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12.5 and 14 Mc. Fundamental Crystals, "Low Drift," Mounted only, £5.

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Spot Frequency Crystals Prices on Application.

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ROSS HULL V.H.F. CONTEST RESULTS

1957-58

OUTRIGHT WINNER:

VK4BT—N. W. Atkinson 578 pts.

TROPHY WINNER:

VK3ALZ—I. F. Berwick 563 pts.

AWARDS:

Phone—

VK2WH—W. H. R. Stitt 345 pts.
 VK3ZAQ—D. H. V. Rankin 170 "
 VK4NG—R. H. Greenwood 448 "
 VK5AW—D. A. Carthew 299 "
 VK6ZAV—D. F. M. Brown 55 "
 VK7ZAI—D. A. H. Thorne 194 "

Open—

VK3ALZ—I. F. Berwick 563 pts.
 VK4BT—N. W. Atkinson 578 "
 VK5BC—H. F. Lloyd 440 "
 VK6WG—W. W. Green 262 "
 VK7LZ—C. P. Wright 304 "
 ZL2DS—K. R. Kirkcaldie 158 "

SCORES:

Phone—

VK4NG 448	VK7ZAI 194
VK4WD 383	VK3ZAQ 170
VK2WH 345	VK5ZBL 163
VK5AW 299	VK6ZAV 55
VK2ZBP 196	VK4ZAZ ch. log.

Open—

VK4BT 578	VK6WG 262
VK3ALZ 563	ZL2DS 158
VK5BC 440	VK7PF 107
VK7LZ 304	

RECEIVING SECTION:

VK3—J. M. Hilliard 159 pts.
 VK4—C. H. Thorpe 377 "

"CQ" WORLD-WIDE CONTEST PHONE RESULTS

In a short note accompanying the phone results of this contest, Frank Anzalone, W1WY, comments: "Again we are disappointed in the returns from 'Down Under'. As will be seen from the full results published in May 'CQ' the other areas did very well." The c.w. results will appear next month.

In the single operator section, the world winner was F8CH with 436,974 points obtained on all bands.

In the multi-operator section the world high and winner was K2GL with 866,250 points from all-band operation.

"ISRAEL MARATHON" CONTEST

To celebrate the Tenth Anniversary of the Independence of the State of Israel, the Israel Amateur Radio Club, under the auspices of the Tenth Anniversary Committee, is inaugurating a world-wide contest-marathon, which will be known as the "Israel Marathon".

Foreign Amateurs are to try to contact as many Israeli stations as possible during the marathon. Frequency bands on which contacts can be made are 3.5, 7, 14, 21 and 28 Mc.

The marathon started at 0001 hours GMT on 24th April, 1958, and ends on 31st October, 1958, at 2359 hours GMT.

Any two-way contact between an outside and an Israeli Amateur Station, using any type of transmission. Each Israeli Station can be contacted once on every band during any 24 hours. Signal reports are to be exchanged, the minimum reports are to be RS 33 for telephony and RST 338 for telegraphy.

Each valid QSO on 3.5 Mc. will score 3 pts.
 " " " 7 " " " 2 "
 " " " 14, 21, 28 " " " 1 "

The total number of points on all bands are to be added.

Amateur radio stations from each continent returning the highest valid scores will be adjudged winners of the contest.

The first three Amateur stations from each country, submitting the highest score.

The first prize for each continental winner (6) will be a cup offered by the State of Israel, on which the name and the call sign of the winner will be engraved.

The second prize for each continental winner will receive an artistic book on Israeli art.

The first three highest scorers from each country will receive a Diploma. Every station submitting a log will receive a Participation Certificate.

Station log extracts with claims must reach the Israel Amateur Radio Club on 15th Jan., 1959. Prizes will be distributed on the 11th day of Independence of the State of Israel, and will be made by a representative of the Government of Israel wherever possible.

CASABLANCA INTERNATIONAL FAIR CONTEST

On the occasion of the Casablanca International Fair, the Association des Amateurs Emetteurs du Maroc will sponsor an international contest among Radio Amateurs all around the world.

A trophy to be called Casablanca International Fair Cup will be awarded under the following conditions:

The official station of A.A.E.M. will transmit under the call CN8MC during the total period of the Fair, from 25th April at 1100 hours to 10th May at 2300 hours GMT. This station will work alternatively on the following bands:

40 metres from 1400 to 1600 hours GMT
 10 " " 1800 " 1700 " "
 15 " " 1700 " 1800 " "
 20 " " 1900 " 2300 " "

This cup will be permanently awarded to the station having contacted CN8MC the most

number of times. One contact per day per band will be allowed.

CN8MC will normally listen 10 Kc. up and down from the calling frequency.

Address for logs: Association Des Amateurs Emetteurs du Maroc, P.O. Box 2060, Casablanca.

AWARDS

THE AWARD HUNTERS' CLUB "A.H.C."

"A.H.C." is the official abbreviation for The Award Hunters' Club. This abbreviation can be used by the A.H.C. members in their station cards and correspondence.

A.H.C. is an International Club which is open to all Radio Amateurs interested in "hunting" Awards and Certificates. The A.H.C. members must be private persons, no club or collective stations are granted the membership in A.H.C.

The applicant must be personal holder of at least 25 different Awards or Certificates which have been given him/her for working with other Amateur Radio stations. Certificates given for Contests do not count for A.H.C. Stickers are not counted separately from their master-certificates. The Awards which exist in different "classes" are counted as one and the same Award (e.g. W.A.E., D.U.F., etc.). Club membership certificates count for A.H.C. if they are from clubs for all Radio Amateurs with requirements for their membership (e.g. A.I-Operator Club, F.O.C., Tops-CW-Club, R.C.C., etc.). Also certain Awards which are given for excellent Amateur Radio operation, like "The Edison Award" and "Public Service Award", count for A.H.C. However, the A.H.C. Board will consider the validity of the Awards submitted for A.H.C. In case an Award is given exclusively for telegraphy or telephony they are counted separately.

Furthermore, the 25 Awards or Certificates must include at least one from each of four (4) continents. The applicant may choose the continents from which he/she will submit the Awards.

The applicant must have a QSL card of his her own and it must be submitted along with the application.

There are also "stickers" available for the A.H.C. Certificate:

AHC-50 (First Class Hunter) for 50 Awards.
 AHC-100 (Top Class Hunter) for 100 Awards.

How to get in: Send a list of the 25 or more Awards or Certificates you hold to the Hon. Secretary of A.H.C. This list must be countersigned by the representative of your own Radio League, or in case this is not convenient, by some active Radio Amateur who can check the number of your Awards and Certificates. Also please sign the application personally. Do not forget to enclose your own QSL card along with the application.

The fees: The membership fee is one U.S. dollar or equivalent (British, Swedish, West-German or Swiss currency or 12 I.R.C.'s.). In case the member wants to receive the A.H.C. Circular Letter a subscription fee of one U.S. dollar (or equivalent as above) is charged yearly. Every member will automatically receive the first C/L after becoming member.

The Honorary Secretary of A.H.C. is V. J. Velamo, OH2YV, Isekaari 4-B-80, Lanttasari, Helsinki, Finland.

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SUCCESSFUL URUNGA CONVENTION

The Ninth Annual Urunga Convention is now an extremely pleasant memory to the 52 who converged on Urunga for Easter week-end. Those who registered were:

VKs 2BZ and family, 2FH and family, 2FP and XYL, 2GV, 2JS, 2PM and family, 2PY, 2RU and XYL, 2SF and family, 2VV and XYL, 2WQ, 2XT, 2ACU, 2ADN and XYL, 2ADT and family, 2AEU and family, 2AHA and family, 2AHH, 2ALJ, 2AOR and family, 2APQ, 2ASZ and XYL, 2AWG, 2ZCK and family, 2ZCQ, 3ALQ, 4FP, 4VS, 4XO. Associate members: Bob Bailey and XYL, Norm Dash, L. Gilbertson, Snow McAuley, Norm Moody and XYL, Fred Reid, Cec. Siebel.

To all these, the organisers would like to say "thank you" for coming and that we hope you enjoyed yourselves and will come again next year.

It was very pleasing to have our State President, 2APQ, and Secretary, 2ALJ, with us, and I know that many questions were answered by Perce and Norm and that all those present now have a better understanding of Institute affairs.

A lot of new faces were present, particularly among the younger members, and many new friendships were commenced. Ian 2ZCK, of Moree, was 21 during the Convention, and news leaked out that Bill 2AWG is going off the deep end in May. Congratulations to you both!

Many tales can be told and situations recounted, but only those present could enjoy to the full the pulsating life of the Convention. To watch Alan 2FH auction a barrowful of disposals gear is first class entertainment, and to listen to the bidders trying to out-fox him is also a performance of high standard.

The 144 Mc. hidden tx hunts called for top class operating skill. The first, hidden by 2AHH, was planted on the edge of a bitumen road, but just like the bees, the hunters went where the scent was strongest and would insist on grading new roads in the scrub and paying the penalty of being bogged. Only two found this tx, whilst the remaining three were separated from it by the Bellinger River.

In the 144 Mc. fox hunt a well known Sydney v.h.f. man assured me that the fox is always caught, but when I left Urunga he was still there trying to puzzle out just where the fox (2AHH) got to!

The position for the second hidden tx hunt was selected by Brian 2ZCQ and Assoc. Fred Reid, who once again superbly camouflaged the tx, so much so that three cars stopped within 100 yards of it to take bearings, and then moved off without seeing it. After a bit of backing, however, two cars succeeded, but the third didn't catch on for another 20 minutes.

I must thank the home stations for their magnificent support of the I.F. contests. Without them our Convention would surely be damped. Conditions were good and despite the fact that 10 portable stations were operating over a very small area, interference with each

other was negligible. However, it must have sounded bedlam to listeners and would-be rag-chewers. Some of the operating techniques used were extremely slick but very effective. To stand the service is a compliment to the equipment used and augurs well for W.I.C.E.N. requirements.

The complete list of prize winners is as follows:

No. 1 Fox Hunt: 1st, 4JP, 25 mins.; 2nd, 2XT, 60 mins.

Gerry Challenger Memorial 7 Mc. Contest: 1st, 2AHH, 58 pts. (3rd win in succession); 2nd, 2XT, 52 pts.; 3rd, 3ALQ, 48 pts.

144 Fox Hunt: 1st, 4JP, 20 mins.; 2nd, 2ZCQ, 25 mins.

Ladies' 144 Blindfold Hunt: Heat winners: Mrs. Whyte (XYL of 2AHA), Mrs. Hill (XYL 2ADT), and Mrs. Fitton (XYL 2SF).

No. 2 144 Mc. Hunt: 1st, 2PM, 38 mins.; 2nd, 2AHH, 39 mins.; 3rd, 2AHA, 55 mins.

Urunga Scramble: 1st, Tie between 4FP/3ALQ 36 pts.; 3rd, 2AHA, 35 pts. Best miles per watt, 4JP who worked a W7 on 15 mx.

Furtherest distance travelled: 3ALQ.

Ladies' Penny Tossing Competition: Mrs. R. Bailey.

Ladies' Lucky Registration No.: Mrs. Collett (XYL 2RU).

Gents' Lucky Registration No.: 2APQ.

The Convention report would not be complete without thanking the persons who rendered such sterling assistance. Secretary Norm Dash carried on a winning paper war. Alan 2FH really battled to rid himself of a batch of disposals for which Rod 2ACU was good enough to make a special trip to Sydney to obtain, whilst Brian 2ZCQ and Assoc. Fred Reid did a good job with the hidden tx.

Wireless Institute of Aus. New South Wales Division A.O.C.P. CLASS

will commence in July



The Classes will be held in the
Railway Institute Rooms
Castlereagh Street, Sydney.



Full details can be obtained from
Secretary W.I.A., Box 1734,
G.P.O., Sydney, N.S.W.

The business houses who contributed to our prize list were Australian Electrical Industries, Philips Electrical Industries, Amalgamated Wireless Valve Co., United Radio Distributors, and Associated Newspapers—Radio, T.v. & Hobbies division.

Our usual Saturday night emission testing period was held in the "Do Me" shack of Crieff 2XO, who is at present touring New Zealand, and our thanks go to him for making the shack available.

Ted Harvey, who screened our films on the Sunday night, did an excellent job and presented a really excellent home-made colour film entitled "Early Tomatoes," which covered the tomato growing industry around Coffs Harbour. Congratulations Ted on an excellent production!

It was good to see our regular Interstate friends, 3ALQ, 4FP, 4XO, and 4VS, and we do look forward to seeing them again next year.

There is twelve months available now to get gear ready for Urunga 1959 and if you chat to those who have been before, you will certainly want to set aside Easter 1959 to come to Urunga.

—2AHH, Zone Officer.

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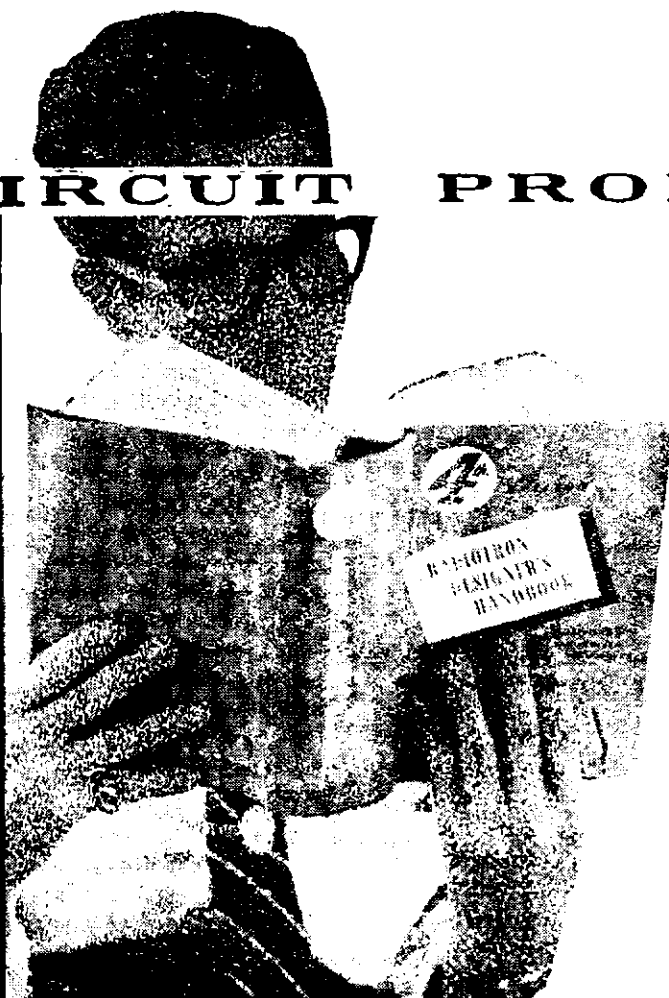
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VC1.58

THE DUTIES AND POWERS OF W.I.A. FEDERAL CONTEST COMMITTEE

One of the integral parts of any society is the organisation of healthy competition between members. In this regard some person or persons must be entrusted with the duties of organising such competition as is necessary to stimulate interest and promote friendly rivalry. Such is the duty of the W.I.A. Federal Contest Committee.

1. The body shall be known as "The Federal Contest Committee of the Wireless Institute of Australia."
2. The objects of this committee shall be to organise such competition in contests as is necessary to stimulate interest and promote friendly rivalry.
3. The Federal Contest Committee shall consist of a Chairman, Secretary/Treasurer, and three (3) other members, all of whom shall be ex-officio members of the Federal Executive.
4. To be eligible for appointment to the Federal Contest Committee every nominee shall be a voting member of his Division.
5. The committee shall be appointed annually by the Federal Executive from nominations received from any Division.
6. Within 28 days of its appointment, the committee shall notify Federal Executive of its officers.
7. The tenure of office shall be for a period of twelve (12) months, but notwithstanding this provision, Federal Executive may, at any time, terminate any or all of these appointments.
8. In the event of a vacancy occurring on the committee, the Division concerned shall within 28 days nominate another member to fill the position.
9. The duties and powers of the Federal Contest Committee in relation to contests conducted by the Federal Council of the Wireless Institute of Australia shall be to:—
 - (a) Prepare a set of rules for contests which shall apply to all Federal Contests.
 - (b) Prepare suggestions for improving the rules of contests with the object of making all contests more interesting and equitable to all contestants, and durable in regard to changes of rules. (Opinion of Divisions shall be sought on any proposed amendments which would alter the nature of the contest, awards to be made or method of scoring.)
 - (c) Arrange publicity of the rules of all Federal Contests, both locally and overseas, as necessary.
 - (d) Arrange publication of such rules in "Amateur Radio" at least one (1) month (and preferably earlier) before the date of such contests.
 - (e) Supervise the conduct of contests in relation to the appropriate rules.
 - (f) Arrange for the collection of all entries to Federal Contests.
 - (g) Arrange for the checking of all logs or entries.
 - (h) Arrange for the publication of rules, results and winners of contests including overseas contests.
 - (i) Arrange for the preparation of certificates and/or awards, and the forwarding of same to the successful participants as soon as practicable after the results of such contests are decided.
 - (j) Keep a register of all certificates issued and awards made.
 - (k) Keep an up-to-date record of the rules of all contests.
 - (l) Carry out the wishes of Federal Council by making such changes to the rules as are initiated by Divisions and approved by Federal Council.
 - (m) Carry out such Contest Policy Directives as are issued from time to time and/or are contained in the Annexure attached hereto.
 - (n) Submit Federal Notes for publication in "Amateur Radio" through Federal Executive.
10. The Federal Contest Committee shall at all times communicate with Federal Council through the Federal Executive except that:—
 - (a) In matters of urgency ONLY, requiring a vote of Federal Council, the Federal Contest Committee may, communicate direct with Federal Councillors, with a copy to Federal Executive on such matters, providing that the result of such vote is to be advised to all Federal Councillors within fourteen (14) days.

(b) In matters of extreme urgency where there is insufficient time to comply with the provisions of para. 10 or 10(a), the Federal Contest Committee may apply to the Federal Executive to use its power under the Federal Constitution Section 34.

11. The Federal Contest Committee may if it so desires obtain the assistance of other members of the Institute for checking of logs.

12. The Federal Contest Committee shall deal with matters pertaining to the following Federal Contests, or such other contests as are added from time to time by direction of the Federal Council:—

- (a) VK/ZL DX Contest.
- (b) Remembrance Day Contest.
- (c) Ross Hull Memorial Contest.
- (d) National Field Day Contest.

In relation to the VK/ZL Contest, it shall liaise with the N.Z.A.R.T. who conduct this contest bi-annually with the W.I.A., and ascertain that any changes initiated by either society are expeditiously brought to the notice of the other.

13. The costs of administration of the Federal Contest Committee shall be paid by Federal Executive but no expenditure shall be incurred by the committee without the authority of the Federal Executive.

14. A statement of such expenditure shall be rendered to the Federal Executive for inclusion in the Federal Balance Sheet at a date to be specified by Federal Executive.

15. The Federal Contest Committee shall submit to Federal Executive a report of activities for consideration at the Federal Convention, or inclusion in a Federal Executive Report. (This report shall be available fourteen (14) days prior to the date of the Convention.)

16. Upon termination of tenure of office of the Federal Contest Committee, all records shall be completed and returned within twenty-eight days (28) to the Federal Executive.

17. Finally, the Federal Contest Committee is at all times to consider itself as operating under Federal Council through their agency the Federal Executive.

ANNEXURE OF CONTEST POLICY DIRECTIVES OF FEDERAL COUNCIL

Details of Contests shall be referred to the Federal Council for comment before promulgation. (C04)

All contests of a Federal nature are conducted by Federal Executive under direction of Federal Council, who reserve the power to approve or otherwise of any Division conducting special contests. (C05)

Draft proposals for any changes in rules of Australian contests are circulated to all Divisions at least three months before the contest. (C11)

The Northern Territory is classed as a separate area for contest purposes in Australia. (C19)

The use of the W.I.A. Standard Log Sheet is recommended for use by all contest participants. (C28)

In future N.F.D. Contests fullest publicity be given by all Divisions in every way possible for at least three months prior to the contest; and further that Divisions organise State teams to ensure active participation by all States. (C13)

Federal Council consider it of the utmost necessity to expand interest in the N.F.D. Contest in view of the future requirements of Civil Defence. (C24)

The standard numbering system recommended and agreed to by a majority vote of the I.A.R.U. Societies will be used by the W.I.A. (C27)

A standard set of rules as submitted in 1950 be adopted for VK/ZL Contests. (C09)

Draft proposals for any change in the standard rules of the VK-ZL Contest be circulated to all Divisions at least five months before the Contest. (C10)

An open award considered higher than the existing award be made for future VK/ZL Contests to be determined from the sum of the final points of a competitor's entry for both phone and c.w. sections. (C32)

The Federal Contest Committee investigate carefully the rules of all Australian Contests with a view to maintaining uniformity for at least two years. (1952/4.8)

The Ross Hull Memorial Contest be extended to include all v.h.f. bands as soon as possible. (1952/2.2)

The Federal Contest Committee to frame a fresh set of rules for the Remembrance Day Contest so that the larger States, VKZ and VKZ, may in future have a more reasonable chance of winning the contest. (Note: This motion rescinded Fed. Con. 1953/2.2. Replaced by motion 2.3.1953)

That consideration be given to finding a more suitable day for the National Field Day. (1953/2.4)

Overseas and Local Calendars to determine a clear week-end at the end of February or beginning of March in each year. (1953/2.4.1) (Ref. 1953/2.4 above.)

BOOK REVIEW

INDUSTRIAL RECTIFYING TUBES By Members of Philips Electron Tube Division

In this book details are given on all aspects of rectifier tube design and application.

In particular, reference is made to their use in battery chargers, cinema arc-lights and industrial welders. All types detailed are of the gas-filled variety. Data is given on 18 tube types, as well as details of their use in their various applications.

This book will be of particular interest to those associated with the design of low voltage, high current power supplies.

Our copy from Messrs. Philips Electrical Industries Pty. Ltd., Philips House, 69-73 Clarence Street, Sydney. Price in Australia, 18/-.

ANALYSIS OF BISTABLE MULTIVIBRATOR OPERATION

The Eccles-Jordan Flip-Flop Circuit, by P. A. Neeteson. From the Philips Technical Library.

This bistable multivibrator was first conceived by Eccles and Jordan in 1919, but has only been applied over the last few years to the important role in electronic pulse apparatus such as counting machines.

In this book a thorough analysis of the dynamic behaviour of the bistable multivibrator is given. Circuit design is fully covered, taking into account the influence of tube characteristics.

Chapters include discussions on the dynamic condition, the complete trigger cycle, variations of the fundamental circuit and way of triggering, as well as a survey of literature on the subject.

This book will be of intense interest to all associated with electronic design in the computer field.

Our copy from Messrs. Philips Electrical Industries Pty. Ltd., Philips House, 69-73 Clarence Street, Sydney. Price in Australia, 18/6.

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.

PREVENTION OF INTERFERENCE BY TELEVISION RECEIVERS

B.B.C. Director-General Congratulates American Amateur

A television receiver is capable of producing interference with broadcast reception over a limited area. This interference is due in the main to induced electric fields and magnetic fields set up in the neighbourhood of the television receiver; re-radiation of parasitic oscillations from the receiver proper is less serious and will not be considered here. The electric field is the more troublesome since it will affect broadcast receivers having ordinary aerials; the magnetic field will influence only that minority of receivers having frame aerials.

The most important sources of interfering electric fields are the line output transformer and associated high potential points; the deflector coils; and high impedance circuits near these components. Since, in general, magnetic fields emanate from the same sources, the measures recommended below will reduce both causes of interference.

(1) The e.h.t. transformer, booster diode and line output valve should be totally screened by a can which makes good contact with the chassis. Two-hole fixing of the can is not entirely satisfactory and it is advisable to make multiple connections between can and chassis. The difference in radiation between a good and a bad connection here may amount to as much as 8 db. for magnetic fields.

(2) Any width or linearity controls of the inductor type should be screened separately if they cannot be accommodated inside the line output screening can.

The design of the line output screening involves problems of ventilation to

avoid overheating of the components enclosed by the screen. As a general guide to designers, the maximum safe bulb temperature for the PL81 line output pentode has been determined at 185°C. (design centre rating).

(3) The deflector coils should be screened as far as possible by an aluminium can or by metal foil wound coaxially around the coil and earthed to chassis. Care must be taken to ensure that there is no likelihood of voltage breakdown between the foil and the coils. This form of screening will give good reduction of electric fields and will also reduce magnetic fields but not to the same degree.

To reduce the magnetic field still further, the deflector coil screening can should have endplates with holes only just large enough for the tube neck to pass through. This gives a further reduction of approximately 6 db.

(4) Care should be taken in the layout of the receiver to keep circuits of high impedance well away from the worst sources of interference.

(5) The graphite coating of the cathode ray tube should be efficiently connected to earth—preferably from two separate points on the coating.

(6) Both conductors of the mains supply should be connected to the earth terminal via 0.05 μ F. paper capacitors rated for 600 v. r.m.s. working.

(7) The use of a perforated foil screen at the back of the set will reduce radiation in that direction.

Reprinted from "Mullard Valve Notes No. 1, published by Mullard Ltd., Technical Publications Department, Century House, Shaftesbury Avenue, London, W.C.2.1

AMATEUR TELEVISION

(Continued from Page 9)

zero and adjust **Setup** preset to give about 5% of pedestal. Turn up the **Sync** control to see that the sync. level can be varied from zero to about 50% maximum. Adjust to 0.4 volts. Check that raising the pedestal causes the picture monitor retrace lines to disappear.

Advance the **Video Level** control to give 1 volt of picture information. With a calibrated c.r.o., check output voltage across the 75 ohm termination, adjust sync. to 0.4 volt, video to 1.0 volt, then calibrate waveform monitor to agree using the **Cal Video** preset and **V. Shift** to bring the black level to the 0 volt on the graticule. Then sync. tips should reach -40 and video +100. Once calibrated, the waveform monitor is your guide for all future tests and should not be touched.

The **White Clipper** preset is next adjusted to clip at the +1.0 volt level (12½% mod.) and it should not be possible to force video peaks beyond this level. The **Set Gamma** control can only be adjusted with a grey scale test chart before the camera. This will be discussed later in this series.

Similarly the peaking capacitor in the feedback-output stage is adjusted for minimum ringing on a sharp edge, just as the overshoot, as seen on a c.r.o., changes from one polarity to the other.

No discussion of the picture monitor seems necessary, as it conforms very closely to receiver circuitry and techniques. The focus stabiliser is not essential but very useful, although permanent magnet focussing should be ideal.

Substitute Tubes

Once again these tubes were used because I had them. The 6SN7s can be replaced by almost any of the double triodes, as long as current handling ability is assessed, when replacement is considered. In the video amplifier, 6SH7s throughout would be ideal and 6AL5s would be better than the 6H6s. The VCR139A could be replaced by the 3KP1, 3BP1 or VCR138, although physical size should be considered.

Critical Components

Match the pairs of resistors in the clamp keyer and the resistors in the regulators (V7), and clipper (V6) are fairly critical and should be checked by experiment. As long as the **White Clipper** control has a range of threshold from 0.7 volt of video to well off waveform monitor screen—say 1.5 volts—it will be satisfactory. The components in the network of the clamp V19 are also fairly critical to allow clamping in register with the graticule.

Next month I will discuss power supplies for television transmission and details of that for the camera and c.c.u.

The operation of Radio Hams—or Amateurs—exchanging signals and conversations from continent to continent, are normally of little interest to the non-technical public, who look to radio for news and entertainment. But in January an enterprising American Ham—17-year-old schoolboy Jules Madey, of Clark, New Jersey—made an exciting contribution to B.B.C. programmes, which brought him a cabled message of congratulations and thanks from the Director-General of the B.B.C. Sir Ian Jacob. It was Jules' initiative which early on the morning of January 24 made possible a direct radio and telephone hook-up for which British Post Office and B.B.C. engineers had been hoping for weeks between Dr. Vivian Fuchs, then at the South Pole, and B.B.C. reporter, Donald Milner, in London. As a result their conversation—just before Fuchs left the Pole—was heard clearly by listeners to B.B.C. Home and Overseas News programmes throughout the day.

For a year or so contact has been made from time to time between the American scientific station at the Pole and Radio Amateurs in the United States. The most successful of these had been 17-year-old Jules, who operates in New Jersey. He has been able to put members of the American party at the Pole in touch with their families by "plugging them in" to the ordinary telephone system. Donald Milner had asked him to let him know if there was ever a chance of extending his service to him in London.

But radio conditions in Antarctica are the worst in the world, and apart from this the transmitter at the Pole had been out of action for nearly a month. When reports came in that Dr. Fuchs had left the Pole, there seemed to be no further hope. But the reports were premature. The same night Jules Madey was attending a school reunion in Clark, New Jersey. He came back to find a friend who was manning his set just fixing up a telephone link between Mr. Mogensen, the American scientific leader at the Pole station, and his wife. As Madey came in, Mogensen said that he must leave his set for the moment to go and see Dr. Fuchs off. Realising that Fuchs was still at the Pole, Madey asked Mogensen if he would ask him to come back and have a word with Milner in London.

Meanwhile, Madey put through a personal call to Milner's flat by trans-Atlantic telephone, and so at a quarter-past-four in the morning Milner was awakened by the phone ringing and Madey saying that Dr. Fuchs was waiting to speak to him. Then the familiar voice came through to London from the bottom of the world.

A live conversation by trans-Atlantic telephone between Jules Madey and Donald Milner was broadcast the following day in a B.B.C. programme for listeners in Britain.

—B.B.C. Press Release.

S W L

Ian J. Hunt, WIA-L3007
211 St. George Road,
Northcote, N.16, Vic.

As a beginning to these notes I would like to point out the reason why some letters received by me are not mentioned in these notes until about two months have elapsed from the time I receive them. The reason is that I am supposed to submit the notes on or before the 8th of the month preceding the month for which the notes are to be published. As a result, for the May issue of the magazine I must have the notes in to the Editor by the 8th April. Well, in this case, as Easter has intervened I have held back my effort until the 9th. I therefore appeal to all those who may write to me not to wait for the latest issue to come out to see if your previous correspondence was included (if you sent it in time it will be anyway), but to make sure that I receive your contribution well before the beginning of the month. Please wake up to this fact fellows. Please write to me to provide dope for this column.

My reference to Eric Trebilcock last month brought forth a letter from that worthy gentleman, who has by the way just returned to VK3 after a short bout of duty in VK5, some of which may prove of interest to those (if any) who read these notes. Eric states that he will not be entering our current contests advertised last month, so many of you can therefore breathe a sigh of deep relief. The contests of VK origin which mainly interest him happen to be the VK-ZL Contest and the R.D. Contest. Eric mentions quite casually that the following statistics may indicate something of his listening efforts. Last year he received 647 QSL cards from 127 countries, representing 38 zones. So far this year he has on hand confirmations from 186 stations, representing 62 countries and 26 zones. His post-war total is (and I pause for a deep breath), 4,501 QSL

cards received, giving him 239 countries confirmed with 40 zones represented. Phewwww. So there you are chaps. It just goes to show what you can do if you really try. All the above figures, by the way, are applicable only to reception of Amateur stations. Keep it going Treb., some of us might catch up to you sometime within the next hundred years.

A letter from Dave Jenkins, WIA-L3039, of Orbot, informs us that he is still alive and listening. Between his periods of milking the cows he has heard on 14 Mc. recently KP4, OH1, FK8, ZM6, K6, ASBDE, UAO, DU9, VE3, UC2 and OH2. Dave has been suffering battery trouble as when his dry batteries get a bit low they can't push out enough herbs to run all stages of his rx. Apparently towards the end of the month things generally get down to looking like a detector and one audio stage. However, Dave says that the good old faithful t.r.f. seems to work provided he does not bump the table and show up those few loose connections. He has some secret up his sleeve concerning a new super duper rx but says he won't reveal the details until he has it working.

VK2 S.W.L. GROUP

This is just the news that I feel many of those younger, and perhaps older, readers in VK2 have been waiting for.

For the purpose of instituting an S.w.l. Group in N.S.W. a meeting was to be held at the T.v. Studio of the School of Electronics and Communications, Gore Hill Technical College, on Monday, 14th April. As yet we have no news of the results of this meeting, but it is to be hoped that all the VK2ites rallied round and provided a good turn up. A copy of a circular kindly forwarded by Mr. N. G. Beard, 2ALJ, Secretary of the VK2 Division, indicates that formation of the Group will run along the following general lines:

An S.w.l. Group member will enrol as an associate member of the Division at an annual fee of 25/-. A financial member of the W.I.A. at the present time may become an s.w.l. merely by registering and obtaining an L-number.

As an associate member, he is then entitled to receive a monthly Bulletin and a copy of the Institute magazine, "Amateur Radio." He may attend all normal W.I.A. meetings and activities as an associate, but may not vote.

He may apply for and receive items of disposal equipment with other W.I.A. members as outlined in the Bulletin, and he may obtain and wear the W.I.A. Lapel Badge.

So there you are VK2 s.w.l.'s. At this stage the success of this newly formed Group rests in your hands. I hope you will respond to the opportunity provided by your Division and make a really good show of things. If any of you are interested in this Group drop a line to the Secretary, Wireless Institute of Australia, New South Wales Division, P.O. Box 1734, G.P.O. Sydney.

We sure hope to hear a great deal of the s.w.l. activities in VK2 from now on.

VK3 S.W.L. GROUP

At the March meeting of the Group we really enjoyed ourselves. The meeting took the form of a Question Night, the questions ranging from relatively hard ones for members of the Group who are known to be engaged in study for the A.O.C.P. examinations, to tricky ones for the unwary. Several members were handed a sealed envelope a few minutes before they were required to speak and were requested to answer the question contained in the envelope. After the answer was given to the best of the ability of the person concerned, the meeting was free to question him further. Great fun was had by all and I think everybody learned a little more about Radio.

As Easter has intervened this month, there has been little or no contact between myself and other Group members. However, I have been able to glean the following information about members. Bert Stabbings has just arrived home from a visit to Denliquin, having had several adventures on the road going there and back. I presume he was visiting Noel, ex-3ANS, now 2OU, who was previously one of the Group representatives with the VK3 Council. We wish Noel all the best in his new surroundings. Maurice Cox is believed to have visited VK5 during the Easter period, but we have no further news of his doings. Our President, Len Poynter, now has his 6 mx gear performing well and has been busily sorting out the JA stations on that band. We wish him luck in his DXing on the v.h.f. bands.

The Group wishes to pass sincere congratulations to our recent host and hostess, Ron and
(Continued on Page 20)

New!

A & R

T.V. Voltage Adjuster

An Essential Instrument for the T.V. Serviceman

With the increasing number of Television Receivers now being installed, the demands made upon the T.V. serviceman's time will increase steadily. In certain areas reception difficulties often occur due to low supply voltage, and it is certain that some ready means of detecting this condition would assist the serviceman, and perhaps save valuable time in endeavouring to locate a suspected fault within the receiver. With the above in mind, A & R have available the T.V. Voltage Adjuster as illustrated. Soundly constructed and finished in attractive Silver-Grey Hammertone, this A & R product provides the serviceman with an invaluable, yet inexpensive addition to his test equipment.

An Aid to T.V. Installation and Service

Flicker or shrinkage of the Television picture often indicates a low line voltage, leading to complaints of unsatisfactory reception, or to difficulty in adjusting the receiver controls. This condition can be reproduced with an A & R Voltage Adjuster, thus indicating the lowest possible mains voltage for good reception. The mains taps on the Receiver can sometimes be adjusted to suit, provided the voltage is consistently low.

There are many other applications for the A & R Voltage Adjuster, such as, correction of input voltage to Amateur Transmitting and Receiving Equipment, Tape Recorders, Hi-Fi Audio Equipment, etc., provided that load imposed is within capacity of adjuster. The auto model is quite suitable for these applications.

Servicing Transformerless T.V. Sets

Servicemen will find the double wound model an invaluable aid when servicing transformerless T.V. Receivers. The Receiver under test can be safely isolated from the mains supply, thus affording maximum safety and a safeguard against possible damage to valuable test equipment. A separate earth terminal is provided for earthing the receiver chassis to the adjuster if desired.

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DX

Frank T. Hinc, VK2QL
30 Abbottsford Road,
Homebush, N.S.W.

The "big" DX news for the month is 50 !Mc., although the "DC" band boys may not agree. Without meaning it in any derogatory form, I never expected to receive a comment such as I received from 4HD this month for his 50 Mc. doings: "The usual hordes of JA stations JA1-JA0 heard and worked—no further comment." See the 50 Mc. activity list and you will see the reason. Contact was made between ZL and KEIGE on 20 Mar. One JA is reported to have worked seven LU, two CK and one PY. ZE2JE is on the lookout for VK no news of contacts in other VK areas. 4XJ has four countries to his list, similar to 4HD. 4LK, 4WD and 4NG have been amongst the DX and 4ZF is reported to have heard VK0. K6RNQ has worked all ZL call areas. If you have no b.f.c. on your receiver or can't key your transmitter, best you have a look at it if you are interested in 50 Mc. DX as quite a number of the QSOs have been on c.w.

NEWS AND NOTES

VK0TR has been giving his QTH as Heard Is. As there is no current "occupation" of Heard Island, you need not expect a QSL from him (2EG).

ZACX has received a QSL from FW8AA for a QSO he never made although he tried hard enough, so if you try hard enough auto suggestion must work. I believe that a number of FW8AA QSLs are not acceptable for DXCC credit due to insufficient detail.

FY4ZG is not just another FY. He is located in the Brazilian Antarctic region, so maybe handy for the future to have in the bag.

WB3K is another active station from the Pacific. Xmas Is.

KC4AF has been active from Navassa Is. for the last few days in March. This DXpedition had its share of troubles. QSLs are to go via W8TUM. It was planned to operate from XEA, but the required permission was not forthcoming. This is becoming a problem to many DXpeditions proposed by U.S. Amateurs. It is not possible for a "foreign Amateur" to obtain authority to operate in the U.S.A. and it seems there is some "reciprocation" taking place at present, ZD8 and PY0 being currently in the news.

V85JL is active on 14 and 21 Mc. phone, but leaves in May (2ZJ).

The new country situation is being further confused by YKIAT (United Arab States), the current theory being that he will be given additional classification to the one he previously held. When is some sensible reasoning going to come out of all this. One answer could be to give a method of identification to all geographical areas and irrespective of what political developments take place in that country, the identification remains. I know there is much more to it than that, but it could be developed. It would not clash with W.A.Z.

FX1FC starts operating in ANDORRA in July, operators being FBFC and ON4AU. Operation will be for the first two weeks (3KB).

Another for the VL fans is 3A2BF on 14 Mc. phone almost daily (5RK).

The first of JT1AA QSL's has started to reach the VK bureaux. Not many to date, but 1,000 had been despatched by the end of Nov. Early in the year he was reported to have made 2,500 contacts. What a job OK1JX has in front of him when you consider he is handling QSLs for JT1A and JT1YL.

ZD8G is on 14 Mc. c.w. and is ex-VS9AG and ST2NG.

ZD7SA is active on 28 Mc. c.w. and have heard the Ws after him round 2200z, but have not been able to hear him here to date.

Mystery man, Danny Well, is causing some comment due to varying "stories". One is that he has boat trouble again, another financial troubles, and a third he is on his way.

If you have attempted to work or contacted JT1AA on phone, there is very little hope of confirmation unless it is phone both ways. ZEG tells me that if you ask him to listen for your phone in a c.w. contact, all you will get is a listener's report, not a 2-way confirmation.

I have received two copies of the DX bulletin which W4KVX prepares and issues and it is

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

quite an interesting piece of work. The back page is called "the drooling corner" and a very rare QSL is reproduced for all and sundry to drool over, one being 4W1MY. Extracts of DX news are HA5AM/ZA may be active again in April/May but there is doubt about his QSLs being accepted due to his operations being reported made as Air Mobile. VQ8AQ is another station active from Rodriguez Is. FY7YH is active on 14 and 21 Mc. round 0400z. W8FGX has a 2 el. beam rotating on 7 Mc. and reports that band has similar characteristics to 14 Mc. when beamed. EN is probably a new prefix to be heard soon and is substituting the old YI. Ex-YI2AM is expected to be on with it soon. 0E4VN is the call sign of the Belgian Antarctic Expedition. Fernando de Noronha is expected to be kept going by PY7LR and PY7SC who are now stationed on the island. VPORT operated by F8TRT is a legitimate call sign for the newly founded "Federation of the West Indies" which includes VP2, VP4, VP5, and VP8 (more country troubles). My thanks to W4KVX.

W6YV has also dropped me a line containing LA2E/P. W6YV is still active from Spitzbergen. VQ4AQ and VQ4KRL are planning a DX-pedition to VQ1 and VQ8. ZD2CKE is on 14 Mc. c.w. DL8 is the new prefix for the Saar, old 954.

"COUNTRY CLASSIFICATION"

For those who are interested in the current question of "country classifications", give this some thought. For certain purposes, some organisations break the world into grids or squares using the Lat. and Long. as the boundary. This principle has much to commend it for Amateur Radio. If the world, for our purposes, we divide into grids or squares of 20 degrees each side, up to 80 degs. Lat., we have 144 areas. If 10 degs. Lat. and 20 degs. Long. we have, 288 areas, and 10 degs. square 576 areas. Political events would then have no effect on this whatever, and Amateur Radio is reputed to be non-political. A QSO would then only need to include the area of contact along with report and QTH.

ACTIVITIES

Pride of place rightly goes to the 80 Mc. boys this time. Only wish I had fuller information. You will notice that some of the W contacts were made when 28 Mc. is open.

50 Mc.: 4HD c.w.: W6PUZ* 2240z, W6TMI*, W6AJF*, W6AM*; phone K6TRR*, K6PXT*, W6BAZ*, K6ERG* 0500z, ZL2DS* 2150z, KX-8AF* 2130z, KH6s PP. NS, CZ, AR, CNI* 09-1120z. 4XJ: KX6AF*, ZL2DS*, K6EDX*, W6BJJ*, K6RNQ*, W6BAZ* all on c.w., and phone W6EDX*, W6BJJ*, JA*. Band been open JA every day.

28 Mc.: 2QL: SM*, ZS8KD*, GM*, JA*, FJ2AE*, K4AQ/KG6*, W*, VE*, KL7, KX6, UA0KJG, CR6CS, ZS3DP, VU2AC, DJ, ZCSAL, KH6, KC4AF. 4HD: CX1OR*, UA9MI*, HB-9JW*, CTIPK* long path, PY5EG*, ZS6SA*, V55JL*, HC1FS*, LU3TB*, HC1GE*, BV1TC*, OZ*, G*, W*, VE*, DL*, 4XJ: CN8IB*, 4X4IX*, 5WP: SM5CO*. Rod de Balfour: CT1SK, ZS-8OU, ZS2DR, ZS1BZ, ZEGJJ, CN8FG, DU1CV, 457YL, CR7BB, VU2RM, VU2BK, VU2DQ, CT1SC.

21 Mc. c.w.: 2AMB: CX5CR. 2QL: PY4OD*, FY2AJK*, ZB2I*, CN8FM*, CO2SM*, UB5DW*, VR2DA*, EA5BA*, JT1YL*, KC4AF*, TL2LA*, JA*, Europe*. 2ZJ: OH*, UA2*, UA3*, G*, JA*, ON*, SP*, 7LZ: UQ2AN*, GW*, LA*, KA*.

21 Mc. phone: 2ZJ: CN8WX*, F*, HC1EB*, VS1O*, KA*, HC1VS*, ON*, V55JL*, DJ*, G*, 6WP: VS2*, VS5*, OK*, HB*. Rod de Balfour: RA G, GD, GM, GC6GF, F, 457YL, V2BK, VR2DQ, OA1QY, CX2AJ, BY2AFB, ZS6Z, ZS6B, CR4AU, HR3HH, VP2DC, VP5DM, CE-2HR, KZ5JJ, KB6BF, HC1FG, ZK1BS, FK8AU, 7LZ: DL*, FK8AU*, VP2DC*, G*.

14 Mc. c.w.: 2ACK: KC4AF*, HA5AM/ZA*, 2AGH: HE9LAC*, FK8AT*, UA0KKD*, 4X4IM*, VK9JF*, CT2AI*, KC4AF*, FR7ZC*, VQ8CF*, LA6CF*, OX3UD*, ZD3G, 2AMB: CN8IS*, VP2BAU*, HK5CR*, VU2KMW*, KC4AF*, CM-81S*, 4STFM, CR6AP, KW6CW, FB9YV, FB8XV, KM6EV, VK9JF, VQ8AM, FY7YF, KP6AL, VR3K, FF8AJ, ZS8R, 20W: UP2KCB*, UA0*, HA*, YV5BX*, UB5*, VP5BL*, FY4ZG*, JZ-OHA, 2ZJ: UA0*, MP4BBC*, 2QL: UP2KCB*, UO5WP*, CT2AI*, JZ0HA*, OX3DL*, KC4AF*, GC2CNC*, UF6FB*, JT1AA*, ZESJU*, FQ8AJ, VR3K, UG6AB, FR7ZC. 2ZR: A big list of the regular Europeans and EA*. CT2AI*, CN8BQ*, FA8TT*, HA*, LA*, 4X4II*, ZC4PF*, 457WB*, Y*, UB6ND*, 8CX: ZL5AE*, HZ1AB*, ZC-3AC*, CT2AI*, YV6GO*, YKIAT*, VR3A*.

8XB: XW8AI*, CO8DL*, CT1JS*, PY2AVY*, CX5CO*, FB8XX*, VP6LN*, CO2*, UB8KAF*, CT2AI*, 4DO: ZC4BL*, EA1BC*, HZ1AB*, VU2JA*, LZ1KPC*, PY4AC*, VQ2EW*, XW-8AI*, FB8YV, FQ8AJ, VQ3CF, UQ2AB, VQ4EQ, FQ8, VP6JF, UP2KCB, E14A, ZD8DT, FM7WT, CT2AB, UC2AF, EA6AM, VQ6AB, ZL5AE, 5EK: UA0KKB*, W*. WIA-L5080: UA0, VE3, UC2AA, OH, DU8JO, EA5BD (that's your ASBDE I think Dave). Don Grantley: the pickings being BV1US, CN8AS, CN8DJ, CN-8ME, CT2AI, DU3DO, FQ8AC, FB8XX, KP4CC, KX6BP, UF6FB, XW8AI, YV5AB, ZM6AS, 4X4FW, 4X4WF.

14 Mc. phone: 2AMB: LU6BBA*, VR4JB*, CE3DY*, TG7SJ*, KE1RM*, CX9CO, CX1AK, LA3G, CM9AA, HK4KW, VR3O, VR3P, ZS-6QW, CE3MG, ZE1JE, 2ZJ: KA7CS*, UA0*, V55JL*. SAOM: CT1FY*, FUGAD*, FK8AS*, HK3CZ*, HK3TZ*, VR3A*, VR3P*, VR3R*, XE1SN*, XE2FC*, HH1HB*, OA4FA*, VPSRS, 4DO: VK9AD*, VK0KT*, LU8DF*, HK7LX, HK4HW, VK0TC, LU2HAE, PY2CK, LU4DMS, 5GM: ZD6DT*, ZET7R*, EA3LO*, KX6CG, plus Europeans. 5WP: VP2KM*, UO5AM*, SV1AE*, DU9AL*, HK7LX*, CT1FY*, EA2DO*, COBLL*, PY1NC*, LU2DMT*, 4X4II*, T12AZ*, HC1ME. Rod de Balfour: the pickings being SV0WQ, 5A6TX, 5A2TZ, CN8S, HZ1KN, ET2US, 4X4DK, 457YL, AP2U, OX3CY, KA9LJ, VR3P, CX9CO, VP2DC, KE2DO, HC1PG, B. Smythe: VR3P, YV5AD, FY2CK, HK4LW, HK7LX, LU7AFX, T12AZ, VR4JB, CE3DY, DL4DU, EA1CD, HC-4IM, WIA-L3040: XE2DO, CX2AX, VR4JE, OA1A, FY1CK, HA2AM, EL1H, FB8BC, and on s.s.b. ILLV, DA4BC, EA2CA, HL8PK (QTH is in Korea, John).

7 Mc. c.w.: 2AMB: VR2DA*, ZS5RM*, ZS-6EU, VS2DF, HB9HY, UB8KAD. 2QL: ZK1BS*.

7 Mc. phone: 5GM: JA1BAX*, JA9ED*, JA-1M*. Rod de Balfour: W, KH6, WIA-L3093: KL7FBA, W, JA, KH6, KR6. SAOM: JA-1BAX*, JAZPY*, JA4DW*.

3.5 Mc.: 2QL: ZK1BS*, ZLIABZ.

QSL NEWS

Some good QSLs have been received as follows: ZACK: VP8EK (S. Georgia), ZC3AC, CR8AC, VQ8AS, VR6TC, JT1AA, HV1CN, ZL-1ABZ, 2AGH: IBLF/T, ZC3AC, FA8IH, VK-9JF, FW8AA, HSIC, VR6TC, 2AMB: CX9CO, 20W: FZ1AH, HSIC, VS4BA, 2QL: SV0WR, VK9JF, ZE1JV (7 Mc.), HSIC, ZS5RF, FB8ZZ, UR8KAE, 8CX: ZLIABZ, VP2LU, VP5BL, SAOM: XE1SH, T12ACH, 3V8BX, FUGAD, FA-8CF, OA4FA, VR3A, VR3C, 5WP: VP2KM, 7LZ: ZC3AC, FP8AP, UR2KAC, UJ8KAA, JT1AA, MP4BCC, VS9AJ, WIA-L5080: VU2CQ, DT2SV, DU8AL, KP6AGN.

Well that about winds it up once more and my thanks this time to ZACK who has the fine score of 264/259; 2AGH whose last four log entries were new countries; 2AMB finds his shift work good and bad from DX angle; 3ZJ hoping to get amongst the good ones; 2ZE who certainly can get amongst it; 8CX happy with his Kermadec QSL; SAOM of whom I have very little info; 3XB who returns to the page, keep it up Ivor; 4DO who had no comment; 4HD and 4XJ who we offer congratulations on their 50 Mc. work and wish them all the chance of a 50 Mc. W.A.C. 5RK for his QSP of 6GM and 5WP; Rod de Balfour is very happy with his quad. antenna; WIA-L5089 who has hopes and ideas for a new receiver; B Smythe who hopes to improve his reception with a higher antenna; Don Grantley also looking for better things from a new receiver; WIA-L5040, who hopes to be able to do more frequent listening. Finally I must not forget my overseas contributors in W4KVX and W6YY, ZS and good hunting.

QTH OF INTEREST

VQ3CF—Box 144, Mwanza (2AGH).
V55JL—C/o. B.S.P. Co. Ltd., Seria, Brunel (2ZJ).
FQ8AJ—Box 80, Bangui.
CT2AI—Box 28, Ponta Delgada, Azores.
FB8YV—Adelle Land base station, Antarctica (4DO).
FQ8HG—Box 891, Brazzaville (W4KVX).
F.E.A.R.L.—Box 111, A.P.O. 994, S. Frisco.
OY1ML—Box 184, Thorshavn (W4KVX).
FY7YH—Box 286, Cayenne (W4KVX).
4X4WF—Box 20, Tiberias (Don Grantley).

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."

VHF

Frank P. O'Dwyer, VK3OF
190 Thomas Street,
Hampton, Vic.

The honours this month go to VK5 for the way they took advantage of the opening to KH8 on April 1. VKs 5GB, 5MK, 5MT, and 5ZAQ were the wide-awake boys who were rewarded for tuning outside the first couple of Kc. of the band. Ron 5MK heard a weak signal on 50.5 around 2030 E.A.S.T. At the time the VK4/5 path was wide open with S9 signals mutilated by bad QSB. 5GB made the first contact with KH6FP who was now S9, then the others followed suit. It is not known whether the band closed down then or whether there were no other VKs on the job. Later the same night 5KC copied a weak c.w. signal which signed VS6WH. Several weak JA signals were heard. Fifty a good opening was not on to the north as well, that VS8 would have had a lot of fun with the gang. The same evening produced a good opening between VK3 and JA, signals peaking S9 each way.

The JA story hardly needs writing about for those north of the Murray River, and except for VK7 an opening to there is no longer a novelty. Virtually daily into VK4, sometimes commencing early in the morning and going until late at night. Signals often like locals. Adelaide had a run of 14 days with signals nearly every day, one opening commenced at 0830 and lasted nearly all day. Hughie 5BC, Renmark, a bit to the east, chatted to our northern off-siders on 23 consecutive days. VK3 had quite a few openings during this period and had good entertainment, but at times had to fight for contacts in competition with the other Divisions. VK8 were not out in the cold, Rolo 5BO has now contacted all JA districts. One break-through lasted practically all day.

Pacific.—VK4 found that monitoring the Pacific area paid dividends, contacts being made with KK8, KH8 and W land. If you want to work a W, ask 4HD how to do it. 60 miles north of Brisbane, he has contacted W on four separate occasions to March 24. 0800-0930 E.A.S.T. he found to be the best period. During the session on March 18 he contacted seven W8s on both phone and c.w. Noel 4BT heard W8BAZ as late as 1500 one day. Vern 4LK is a sad man. Making a shift of QTH the KH8s came in the day he stripped his gear down. Hearing of the opening he rushed his beam up again and put the tx/rx back on the job, but by then the opening was gone. The following week-end he returned to his old QTH for the rest of his gear and on his return found out that W and KH8 had been worked by the gang in his absence. Since then he has caught up to KH8NS but has not heard any sign of a W so far. KK8AF provided a new country and further thrills for the VK4 gang by putting in a good signal several times, Bob 4NG possibly making the first contact at 1130 E.A.S.T., March 20. Not to be outdone, the Brisbane gang followed suit. KK8AF also contacted ZL1 and 2 during the same period. Still no sign of KR8 or DU, VE2 or ZK1. VS2DQ has been worked by VK9XK and either heard or worked by VK8. Ron 5MK believes that he heard a weak VS2 signal but is not certain of it.

Russ VK9XK, Port Moresby, 50.01 Mc. felt the urge to try 50 Mc. again on March 27 at 2130, so switched on the receiver but found it dead. 30 minutes work on it and it came to life, the first signal he heard on it was JA6FR on c.w. The panic started to switch on the tx. Fortunately it worked, so Russ frantically called CQ even though the beam was fixed down to the north east. As Russ puts it, "on changing over was amazed to hear a lovely m.c.w. sig calling me and signing KH6FP. An excellent contact resulted with 579 each way, no QSB. KH6FP using 100w. to a 6 el. beam. When he went over to phone he remained S7, R5." Russ then untied his beam and swung it north to round off the night with half a dozen contacts with JA2, 3, 6. Through the JA QRM Russ could hear Aussie voices, but the only one he thought he identified was VK8BE calling a JA. 6XK is looking for contacts to the south each evening at 1830, immediately after the A.B.C. news session. Bill 6BW, Rabaul, 50.24 Mc. is now active with 25 watts to a cubical quad and "full of hope." He should have been well into the DX by now, and is also looking for VK contacts.

Clarification of the par. last month that VK0KT had heard a W8 arrived. On March 9 at 1140 E.A.S.T. a W8 three-letter call was heard but owing to bad QSB the last letter was missed. The call was identified as W8UQ7, San Fernando Valley, Cal., the station op. giving his locality during the CQ. 0KT on either other weak carriers but has not been able to identify any of them. Two beams are used there on Macquarie Island, one fixed over the Pacific towards W, the other a rotary, normally pointed at VK. The weekly skeds as previously listed in "A.R." are still kept on 50.19 Mc. Further to the east, over in ZL and during the week ending April 12, one of the I.G.Y. stations located in South America was heard so the boys over there are busy lining up skeds with South American stations. Ws have been worked consistently, to March 22 ZL2DS had contacted 40 in the W4, 5, 6, 7 call areas.

DX to look for.—ZK1BS is now active and runs skeds with W8PUZ at 1930 G.M.T., at other times he has his beam elsewhere. VS8CJ running 25w., c.w. on 50.55 Mc. at 1230-1400 G.M.T. each Sunday, Monday, Wednesday, Friday and Saturday. George is looking for contacts with VK and ZL and is quite willing to run a sked if anyone wishes to be the VK end. Around his frequency we have VS2DQ 50.6, VS9CJ 50.55 and KH6FP 50.5. Incidentally, VS2DQ looks for VKs daily at 1200 E.A.S.T.

Rumours.—Unconfirmed reports have been received that a VK8 was heard at good strength in South Africa, that ZL stations have worked into XE, and that a VR2 is now active on 50 Mc.

Predictions.—45 Mc. for May indicates that the path VK8/South Africa should be open 0800-0930 G.M.T. with a possible opening VK8/Far East 0100-0400 G.M.T. For June that VK8/Far East could possibly be open 0000-0100 G.M.T. With an ounce of luck and a lot of monitoring it is highly possible that the VK8/ZS contact could take place. All the VK gang hope that it does.

Woe.—The VK3 Melbourne gang were caught asleep on Sunday, April 13 in the a.m. 3ALZ came on about 0830 to work VKs 9BW and 9XK with signals S9 plus each way, to contact 5BC on back scatter, and to hear the JAs fading out Sid 3CI, Nagambie, was in the fun. By the time the next VK3 came up at 0920 the band was flat. Moral: When you can monitor the bands early over the week-end, do so! No use moaning that you can't listen during the week, that you have to go to work early.

As a parting thought, Vern 4LK reports that some of the JA stations are listed in a copy of a Japanese "CQ" as having worked 27 countries.

V.H.F. CORRESPONDENTS PLEASE NOTE

In future correspondents to this page are requested to forward their v.h.f. notes direct to Frank O'Dwyer, VK3OF, 190 Thomas Street, Hampton, Vic., to reach him by the first day of each month preceding publication. This will allow him time to compile the notes for "A.R."—Editor.

VICTORIA

V.h.f. Group Meeting.—At the meeting of the Group held in March, office-bearers were elected for the ensuing year. Herb 3JO and brother Bob 3OJ were re-elected as President and Secretary respectively. Bob 3ZAN was elected as programme manager and John 3ZAI as scribe. As no lecture had been arranged for this meeting the rest of the time was taken up with informal discussion.

Field Day.—Five portable stations were active on 2nd March. 3BI on 6, 2 and 1 mx, 3ZCG, 3ANL, 3ZBP all on 2 mx, 3ZAI on 6, 2 and 1 mx. Unfortunately George 3ZCG had trouble with his motor generator, set and did not commence operation until late in the afternoon. The results were: 1st, 3ZAI, 85 points. As no other logs were received the other places were unfiled.

50 Mc.—New stations on the band include Bert 3KU, Sam 3KC (where have you been Sam?), and Tim 3AYZ. 3ATN Birchip, 3ZCW Owen and 3NY at Yanac are also active and have been working into JA. Lindsay 3ZEW, who was operating fixed portable in Melb. for a time, is now back in Hopetoun and is running 18w. to a 2E28 feeding into a 3 el. beam. He operates on either of 50.04 or 50.23 Mc.

Openings to JA during March were the best since the opening of the band and many VK3 stations have worked through to them. Sporadic E contacts for the month were few, the band being open only to VK4.

144 Mc.—George 3ZEA at Rainbow is running 10w. to a 522 and using a 5 over 5 beam. He is also building a 6 mx gear. 3ACE at Hopetoun has similar equipment on 144.25. Both stations are looking for Melbourne contacts.

208 Mc.—Activity on this band has increased considerably of late. New stations active include 3OT Brighton, 3ZDZ Oakleigh, 3AHD Albert Park, 3ZDO Toorak, 3ZFY Bayswater, who uses p.p. 7193s and a 5 el. yagi, and 3ZFX also of Bayswater, who uses p.p. 7193s into a 16 el. beam.

T.V.—3AUX and 3AAK have exchanged tv. test patterns and sound between Sandringham and Elwood on 288 Mc. Both stations were using high gain beams and home-built rx's using a 625 line system. 3AUX uses a 5527 iconoscope camera tube and the final stage of his tx consists of two WE316As modulated by three 807s in parallel. 3AAK is using a flying spot scanner.

Settings.—Don Knox (6ZAK) and Len Tate (6ZAT) are more than busy these days at the Melbourne University. Their gear is in transit from VK8 and the boys are searching for digs which will permit their further participation in the art. Welcome to VK3 Don and Len.

Fox Hunt.—This was held on Wednesday evening, 9th April, and Roy 3ARY was the fox. There were five hound cars, which was the best attendance for some time. Among these was Bert Stebbings who was out for the first time. Bert had trouble with his converter but this has made him keener to compete next time. The route traversed was Studley Park, Hawthorn, Toorak and Camberwell. At one time the fox, with Tom 3AOG and Norm 3ZBU who were all parked in an elevated position, had the pleasure of watching Ray Price travelling over the same track about four times. He could not find the entrance to the car park. However, he soon caught up with the fox after the latter had tried to sneak away. The fox also had the pleasure of seeing Maurie 3MS turning out of an intersection just as he was entering. The final location was at the home of George 3WJ and his XYL Joan. Joan went to a lot of trouble with coffee and sandwiches which were enjoyed by all present. Many thanks Joan and George. Tom 3AOG was winner for the evening with Ray Price runner-up. The next Fox Hunt will be held on 14th May, and Norm 3ZBU will be the fox on that occasion.—3ZAI.

SOUTH AUSTRALIA

Events this month have been rather smarter than usual, with break-throughs happening in various directions and culminating on 1st April with the KH6FP contacts. Of course, our VK4 friends have done better than we, but in making it to W land fairly freely, but in the "harder-to-get" DX part of the globe, or is it "remote", we are happy to hear them and then work a modest few.

It is rather difficult to set out events in true chronological order, but as near as possible as reported by Ron 5MK, it appears that at about 2,000 C.S.T. on the 1st, a fluttery carrier was heard on 50.5 Mc. whilst at the same time the band was open to VK4. An American accent voice was heard on 50.5 but no call sign, so Ron linked up with 4BT at 2010 and whilst in QSO with Noel, heard George 5GB make the contact with KH6FP. As George finished the KH was then linked with Ron 5MK, Eric 5AZQ, and Keith 5MT with reports 5 and 9 to 20 over, a really smart piece of work and an incentive to keep listening. News of this got about smartly and some of the boys waited up late just in case the m.u.f. should rise for the extra 2,000 miles to the West Coast of the States, but nothing was heard.

Reg 5QR was sitting on the fence waiting for Keith 5MT to finish so he could make it, but the band folded up so he missed out. Col 5RO was out for the evening, and yours truly was at the Divisional Council meeting, so we are both really moaning; of course it may happen again—we hope.

Then in a slightly different direction as reported by Ken 5KC, and again on 1st April, he was copying VS6WH on 50 Mc. c.w., certainly weak and a bit too "in-and-out" to make a contact of it.

Of course all of this does not put the JA position right out of court, because the band in that direction has been opening regularly and reported by Hughie 5BC as being useable for 23 consecutive days in March. Keith 5MT worked a JA every three minutes after 2100 hours on the 21st and according to latest information Col 5RO has scored 53 JA contacts (from 48 different call signs), with Keith 5MT having 51 contacts (41 different stations). Very

good going fellows and congrats from us also-rans.

By the way, did you hear how Col 5RO sometimes makes the grade? He has his Junior op. monitor the band and when he can hear 'em, calls pop to come in and work 'em. Not bad and from all accounts it is successful too, because he has worked all JA districts on 8 mx.

During the month Bill 5ZAX and George 5GB went over to the Peninsula to Bill's country seat and set about starting up the necessary for v.h.f. working from that location. The 240v. was installed and some test transmissions done on both 2 and 8, the signal being copied on the mainland quite well and as far afield as Hughie 5BC, and on one occasion they contacted 7ZAI, so we are hoping to hear a lot from that "ideal" and noise free location as he gets things all ship-shape. From all reports, it will be a Ham's dream show.

Keith 5MT has done some audio modifications on his rig and comes up with a very strong signal now as a result of such changes. It sounds really good, too, the restriction having been carried out without much change to the usual audio we hear from him. George 5GB in his "inimitable" way was heard to report that "in spite of phenomenally bad power leaks and inexplicable technical difficulties," he considered the new audio to be as good as he had heard, so there you are Keith, it must be good.

A new contact for this QTH recently was Graham 5ZAP, who on 8 mx was putting in quite a signal 5 x 9 plus. He is using a 6V6 triode to a 6V6 doubler to an 807 final (18 watts) into a 4 el. beam 45 ft. high. His rx being a crystal front end 6AC7, 6AC7, 6J6 osc., 6AC7 i.f. to an AR5, with the same sort of set-up to receive 2 but no tx as yet. Mod. osc. on 1 completes the picture there. Graham has had a taste of JA, so all is well there.

South East boys report that some 2 mx activity has been experienced there. Col. 5CJ, apart from working quite a number of regular VK3s added several new QSL cards to his collection, as also did Leo 5ZAG, one being a contact with 7LZ.

Claude 5CH is at present completing the construction of a 2 mx final using an 829B. Expects to run an input of 30w. which should give him a mighty signal, and make his presence heard on the band when conditions are OK for DX.

Associate member, Don Pitt, has recently filled in the necessary forms to obtain his L.A.O.C.P. and he expects it any day now. Congrats, Don, we look forward to hearing you on the band.

Dave 5AW has been busy constructing and matching up a new long yagi for 2 mx. Made himself a s.w.r. bridge and is getting things just right. Dave is also active on 6 and has made some nice contacts on that band. Advice received that ZENKE is beaming to VK3 Saturday, 1430 Adelaide time, and looking for contacts. Who will make it first?—SEF.

WESTERN AUSTRALIA

30 Mc.—JAs hit the West with good sign early in March and have been in and out ever since. The opening occurred during a very hot spell with the temperature around the 100 mark. Bob 6BE, on long service leave, has worked JAs fairly consistently contacts number around the 80 mark. All the active VK6s have worked the DX. These are 6BO, 6KB, 6ZBU, 6ZBG and 6ZAV, also Wally 6WG who we heard being called by the Japs. We are hoping for contacts to eventuate from VS and ZS. Who knows?

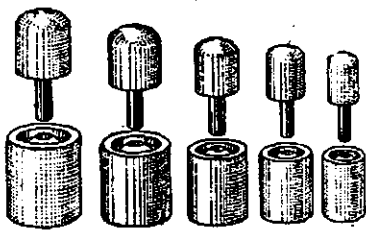
144 Mc.—Ian 6CL has got going on 2 and was heard in Perth by 6BO and 6ZAV on his tripler, running about 4w into a long yagi—a distance of approx. 140 miles. 6ZAV has had good contacts cross-band with Ian, 144-3.5 Mc. The first asked with 8CL using his 829B was not so hot, conditions were not good, sigs. were only 4/4, but the next night Ian worked 6BO and 6ZAV with 5/9 sigs, which had to be heard to be believed.

The last Fox Hunt on 144 Mc. on March 15 turned out to be a mobile one. Frank 6CC was the fox and he led the boys the bit of a dance. Don 6HK was first in, followed by Rolo 6BO. Supper at Frank's QTH followed, winding up another enjoyable evening.

The March V.h.f. Group meeting was held on Monday night the 24th with quite a good attendance. Jack 6ZBU was in the chair. Many ideas were brought up and discussed to improve the membership and general interest in the Group's activities. The talk for the evening was given by Bob 6BE on his impressions of 80 Mc. operation and conditions, and conclusions drawn by him since he became interested in the band. This was followed by tape recordings of signals heard on the band, including JAs, etc. Many thanks Bob, it was very interesting.—6ZAV.

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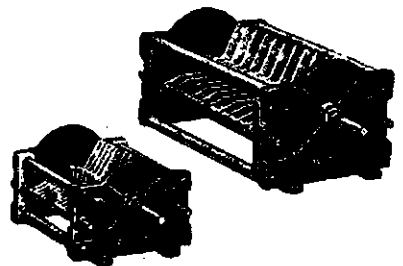
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XYL'S AND HARMONICS

Amateur Radio enthusiasts come in for little publicity or general comment, except of course when disaster strikes and their voluntary manning of emergency communications services is widely and deservedly commended. But if the self-styled Hams are little enough known, the YLs and Harmonics are, I claim, downright neglected!

Who are these strange creatures of such exotic title? XYLs are the long-suffering wives of Hams, their name being derived by rather cruel if ingenious reasoning from the abbreviation YL, used for "young lady" in Morse Code transmissions. A Ham's wife is therefore his ex-young lady: YL!

Harmonics, then, you will rightly deduce, are a Ham's children; home come they by their name? Technically, a harmonic is a subsidiary signal during transmission of radio waves; an offshoot of the main frequency. What more logical then than to call the children, the "offshoots" of the Ham himself, Harmonics?

If this seems complex, you may thank your lucky stars if you're not an YL, for it is nothing compared with the other strange goings-on of a Ham household. A part of the house, varying in size with the particular Ham's degree of enthusiasm and of tidiness (and the latter seems strangely underdeveloped, even in otherwise tidy men), is given over to a miscellany of radio gear: trailing wires, coils, switches, valves, resistors, condensers, to say nothing of at least one transmitter and short wave receiver. The last may be a commercial set, or one lovingly built by the Ham himself—in other words, a "home-brew."

This sacred area, be it a corner of the verandah, an old shed in the backyard, or (in the case of unusually patient XYLs) portion of the tastefully-furnished lounge, is invariably called the "shack." (Even our two-year-old has learnt to announce his father's disappearance into the whole room here given over to the hobby with "Daddy's in 'e shack.") Once the door has shut, it is of little use going in, though the domestic heavens may fall. One's greeting will be either the vague grunt of one fully occupied with the delight of constructing some new electronic horror; or the rapt unseeing look of one deep in calculation of the inductance of the latest coil,

taking into account the number of turns of wire, distance between the turns, etc., and involving frequent reference to logarithm tables of forbidding aspect; or alternatively, imperious gesturings for silence, while out of the receiver or into the microphone pours some such jargon as "Your report is 5 and 9. Received your handle OK; the handle here is John—Jig, Oboe, How, Nan. I will be pleased to QSL you and look forward to another pleasant QSO. 73, Old Man! VK2XYZ to transmit. VK5ZYX is over and clear." And they will remain happily in the shack listening to this kind of thing for hours! When the DX—overseas—stations are coming through loud and clear the XYL gives up all hope of father's appearance at the meal-table and resignedly carries his serving into the shack. At any time she may be forbidden to continue with much-needed family sewing if it so happens that her machine produces the slightest amount of electrical noise!

So much for the debit side—for it must be admitted in all fairness that even for the XYLs Ham Radio has a lot to show on the credit side of the ledger. We have recently moved Interstate, and have had a lot of pleasure keeping in touch with Ham friends in our former home town and hearing the local news as soon as the residents do. Many are the friendships made, in Australia and overseas, with Hams and XYLs one has never seen. Yes, XYLs are sometimes permitted to speak, though it is to be noted that a Ham who has no difficulty in maintaining a QSO—a radio conversation, that is—for one hour or even more, will trot out the threadbare fairy tale about how much women can talk even after only a few widely sentences! Harmonics, too, if well-behaved, are permitted to greet those of distant Hams.

The hobby is a complete relaxation for men who, like my husband, lead a busy and exacting professional life—and, as many an XYL has been heard to say, it's a hobby that keeps them at home under the wifely eye! There is a happy spirit of freemasonry among the Hams; Christian names only are used, termed "handles" and the Australian radio mechanic, say, with his home transmitter, chats happily on an equal footing with the high-ranking diplomat at the American Embassy in Ecuador.

No matter when or in what circumstances a Ham visits another—on a holiday trip, maybe—he and his family are assured of a real welcome, wholehearted hospitality, and any assistance that may perhaps be needed. To many, for instance the Americans and their wives stationed on tiny Pacific Islands, Ham Radio is an absorbing interest and a means of abolishing monotony.

And, finally, it is the most vivid, most personal, most satisfying way, short of travel itself, which is not possible for all of us, of obtaining a living glimpse into the life of those in other lands.

(The foregoing was supplied by Mrs. Lesley Fullagar, XYL of VK2AJY, and comprised the basis of a broadcast over the A.B.C. Women's Session some time ago.)

PREDICTION CHART, MAY '58

Mo.	E. AUSTRALIA	W. EUROPE	S.E.	Mo.	
0	2	4	6 8 10 12 14 16 18 20 22 24	45	
45	GMT				45
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E. AUSTRALIA — W. EUROPE L.E.					
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E. AUSTRALIA — MEDITERRANEAN					
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E. AUSTRALIA — N.W. U.S.A.					
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E. AUSTRALIA — N.E. U.S.A. S.E.					
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E. AUSTRALIA — CENTRAL AMERICA					
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E. AUSTRALIA — S. AFRICA					
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E. AUSTRALIA — FAR EAST					
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W. AUSTRALIA — W. EUROPE					
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W. AUSTRALIA — N.W. U.S.A.					
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W. AUSTRALIA — S. AFRICA					
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W. AUSTRALIA — FAR EAST					
0	2	4	6 8 10 12 14 16 18 20 22 24	45	
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28					28
21					21
14					14
7					7



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NOTES

FEDERAL QSL BUREAU

Between May 16 and 30, 1958, GSAAE, GSBQR, G3BZG, and G3JUL will be making a DX-pedition to Alderney in the Channel Islands, using the call sign GC3AAE. They will operate on 3.5, 7, 14, 21 and 28 Mc. c.w., working shifts so that the station will be on the air continuously 24 hours per day throughout the full period of the expedition. QSL cards should be sent via the R.S.G.B.

Martin OYTML is anxious to contact VK on 3.5 Mc. Anyone interested should make a sked six weeks in advance by airmail to GGYQ who will then advise OYTML. Martin uses 3505 Kc. Anyone awaiting a QSL is advised that he has run out of cards but a further supply is due to arrive any time.

Felix FK3AC advises that FKOAD, operating on the Chesterfield Islands, is not licensed and QSLs (if any) will not be recognised.

In an interesting letter to the Federal QSL Manager, Doug Twigg, VK0L7, describes the trip down to Mawson and the erection of the weather station at Lewis Islet. Dated Mawson, 26/2/58, Doug writes:—

"We went straight to Davis Bay, approximately the same longitude as Adelaide, to install the Automatic Weather Station on Lewis Islet. The operation went without a hitch and the station is now operating OK. Davis and Macquarie Island have the job of intercepting the broadcasts, and I believe they get two or three broadcasts out of four per day, which is not bad for a couple of 40-watt transmitters and dipoles. Transmission times are at 0605z, 1125z, 1815z and 2355z daily, transmissions lasting about two minutes. If you desire to intercept, start looking for it about five minutes early as I think the master clock is gaining about four seconds per day. The frequencies are 7315 Kc. and 15845 Kc., being radiated simultaneously. Call sign VNX is transmitted about 14 times at the start then the met data consisting of letters is transmitted. The station was officially in operation on 23rd January and so far is still going.

"While we (three of us) were on Lewis Islet installing the weather station, the ship sailed east to explore the coast of Australian Territory Eastern Sector. They were not very successful due to heavy pack ice. They called in at the French base at Adelle Land and had a riotous time with the French.

"When we left Lewis Islet we sailed west, attempted a visit to the Yanks at Wilkes Base, but unfortunately pack ice beat us again. We flew the Beaver aircraft in and picked up the Australian Observer there to continue the journey with us. Next we succeeded in getting into Mirny, the Russian base, where a good time was had by all. There is a definite technique in drinking vodka and staying sober. Must tell you about it some time. I saw the UATKAE, set-up, actually it is an amenities facility, similar to the KCs. They use one of the station lkw. tx and sit down at a vacant operating position in the radio shack. Vladimir, the op., was doing pretty good at DX that day I saw him, worked 20 odd countries in an afternoon!! Mirny is a large station with about 120 men wintering there. They showed us all they had, no secrets at Mirny.

"We next arrived at Davis to relieve the four men there. Chas. VKOAB was sure glad to see us. He has worked his DXCC, WAS, etc., only wants confirmations to clinch the deal. Davis is a very nice station, neat, compact and

tidy. We did the change-over there in three days.

"We next arrived at Mawson on 10th Feb., since then we have been very busy unloading stores, building three more huts, extending the hangar and erecting a 104 ft. vertical radiator for the radio beacon on 410 Kc. I have a lkw. transmitter to install in the radio shack. It covers 2-20 Mc. on c.w. and r.f. I have also to erect a new aerial system, putting up horizontal vees on Perth and McMurdo Sound, also a number of wide-band dipoles for the receivers. So there is lots for me to do.

"The radio sked commitments are heavy at Mawson and it will be difficult to do any Hamming here. Best time available during the day is 0930z to 1030z and then after 1630z at nights. There are seven Hams here, so it will be very difficult to all fit in operating times. It is very difficult to receive when the main transmitters are running, due to large r.f. signals QRM. So that is why Mawson Hams don't get very active here. Davis is the best station for Hams due to the little official radio work.

"The weather is getting colder now, it won't be long when outside work will be difficult. Average daily temps. being around 20-25 degrees F. and minimum night temps. dropping to about 10 degrees F. The water around the shore of the harbour is already starting to freeze. The old hands tell us winter appears to be coming in early this year.

"We have a weekly sked with VK2EG at 0930z on Sundays. Also have a weekly sked at 0830z on Saturdays with Fred VK3YS."

Ray Jones, VK3RJ, Manager.

NEW SOUTH WALES

The Annual General Meeting of the New South Wales Division was held on Friday, 28th March, at Science House, Gloucester St., Sydney, when 75 members attended including a number of country members.

The first item on the agenda was the election of Council for the forthcoming year. Only seven nominations were received and as there were only seven positions to be filled, no ballot was required. Those elected were P. Healey, 2APQ; N. Beard, 2ALW; R. Godsall, 2ARG; D. Duff, 2EO; C. Smith, 2CD; M. Sobels, 2OT; M. Marsden, 2VV. The only change is the election of 2VV.

The annual report was accepted on the motion of G. Hall, 2AGH and A. Mead, 2AJA. In moving the motion, 2AGH congratulated the President in the manner in which the report was prepared and Council on their efforts during their term of office and commented on sections of the report dealing with the Divisional Library and the Advisory Committee. In supporting the motion, 2AJA said he fully agreed with the views of 2AGH.

The Auditors report was presented by the Divisional Treasurer, C. Smith, 2CD, who praised the work done by the Auditor, W. Yates, 2AWY, which was a model of accountancy practice and a beautifully clear presentation of the accounts.

On his report the Treasurer reported that the Division was in a strong financial position and that during the year the assets of the Division were increased by £1,600, thereby making the Institute more valuable and attractive to members and potential members which was borne out by the high percentage increase in members. He also formally moved, that the offer of 2AWY to accept the duties of Auditor for the next year be accepted with the sincere thanks of Council and members.

The President then spoke on the notice of motion that Messrs. J. Moyle, 2JU, D. Duff, 2EO, and W. Lewis, 2YB, be elected Honorary Life Members and in formally moving the motion praised the work done by these members for the Institute and Amateur Radio generally. The motion was seconded by Max Sobels, 2OT, who supported the President's remarks by giving further praise for the efforts of those members. V. Fitton, 2SF, spoke on behalf of members of the Hunter Branch in supporting the motion; sixteen proxy votes, all in the affirmative, were received from Hunter Branch members. D. Evans, 2AYE, expressed the view that the move was long overdue. The motion was carried with only one member present dissenting.

The President then presented each of the three with a Membership Certificate endorsed Life Membership and congratulated them individually on their elevation and thanked them for their efforts in Divisional activities and Amateur Radio, which was followed by hearty applause by members present.

The final item on the agenda was the presentation of the Adam's Trophy for the article published in "Amateur Radio" which was considered by Council to be the best from a VK2 member. The recipient this year was Hans Ruckett, 2AOU, who was congratulated by Council and members for his efforts.

The President then thanked members of Council for the work they had done during the year and members generally for their co-operation in the various aspects of Divisional activities and for the assistance received which enabled him to carry out his duties as President.

The annual meeting was then closed and the normal monthly meeting opened. The lecture for the evening was given by Mr. Stan Graves, of the School of Electronics and Communication. The subject, "Class C Amplifiers." Mr. Graves covered the subject very fully by illustrating various aspects and explanations of the various formulae used to determine the best operating conditions and finally giving an example of the application of the formula to a particular tube. The vote of thanks was ably moved by 2SF for a very excellent lecture.

Fourteen new members were elected to the Institute—a good start for the New Year.

The formation of the Short Wave Listeners' Section of the Division was announced; the inaugural meeting to be held on 14th April at the Gore Hill Technical College. Any interested parties are invited to contact the Secretary, Box 1134, G.P.O., Sydney, for particulars. Country members are specially invited to send in suggestions from their point of view.

Subscriptions for the year 1958-59 are coming in steadily. Members who have not already done so, are urged to finalise the remittance as soon as possible.

Good progress is being made in amount donated to the I.T.U. Fund, which Council think is the most pressing matter for 1958 and members are urged to give their support and invite non-members to join in providing for a fund to enable a representative to be sent to Geneva to represent the Australian Amateur.

HUNTER BRANCH

Howdy folks; a new correspondent has been forced upon you, but if he does as good a job as predecessor Les 2AOR, then you should be satisfied.

The Annual Meeting of the Hunter Branch was held at the University of Technology, Tighes Hill, and an excellent attendance was recorded. After President Lionel welcomed our Divisional President Pierce, the election of officers resulted in the re-election of all bar one. Though Lionel tried to step down, the couple nominated declined.

Election of officers—President, Lionel 2CS; Vice-President, Stuart 2ZTF; Secretary, Charlie 2ARV; Treasurer, Bill 2DD; Social Secretary Gordon Sutherland; Social Treasurer, Bob Bailey; Zone Correspondent, Bob 2AQR.

Pierce spoke at length and gave an excellent resume of the year's Divisional activities and answered several leading questions.

Quite a discussion centered around a certain 6d. lucky dip and I was requested to try and silence certain statements that the Branch received 67 pieces to be divided amongst 41 persons.

All were sorry to hear that Ron 2ASJ was back in hospital—speedy recovery fellow. Muriel 2AIA was tickled pink to receive her prize for winner of the Blackalls Scramble; maybe she will be able to read where her lost 4 wats have gone. The boys on the Monday 2AWX hook-up were given a shock when Jim 2AHT called in. Camel Bill 2ZS visited 2ZL and 2AQR whilst on his annual; was disappointed that Bill's puff-puff didn't puff. Shades of Methuzelah, heard 2CS and Charlie 2AZK recounting old school times together. 2AAA with less than 1 watt on Mr. Royal received and brought back to mind old QRP days.

Our social gathering, held at Bill's 2XT residence each fourth Wednesday of the month, was well attended with the Phenoi Bay tribe predominating. All were pleased to see Rod 2ACU who called in on his way to the capital. How he got back to Urunga without being way-laid beats me.

Don't forget the next Branch meeting at the University of Technology, 8 p.m. on May 8, and the social at Bill's on 28th.

VICTORIA

The Annual General Meeting held on 2nd April, '58, was one of the liveliest we have had for some years, even though only 50-odd members attended. There were so many subjects raised and so much heat generated under the collars that in some respects the night could almost be likened to a groggy night. This was a pity in a way because the President and his Council came in for some rather hastily conceived criticism which was entirely unwarranted in the light of achievements and it is felt that this must detract from the well being of the Division in general. No doubt the speakers who raised these points did so in good faith and with the interests of the Institute at heart, but it must have been rather galling to those who have given so lavishly

CONTEST CALENDAR

Compiled by W.I.A. Fed. Contest Com.

★

HELVEZIA 22—

Date: Third week-end May.

R.D. CONTEST—

Dates: Saturday, 16th August, 1800 hrs. E.A.S.T.; Sunday, 17th August, 1759 hrs. E.A.S.T.

VK-ZL DX 1958—

1st and 2nd Week-End October.

of their time to have to listen to a spate of criticism and no encouragement. Friendly argument is the keynote of progress, so those of us who have the "gift of the gab" should see that we use our talents intelligently: to build, not destroy.

Much discussion followed the reading of the President's report and the matter of membership and attendances at meetings was well to the fore. As you will see from the report, membership stands at 711, which is about 43 less than last year. George Robertson (SWJ) is doing all he can by chasing up old members and seeing that each new licensee is issued with details of the W.I.A. and its activities, but this is more than one man can handle effectively, and George would appreciate the assistance of two other members to help in this regard. What about it chaps? The President suggested that we should aim at 100 new members for the coming year so let's all give a hand. With regard to attendances at meetings most organisations are currently suffering from this complaint and there seems to be no reasonable explanation as to why this should be. Our meetings are always full of interest, so, short of shanghaiing members, there seems to be nothing further that can be done to better attendances. Are there any suggestions?

This apparent lack of interest is also evidenced in nominations for Council. It is very seldom that sufficient nominations are received and it is usual for the Secretary to have to chase around likely candidates at the last minute to get the necessary 10 nominations. This year was no exception and we just scraped home with the bare quota. As a result, there was no voting and the following were elected to Council for the ensuing year: Messrs. F. G. Ball (SVS), C. C. Chirnside (MSW), C. S. Donoghue (SDQ), L. S. Dixon (SJE), G. W. Dennis (STF), H. G. Hodges (SHE), J. R. Lancaster (SIL), D. L. Robinson (SALD), L. G. H. T. Robertson (SWJ), D. A. Wardlaw (SADW). Nominations forwarded to Council for President of the Division were Fred SYS and George SWJ, and Fred SYS was subsequently elected. Congratulations and every good wish for a successful year of office.

Bert SHE and Gordon STF are the two Vice-Presidents for the year.

The Treasurer's report was read by the Secretary this year as our Treasurer was unable to attend through ill health. As you know, Jim Marsland (3NY) is our Treasurer and you may recall that Jim was also Editor of the magazine. Jim has been actively associated with the Division in some official capacity for very many years and the Institute owes him a very great debt of gratitude. Unfortunately, Jim has not enjoyed the best of health of late and he has been advised by his medico to relinquish some of his outside activities. Jim hopes to continue as Treasurer but felt that he must resign as Editor if he is to give himself a chance to recover. Hearty good wishes for a speedy recovery Jim.

As a result of Jim's unavoidable absence from the meeting, a number of matters in the financial report were left unanswered and these have been held over until a later meeting.

Arising from the Treasurer's report was the apparent need for more funds to meet our various commitments and the suggestion was made that fees be raised from £23/0 to £24/0. Much argument for and against was heard and the matter has now been referred to Council for consideration and appropriate action. It was decided also to form a building investigation committee to see if further progress can be made in this direction. Disposal activities were aired in great detail and it should now be clear to all how this department functions and what is at present in hand.

Once again reference was made to the need for an I.T.U. representative and the proposals for financing this very important project. The excellent address given by Doug Bowle (SDU) on a recent Sunday morning broadcast gave the position quite clearly and Doug was commended on his very fine effort. It is intended to circularise all licensed Amateurs on this matter in due course and in the meantime Doug will be doing some good spade work overseas during his current visit.

At the general meeting which immediately followed the annual meeting, the following new members were admitted: Associates—D. W. Reid and E. G. Hutchins. Full members—G. W. J. Mackay (SAWP), F. R. Williams (SZDW) and V. E. Madden (SAFQ).

David SADW gave the Federal Council report and pointed out that the next Federal Convention is scheduled for next Easter and will again be held in Melbourne. This meeting has still to be ratified.

Short wave listeners will be interested to hear that a group is to be formed in the VK3 Division. This is very good news.

Lectures: You will be interested to hear that Brother V. R. McKenna, who gave us a recent lecture and a conducted tour of part of the University, has obtained his Science

Degree at the Melbourne University. Heartiest congratulations are extended to him. At the next general meeting to be held on 7th May, there will be a practical demonstration of "T.V. Receiver Alignment" by members of the Royal Melbourne Technical College staff. So roll up and make this a bumper night.

80 METRE TRANSMITTER BUNT

The tx was hidden by Roy 3ARY and Ray 3KD at Dinny's Picnic Ground, Mount Waverley. The tx was buried in the bank of the creek and a circular aerial was strung out around the picnic ground. The first to arrive was Laurie 3ALY, followed later by Tom 3AOG and Bert Stebbings. After approximately 30 minutes Laurie braved the slippery log and crossed the creek and then found the tx, a few minutes afterwards he was closely followed by Ian Simmonds who was with Tom 3IU and then Bert Stebbings.

The official placings were: Laurie 3ALY, 1st; Tom 3IU, 2nd; and Bert Stebbings, 3rd. We were pleased to see several new comers to the hunt, namely 3NI and 3IU. 3NI was heard enquiring about equipment used in tx hunting, and he hopes to be an active participant in the next hunt.

SOUTH WEST ZONE CONVENTION

The Convention held in Warrnambool on 22nd and 23rd March, '58, started off very well on Saturday with Kevin 3AKR being the first to be contacted whilst working mobile on his way to Warrnambool. He was rather bushed on arrival, so Ted 3PS ventured out and guided him in. Shortly after, Gordon 3AGV, from Colac, came up on the band and was directed to the meeting place. Neil 3HG was also working mobile, but was unable to stop whilst going through Warrnambool as he had to meet Jack 3JA at Nullawarre. Bob 3IC arrived as usual on the motor cycle, complete with Type A. We think Bob is to be praised for his loyalty to the zone, as there are a lot who wouldn't travel this way to be present, but I can't recall Bob missing a Convention and that is what we like to see. Chris 3AXU also arrived, but did not work mobile. All Hams were greeted on arrival by Bill Wines' 3YL (Lesley) and Dorothy, the wife of intending member Lindsay Moffatt, also 3KI's daughter Olive, with a cup of tea.

The Dinner took place at a local hotel at 6.30 p.m., and was officially opened by His Worship the Mayor of Warrnambool, Cr. J. A. Welsh. Several 3YLS were present at the Dinner for the first time at a Warrnambool Convention. The Annual Meeting took place Saturday night at 8 p.m. and the new office-bearers for the year 1958-59 were elected. The following intending new members were welcomed: ex-3BO-OH Jack O'Hara, a.w.'s Ron Toward, Lindsay Moffatt and Brian Mansbridge. We wish these chaps a long and happy stay with us. The following office-bearers were elected: President, Chris 3AXU; Vice-President, Gordon 3AGV; Secretary-Treasurer, Gordon 3AGE; Zone Correspondents: Bill 3AWZ and Bill Wines. The following Committee was duly elected: Harry 3XIL, Jack 3JA, Jim 3ABT, Bob 3IC, and Les 3DK.

The meeting came to a close at 2.00 hours after which Ted 3PS showed us some very nice transparencies which he had taken and we thank him very much. Supper was then enjoyed by all.

A highlight of the Convention was the early morning hunt by Bob 3IC and Lindsay Moffatt. No boys, not for a tx this time. Bob was in search of a bed for the remainder of the night. Apparently Bob omitted to ascertain his room number and several rooms and unsuspecting sleepers were inspected in the search. At last Bob tried the visitors' book and discovered his bedroom number only to find his bed occupied by, no not a luscious blonde, but by saws, timber, nails, etc., left behind by workmen at present doing alterations around the place. Never mind Bob, better luck next time.

On Sunday the tx hunt commenced at 10.30 instead of 10 a.m., owing to a little trouble beyond our control, however the hunters were unable to find the tx for a long time as it was situated in a boat on the Hopkins River and operated by Dr. J. K. Gardiner 3NA, and Norm Gee 3EQ. The hunters looked the boat over several times but failed to recognise any of the usual signs as the antenna was enclosed in a fishing rod. After inspecting all posts, trees etc., Dr. gave them a direct clue and shortly after Kevin 3AKR and Bill 3ZFG found same. Chris 3AXU and Lindsay Moffatt operated the 144 Mc. tx with a continuous sound but as there were not sufficient participants this was not located. (The tx was in Chris' car and had never moved far from the meeting place.) Better luck next time boys.

Later Harry 3HF took the chaps on a visit to his shack and also the local broadcasting station. In the afternoon, the Scramble was won by Gordon 3AGV, the prize being a couple

of bottles but not amber type. Second place went to Bill 3XE, more bottles, same variety. The prizes were kindly donated by Wally 3UT, the Mayor of the Cactus Country, and we sincerely thank him for same. Harry 3XI also receives thanks for once again having the programmes printed free of cost.

After returning to Bill Wines' QTH for a cuppa and a rag-chew, all Hams set off for their various homes after an enjoyable weekend. I would like to take this opportunity to thank all local chaps who assisted me in connection with the Convention. Our thanks also to the ladies who did a great job with the afternoon tea.

EASTERN ZONE CONVENTION

Everybody seemed to have had an enjoyable time at our Zone Convention held over weekend, March 15 and 16 at Sale. Thirty-seven sat down for the dinner, the business side of the meeting resulting in George 3ZCG being elected as President; Stan 3ZAB Vice-President, David 3DY still as Secretary and Treasurer. It was decided more activities would be conducted during the next twelve months and fox hunts and variations thereof will be introduced on the last Sunday of each month, irrespective of the fact that no communication has been received from W.I.A. regarding the legality of front-mounted beams.

Sunday morning we looked over the National Regional Station 3GI at Longford and had dinner at Seaspray. In the afternoon we had a mobile tx hunt having three runs. Ian 3AAV was fox as usual, with four hounds; points being based on mileage and time to cut down speeding.

WESTERN ZONE

We welcome back to these parts Chas. 3IB who has recently returned, after 14 months stationed on Davis Island in the Antarctic. While there Chas., under the call of VK0AB, worked well over 100 countries, so he had great success while down there. Expect to be able to get Chas to write of his experiences in this magazine at a later date.

Merv 3AFO has been busy building a 20 mx rotary beam and expects to have it operating soon. Trev 3ATR spends most of his Hamming time on the DX bands, and finds that so long as he can hear stations, has no trouble in working them with the help of his vee beam antenna system. Herb 3NN also works DX as well as being a regular on the zone hook-up.

Allan 3HL recently spent holidays in VK5 and was active with his mobile gear while away. He worked back to this zone on a number of occasions. Gordon 3GW, another regular on the zone hook-up, always seems to have a good solid signal down this way. Roy 3CE has now moved into the township of Berwicklock and is on the air again. The Z call sign boys have also been active. Bruce Small, of Rainbow, and Max White, of Ouyen, work through to VK5 with consistent signals. Reg Dalby of Horsham, is at present working on his antenna system, so hopes to get some good reports in the near future.

We are pleased to know that Byron 3TA has now fully recovered from his nasty accident of some months ago.

QUEENSLAND

The 1958-59 Council will have its first meeting on 11th April when the distribution of the various offices will take place. Unfortunately, there were only two new nominations for positions on Council. Rather than see the Division collapse, even temporarily, the old Council decided to a man to give yet another year of service. The effective strength of the Council is now thirteen and we extend our thanks to Brian 4ZAP and Bruce 4ZBK for showing the way in which the Amateur Spirit can be put to work for the benefit of others. We wish you all the best and hope that you both lead long and distinguished careers as Councilors.

One thing you can always be certain of these days is that you'll never be killed in the rush when the call is made for new Councilors.

At the Annual General Meeting held on Friday evening, March 28, the roll-up was below average, but the boys present showed their appreciation and heartfelt thanks to Miss Clare O'Brien, who for many years has handled the "Outward" QSL Bureau. This job has become too much for one person, as Clare, for some considerable time, was spending upwards of five and six nights a week in sorting cards, etc. However, for a job well done, we say many thanks.

The President at the meeting announced his intention of handing over the reins, but he showed the Amateur Spirit by saying that if he was required for a minor position on Council he would be only too willing to help out. On behalf of the Division, I'm sure that the boys want me to express their gratitude

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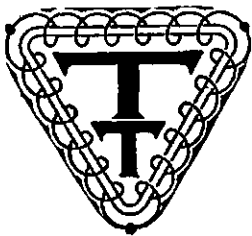
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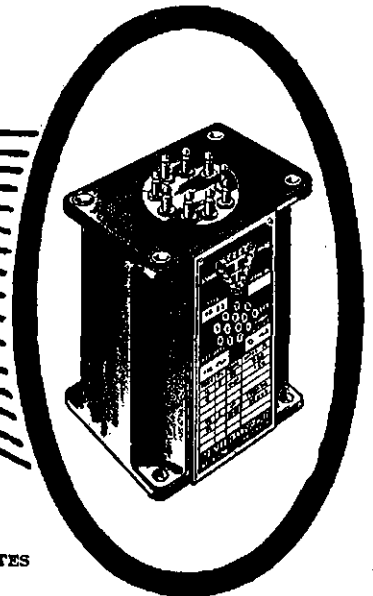
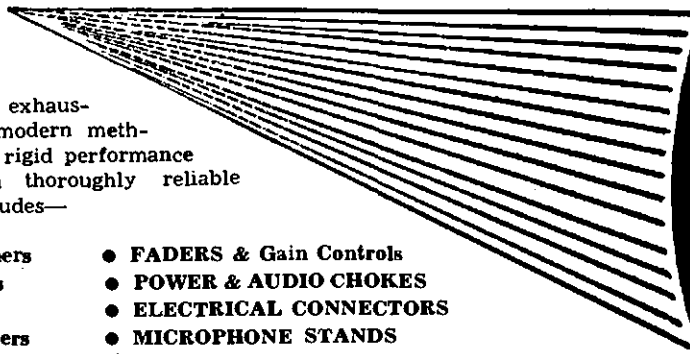
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to Frank who has carried out his duties conscientiously and graciously, always preferring to say the kind phrase, rather than the smart answer. It has been a pleasure to work with you on Council and to watch the Division grow during your term of office as President.

Vince 4VJ brought his tape recorder to the meeting and a recording of the President's address, which was played at the Annual Dinner and over 4W1, was made with suitably spaced bouts of coughing from the audience. Later on, Vince also taped mystery voices for a competition held after the annual dinner. Many thanks, Vince, for providing the equipment and for "officiating" at the dinner.

The annual dinner was held at Anzac House at 6.30 on March 29. Thirty members, guests and friends came along to pay their respects to the large field covered by the Radio fraternity. After the dinner was over, a tape was played from Bill 3UM, the Federal President. Bill presented his last message as Federal President and wished our Division every success.

Then the President proposed a toast to the Queen and this was followed by a toast to the P.M.G. Department, proposed by Vince. Mr. Paul Andrews, Chief Radio Inspector, responded on behalf of the Department, and Clive 4CC who was only too willing, for once, to let Paul do all the talking!

A competition was then held to guess the frequency of a crystal, and those D.C.A. boys really know how to zero beat, for Bert 4AO hit it right on the nose with Jim 4PR just a few Kc. out. Some nice things were said in the toast to the Trade and Mr. Cec. Ryan rose to the occasion and, in reply, said that the Amateur was always favourably considered in a certain radio warehouse.

Jim 4PR was elected to propose the toast to the Institute of Radio Engineers, which he did in his own inimitable style. He even now knows what lemonade tastes like! Herb 4ES and Graham suitably responded. The President gave the toast to our own Institute and to the Country Amateur. Eric 4XR, a visitor from Gympie, said that it was a pity that more country Hams could not attend our functions. He considered that as he was only 100 miles away, he was more fortunate than the greater percentage of the Country Amateurs and it was with pleasure that he responded on their behalf.

The mystery voices competition was won by Alan 4ZAE, who succeeded in listing correctly the ten voices. A very nice prize was awarded. The President said in his report that the Division was now 250 strong and he was indebted to Jim 4OB for the sound financial position of the Division. Unfortunately, he was unable to present a balance sheet as the Auditors had not released the books.

Frank said in his address that he appreciated the co-operation of the Councillors and Committees and all were a source of inspiration. However, he said that he was disappointed at the lack of interest shown in the appointment of a new Council, although the general meetings were reasonably well attended with an average of approximately 40 members.

Frank expressed his appreciation for the work done by 4W1 by our Station Manager, Bert 4AO. The 40 mx tx has been completely re-built and the 20 mx tx is now being overhauled.

For the compilation of news 4JO was commended, while Stan 4SA as Class Manager was to be congratulated for a magnificent effort which, as far as we know, is unique in Australia.

"QTC" has gone out regularly and at times, the President said, that it was difficult to fill the paper with news. To John 4FP for the printing and Mrs. 4JO and Mrs. 4PR for the typing go the thanks of everyone.

Paul 4VS reported that library books were being constantly changed, as many as 60 Hams taking advantage of this amenity at the one time! The President thanked Paul for efficiently carrying out the task of Librarian.

Frank reported a tremendous increase in QSL cards and he thanked Jack 4JF, Inward Bureau, and Miss Clare O'Brien, Outward Bureau, for their co-operation and for their handling of their duties. As Clare was relinquishing her post after a number of years, the President asked the meeting to show its appreciation by acclamation.

The President recounted that a number of W.I.C.E.N. trials had been held and although no cyclones had made themselves felt, the network had shown just how quickly messages could be transmitted from point to point. Frank thanked Vince 4VJ as chairman of the Emergency Committee and John 4FP and Evan 4EF for attending the Civil Defence School at Mt. Macedon.

A considerable increase in activity was reported by the Federal Councillor, Arthur 4AW, and mention was made of the International Conference at Geneva next year. The Presi-

dent called for all Amateurs to be ready to protect their hobby by giving readily to meet the expenses of sending a representative overseas.

A report was made of the successful Convention at Palm Beach last year and Aussie 4TN and his brother-in-law were praised for their excellent organising of the whole show. Frank expressed the wish that an even better Convention be held this year and that Hams everywhere make it an unqualified success by their attendance.

Members at the dinner were reminded of the Institute's display in the City Hall last November and of the considerable interest shown by the public. It is presumed that another display will be held this year.

Financially, we have gained from the sale of disposals gears and it is hoped that considerably more will be available in the forthcoming year. Frank stated that the disposal of gear by ballot was by far the fairest method.

Unfortunately, the President was not able to give a bright picture of VKs participation in the various contests. A very poor number of logs were received and a general lack of interest was exhibited. Steps were being taken in an effort to rejuvenate enthusiasm and make Amateurs generally contest-conscious.

In closing his address, Frank appealed to Hams to be always ready to help the other fellow, always courteous on the air, and to always abide by the Regulations.

Afterwards the boys settled themselves in easy chairs to enjoy the film show provided by Harold 4HR. Perhaps last but not least, our thanks for a pleasant evening, Harold.

TOWNSVILLE

Details of the emergency work carried out by the boys up this way appear elsewhere in this issue.

As the secretary of the local club has been put on night work, he has been slewed just what day it is. Result, went off to the pictures with the XYL and the boys were left twiddling their thumbs. The president, 4RW prevailed upon Joe 4JH to give his lecture and he obliged. The subject was "Cyclotrons," which occupied over the hour. The boys' questions were successfully answered.

Ted 4EJ is now in Sydney for his eye examination and not a very favourable report given. Pat 5LT heard giving invitation to Ted to visit Adelaide for further report. Rex 4LR in great excitement working JA on 50 Mc. Claude 4UX on leave and now trapped in Charters Towns between flood waters. Ed. 4WH promised when he has scrounged sufficient miniature gear that he will make an appearance on the air. Len 4GD and Eric 4EL still maintaining close watch on 10 mx and pouncing upon the first station to appear. Pat 4ZBO also in Sydney for operation; hope all goes well Pat.

Bill O'Donnell has loan of converter and hopes to make the grade on 144 Mc. while building rig for 50 Mc. John 4DD still on leave, while Allan 4BE busy doing chores around the yard; only heard occasionally. Andy 4BW bemoaning the floods as XYL unable to get back from holidays; tin opener is almost worn out. Harry 4ZP giving resume of flood again in the Mackay area. Don 4PW had his first experience of emergency network and now has firm grip of all essentials, including XYL. Mary had her kitchen cluttered up all the time with Ham gear. "Well done Don."

John 4DK as usual to the fore in obtaining reports of flood waters. This cyclone caused rivers to rise and gave Ayr and Home their highest flood readings to date. Thanks John. Vern 4LK trying to out-do Bob 4NG on 50 Mc. Hal 4DO, since retiring to the leisured way of living, knocking over all the choice DX ably followed by 4DL in snatching the DX from 4RW. Give me a break sometime and blow a fuse! Believe Jim 4PR has been to the movies and saw "A Bundle of Joy," while Ray VR3A going to do likewise. A QSP from Mac VF2DC has made out back log of cards from 1956 until present time and sending to various Bureaux so a new country is promised for many who have waited a long time. Bob's (4TK) notes not yet to hand.

SOUTH AUSTRALIA

Al Smythe (5MF) was the guest speaker at our March meeting where he delivered a most interesting and informative talk on the theory and practical application of transistors. It is felt that no one left the meeting without having benefitted from the details and advice provided by Al, because he covered the subject fully with diagram and example. The questions of protective circuits, needed heat dissipation methods, mechanical protection, etc., were all fully covered and finally some actual working examples of equipment using transistors for both r.f. and a.f. were displayed.

Our speaker's method of lecture was appreciated by all, his ready wit and obvious knowledge of what we might query during question time had the boys in good mood and it is felt that most will want to try these things out now. Even as Al said, whether they be yours or the boss'!

Brian 5CA, our new President, chaired his first meeting in that august capacity, we welcome him to a term of office and consider his method of calling a meeting to order satisfactory even if novel. (It's quite apparent he is not a phone man.)

Last month we reported the personnel of the new Council, since then the first meeting of that new body has been held and the various officers were appointed and offices filled. They are as follows: President—Brian Austin, 5CA. Senior Vice-Pres.—Lloyd Brice, 5OK; Junior Vice-Pres.—Comps. Daw, 5EF. Secretary—John Haseldine, 5JC; Treasurer—Jim Vivian, 5FO (Assistant—E. Barber, 5MD). Minute Secretary—Lloyd Brice, 5OK. W.I.C.E.N.—John Bulling, 5KX, Chairman; John Haseldine, 5JC, Co-ordinator; Brian Austin, 5CA; Doc Barber, 5MD; Rex Richards, 5DO. T.V.I. Committee—Bob Roper, 5PU, Chairman. Publicity—Warwick Parsons, 5PS. Div. Sub. Ed.—Comps. Daw, 5EF. Fed. Councillor—Rex Richards, 5DO. Contest Committee—Gordon Bowen, 5XU, Chairman; Reg Harris, 5RR, Secretary; Rex Richards, 5DO, Manager; Reg Galle, 5QR; Les Catford, 5LC. Programmes—Bob Roper, 5PU, Chairman; Lloyd Brice, 5OK; Jack Watts, 5OM; Norm Coltman. Membership—Les Duncan, 5AX. Technical Officer and Instruments—Doc Barber, 5MD. Communications—Joe Kilygariff, 5JT. QSL Officer—Geo. Luxon, 5RX. Disposals Com.—Doc Barber, 5MD; Jim Vivian, 5FO; Brian Austin, 5CA.

So there you have it, fellows, you know who to seek out for the various functions, and who to growl at if that should be necessary.

It is regretted that Jim 5JK had to resign as Chairman of W.I.C.E.N., due to health. Jim has done a mighty job for that and is the one responsible for its establishment in VK. We shall miss you from it my friend, and sincerely trust that your activities will not be interrupted for too long.

A minute of appreciation of Jim's work was recorded at the meeting on the motion of Luke 5LL.

Anyone missed out on their subs.? If you have, a quick smart letter, with the doings, to Secretary John, or Treasurer Jim will restore you to life. Unfinancial members do not get this magazine for a start, and in any case lose all other privileges.

The Secretary's home address, by the way, is: John Haseldine, 1 Ormonde Avenue, Cheltenham. Telephone: M 7851. P.O. Box 1234K, G.P.O.

The 5W1 weekly broadcasts from Gordon 5XU's QTH have been upset lately (not the transmission, but the listening side of) by a very heavy QRM from the power supply lines. He has emphasised this to no extent. Last information is that a transformer blew up on a nearby pole recently and the noise went with it. Let's hope that was the trouble. In any case, a lot of areas are complaining in the same way, so let's hope some rain will either clean off the offending insulators or cause them to crack up (bad luck John, but you know how it is).

John 5KX has returned from his holiday to VK2 and advises good contacts with the 122 whilst at various spots en route and also whilst mobile.

Stewart 5MS has quite an extensive re-building programme in hand with both his receiving and transmitting equipment, aims to be completed and tested before next R.D. Contest. He has passed 236 countries worked, the last being PY0.

Bram 5AB has been busy during the summer months with bush fire radio nets but finds time to work some DX, his latest being HV1CN. Bram is thinking seriously along the lines of re-building using s.s.b. and has made a start along these lines. Jack 5W7/M continues to work that very interesting piece of gear, his transistorised audio portable rig, on a recent contact here from Murray Bridge he came in 5 x 9 plus with 6w. input. His modulator is OCT1, OCT2, 1852.

Ron 5FY from 5WC has just completed his new rig, which this time is plate and screen modulated. Sounds good, too—he had to be told what a mod. trans. was, but he got around to it eventually, now he has to short the thing out to go on c.w. Burnie of 5WC had a hand in this we presume, in any case fellows it sounds OK here and from all accounts must be quite a rig.

David 5AW, from Penola, is a recent addition to these bands, although not unfamiliar on v.h.f., but comes up on Sundays with reports to 5W1. Welcome to the d.c. bands David. Fred 5MA added his little bit to 7 megs. recently, bob up more often Fred, for even if Gordon can't hear you, we can, hi!

Lloyd 5OK, that senorous voiced Minute Secretary and Vice-President type, also decided to stum it on 7, thus forsaking 5A, recently. It is understood his antenna has been raised from the fence post level with plastic pill tube insulators to the astronomical height of about 20 feet with a consequent drop in signal level all round and increase in hash. Bury the thing, Lloyd, and get back to the 60 over 9 class.

After one of the slow morse sessions recently your scribe went back to Doc 5MD on 80 mx phone, just to let him know he was getting out, using about 70w, input and about 1 per cent modulation. Yes, sir, he heard it all right, but what was the comment by 5JO who queried Doc that an unmodulated carrier just left the frequency. Check your demodulator, Joe.

Graham 5XV and Colin 5XY were both heard recently checking modulators, etc. I was stupid enough to join in for a while—you try saying those two calls in full some time and you will see what I mean.

Ken 5KC went mobile recently en route to the Burra. We followed him for a while, but he got mixed up or lost in the mulga somewhere, so we went back to the peaceful pursuit of mowing lawns.

Les 5AX is still in serious trouble with line noises and in order not to miss out on the Sunday scramble, goes mobile in the hills back of Gawler. By doing so he is finding the best listening position, so don't be surprised if you see him some time buying a broad brimmed hat and all that goes with it. He already has one site selected, so the next move must be some sheep or something.

A newcomer to VK3 and on the air now is Tubby 5NO who is at our newest QTH, Elizabeth. Welcome to VK5 and the bands. Son Geoff junior ops, for him, or with him, and can be heard most Sundays, a.m., his list of previous calls were 2ANN, 3MK, 2ALU, 2AER and maybe a few others, so if any of you have previously worked those calls, Tubby is your man.

Tom 5TL, now lives amongst us, temporarily in the city, but soon we believe to go to the bush again, although not so far this time. A 122 keeps him on the bands for the present, that is when the battery permits. F.B. Tom, hope your new QTH will be to your liking.

Bruce 5OR, who is morse instructor for the A.O.C.P. classes and who has always been a c.w. man has at last been talked into going on phone. It took Max 5OS 16 months to get Bruce to do it. You did not do the Ham fraternity any service Max, for it will take at least 18 years to get him off again. Of course you know Bruce bent his arm in an argument between a car and motor bike; this had the effect of causing him to use his left foot on the key so may have influenced the decision to go phone. Crystal control, clamp tube-mod, to 807 with 25w. input comprises his scotch rig with the rx a 3-tube dual wave job. A mighty, mammoth, super de-luxe 23-tube quadruple conversion rx coming up but not quite finished yet.

Do you want to be flash and display the Institute badge on your car? Federal Secretary has a supply at 30/- each—it's good publicity in any case and should create interest and help spread news of us.

Bob 5RI continues to hear all the signals we don't down here. Half your luck on noise level, Bob. Pat 5KM bobs up each Sunday, he has gone all t.v. and has a fine antenna set-up for it—rotating and all. Getting some results, too, and is studying propagation of those frequencies.

Joe 5JO advises a visit to this No. 1 State of Jim 5LM and XYL Elva; they dropped in here for a few minutes on the way through. It was a surprise visit and caused a gathering of the clan at Frank 5MZ's QTH where Carl 5SS, Max 5OS, Joe 5JO with YLs and XYLs saw films, ate supper, talked, laughed, and generally enjoyed themselves. But what is this we hear about Jim distributing 1957 calendars? We may be half hour behind VK3, but not 12 months surely.

Doc 5MD has been on a rampage at VK8 land, and from reports from there it seems he got himself lost trying to make appointments, joined forces with Len 5LG and thus formed a committee of two and decided to entertain VK8 at VK5 expense. Our Treasurer Jim 5FO will not be pleased at the cost of, in spite of the two cases of champagne not used and returned on credit. It is thought that refraining from chartering a plane to bring 6DX down, showed reasonable austerity and is to be commended for future guidance.

Doc and Len have worked out a dollar a pick-a-back QSL stunt to finance future entertainings—details from them direct please.

Yes, it's happened again. Warwick 5FS has been on the air portable at Oskbank and made the annual Easter contact with yours truly. The one and only for the year. (Someone please

offer to pay his light bill, we may bear him more often.—Ed.) He complains that the tree to which the sky wire is attached grows 5 ft. per year and is now 80 ft. high. He claims to have climbed it to 5ftx said wire—nothing but the top for Panste—and as he reduces (height, not girth!) 1 inch per year, it must have been worth watching this climb. Must put it in the diary for a sight-see next year. He has had the hide to claim a W contact from there on 40 mx c.w. Shame on you, he must have used a switch to open the filament circuits to break the carrier into c.w.

WESTERN AUSTRALIA

The Divisional meeting was held on 18th March. Mr. Ray Peterson lectured on "Radio Communication in Country Areas."

The weekly broadcast is being continued on 40 and 5 mx, the latter being relayed by 6BO on 80 mx. Both 80 and 40 mx are required at present to give reasonable coverage for country members.

The 50 Mc. band has been giving interesting results, 6BE having worked 17 JAs during mid March. 6BO also worked JA2, 3 and 4, and 6ZBG and 6ZBU also took advantage of the favourable conditions. Good work chaps!

Tom 6TH was heard on 15th to say he was about to be married. Congrats and best of luck Tom. 6MA and 6GW are active on the I.I. bands from Merredin and Albany respectively, and 6WL has returned after being QRT for ten months. Believe he has a YL Jr. aged seven months who already takes an interest in the shack! 6LM, somehow found time in the middle of house-building to erect a new tower. 6EL also has a tower.

6CL besides going mobile on 40 mx has been playing with a 13 ft. long yagi on 2 mx. 6DW will be missed from Bruce Rock on the v.h.f. bands when he moves to Perth in the near future. Congrats to 6ZAM who has taken up a scholarship in Canada. Also 6ZAK and 6ZAT who have gone to Melbourne University. 6ZAE has gone to Cocos Island.

We hope George VS1GM enjoyed his visit to W.A. He was heard visiting VK6BE. Another expected visitor was Doc. VK5MD, but at time of writing I have not seen him. Doc often puts through a good signal on 80 mx and his voice is well known in the West. We wish 6MK a quick recovery to health, after his recent spell in hospital.

The new Advisory Committee has been formed with members 6BE, 6JA, 6RU, 6SJ, 6VM and 6ZZ; Chairman, Alan Read.

At time of writing, nominations for the new Council should be in. We understand three of the retiring Council members are not seeking re-election, on account of medical grounds. We are sorry that this should be the case, many of the members have given their services to the Divisional Council for a long time, but we hope that some of our new members will come forward to take their places. It is an opportunity to help the Institute; and to serve your fellow members in this way, is an interesting side of Amateur Radio and an experience well worth while.

TASMANIA

The Annual General Meeting and Dinner was held in March at the Hobart Clubrooms. Thanks to excellent catering arrangements in the hands of Tommy Moore, it can be reported that the "anal bottles" gave undistorted output until well after midnight. They tell me there was business done, too.

Geoff Aschman (7GA) has departed for Europe and G-land, with our good wishes and our thanks for good year's work as President. For a continuation of sound guidance and commonsense of the sort that Geoff provided, there need be no doubts about his successor, either. This is none other than Peter Dunne (7PD), a comparatively new licensee. But it's one of the licences he used to issue under the Regulations he helped to frame.

The Division's membership continues to show a slight overall increase and there have been some outstandingly good lectures and well-attended meetings. A full call of those who have helped in one way and another over the past year—and, remember, you help in simply having an active station—would make a long list.

The W.I.C.E.N. exercises, with 7OM in control, are run regularly on Sunday evenings at 2030, and some half dozen stations are now available as portable or mobile for reliable contact across the State. Gear is various, chiefly Type 3 Mk. II, Type A. Mk. III, and 122. A number of 128 sets have been acquired, and these should provide quite a boost for portable work when the boys have run down all the bugs that came with them. Despite its limited power, this little job goes surprisingly well as a mobile with vibrator b.t., for

at least cross-town working. "Stationary mobile", of course, unless you can arrange for will-power steering or rudder pedals!

NORTH WESTERN ZONE

Our monthly meeting held at Ulverstone was again well attended by both full members and associates. Unfortunately, I arrived late, entered the wrong room, very nearly got mixed up in an argument on the advantages and disadvantages of white leather footballs or some thing, before being directed to the next room.

On entering the correct room the first person I spotted was Tom 7AL, a visitor from the far south. Pleased to see you Tom, and thanks for the words of wisdom, etc. Call again sometime.

Four of our N.W. members attended the Annual Dinner in Hobart during March and assisted in the testing of an 813 to distinction.

After the meeting and following supper, the usual auction was conducted by our visitor, Tom 7AL. Some interesting items went under the hammer, some brought along by Ted 7EJ. Appears Ted is cleaning out prior to a move. Anything definite, Ted? Our associates were well to the fore in the biddings, our Hon. Sec. even expressed surprise at the amount of junk he had bought for so much money. Allan Baptist head Max for a power tranny which Max had hopes of trying the winding machine on. Roy 7RN acquired two 866 mercury vapours and an 807, Jap. made.

As I have been looking after the cash, our Treasurer having gone early, and after I'd paid everybody the zone's commission finished up at £12. Eh? Sorry, £12/0/1. I trust you had a pleasant break at Easter.

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: Command Rx (Q5er 190 to 550 Kc.), 12v. fil., gain control, b.f.o. switch, phone jack. Offers to M. E. Dixon, 16 Jingella Ave., Jordanville, S.E.11, Vic.

FOR SALE: QQE06/40 and socket, £10. Autoplex automatic key, £7/10/-. Both new. J. Oliver, 18 Percy Street, Devonport, Tas.

GENEMOTORS, 12v. input, rated at 275v. at 110 Ma. and 500v. at 50 Ma. dual output. Will operate at 225v. at 200 Ma. and 400v. at 100 Ma. without overheating. Several, 37/6 each. Add postage is required. C. Luckman, 2 Milton St., Canterbury, Vic. (WF 8653).

Sell: Mullard 5-10 Hi-Fi Amplifier (ultra linear version), professionally wired and assembled, hardly used, £19/10/-. Complementary R. & H. Tuner (6AE8 and 6N8), £4/10/-. RF26 Converter, 50-65 Mc., unused, £7/10/-. Disposals 20-watt Modulation Transformer, £1/10/-. R. Jones, 25 Panoramic Rd., Nth. Balwyn, Vic.

WANTED: AR7 Coil Boxes. Price and condition to J. Long, George St., Bunyip, Vic.

WANTED: Kingsley K/S9 Pre-Selector. A. W. Chandler, 1013 High St., Armadale, Vic. (BY 3918).

WANTED to buy or borrow: Instruction Book and/or circuit for BC348J or BC348 series. D. V. Scott, Johnson St., Maffra, Vic.

WANTED to loan or purchase: Information or schematic diagram for Hallcrafters S38A. R. J. Simmonds, Iron Knob, S.A.

Homecrafts

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Zephyr 8XA Crystal Microphone	£7/14/3
Zephyr 1XA Microphone Insert	£2/5/0
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Acos Mic. 32 Microphone Insert	£2/15/6
Zephyr 6 ft. Extension Microphone floor type tristand	£5/0/0
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All Test Equipment—plus 12½ per cent. Sales Tax.	

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2 x 5 x 2	17/10
2 x 5 x 3	24/10
3 x 3 x 1	11/7
3 x 3 x 2	17/10
3 x 3 x 3	24/10
4 x 2 x 1	11/7
4 x 2 x 2	17/10
4 x 2 x 3	24/10
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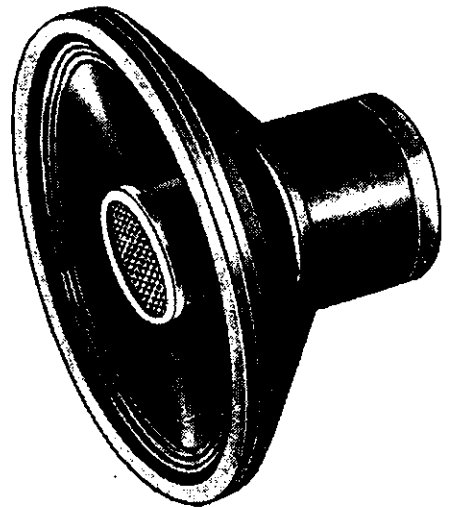
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JUNE, 1958



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7F7	5/- each or 5 for £1	VT127	4/11 each or 5 for £1
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Two-gang Split-Stator Condenser, 8 to 25 pF. per sect.	30/-
Four-Gang Condensers, approx. 150 pF. per section	£1
Midget Ceramic Trimmers, 3 to 55 pF.	1/-
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Teleton Octal Valve Sockets	1/- each
Meters—0-0.35 amp. R.F., FS6 and 101 type	10/-
Meters—0-500 microamp., 1 1/2" diam., flush mounting	30/-
Meters—0-1 Ma. D.C., 2" round, Weston, Brand new	45/-
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National Vernier Dial, Type N 3", 100 divisions for 180° rotation. Brand new. Few only	£2/7/6
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AMATEUR RADIO

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The Triband Beam at VK2AOU

BY H. F. RUCKERT,* VK2AOU

THE first part of this paper (May "A.R.") described measurements, with the help of the grid dip oscillator (g.d.o.), to investigate the properties of triband beam components and twoband and triband circuits. We saw twoband and triband tuned circuits which were tunable over a wide range of frequencies, and these resonances had not to be harmonically related. As far as the lower frequency resonances are concerned, it had been of no consequence if the tuning components were lumped capacitors and inductors or pieces of twin lead or co-axial cable or electrically identical arrangements. It was more than once demonstrated that it is wrong to talk about a "switching stub principle." Various methods were described how to get the desired third resonance for example within a frequency range of 1:2, as this is required to be able to achieve 14 Mc., 21 Mc. and 28 Mc. operation.

Tests carried out by close friends of the writer showed also the expected results and that the performance is identical if we use two parallel tuned circuits in series or one series and one parallel tuned circuit in parallel between the beam elements. The first mentioned version has been in operation at VK2AOU for over a year with very good DX results, whilst the second version represents the writer's interpretation of the function of the G4ZU beam, especially as far as the triband reflector is concerned. It may be said again that both circuit versions may be used in connection with single or multi-element vertical or horizontal aerials and any number of elements may be equipped with this L.C. tuning.

The writer converted his three element 20 metre vest-pocket beam without altering the length of the elements or the element spacing. If longer elements are on hand and can be accommodated, it can only be recommended to use those. It also does not matter if all elements have the same length because the L.C. components take care of the tuning correction required. The longer the elements, the better is the beam performance, especially on the lowest operating frequency. Close for 20 metres and not too wide spaced for 10 metres. If one has a longer boom it can be recommended to increase the spacing between the rad-

The spacing should be chosen in such a way that the elements are not too airt and the director. The reflector-to-radiator spacing should not be made smaller than five feet. The later given coil and capacitor table is only a guide, the values will have to be changed if other element length and different spacing are used. Making the elements shorter than those of a full size 15 metre beam will greatly reduce the 20 metre performance.

The described beam has the efficiency of a three element shortened beam on 14 Mc., of the full size three

element beam on 21 Mc., and of a 5 to 6 element beam on 28 Mc. The radiation pattern is symmetrical. The forward gain and front-to-back ratio are equal to those found on other beams of similar dimensions and having the same number of elements. Another feature, common to all Yagi type beams, is that we can choose to tune the elements for best forward gain, front-to-back ratio, or we may select a compromise.

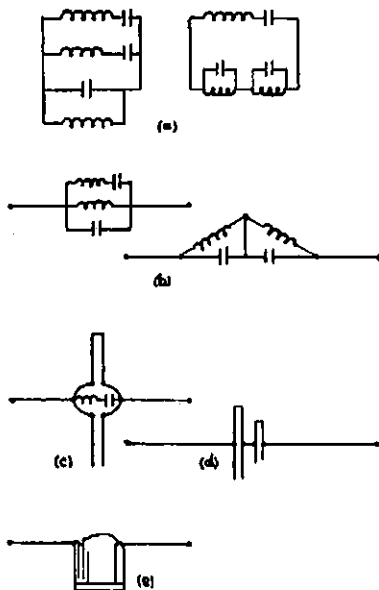


Fig. 1.—Triband Tuned Circuits and Triband Dipole.

- Two versions of Triband Tuned Circuits.
- The Dipole element replaces one circuit. Two versions of Triband Dipoles which may be used as Yagi beam elements.
- Closed and Open Stub replacing one parallel tuned circuit.
- Stubs replacing all lumped L and C components.
- Open Stub inside tubing of Closed Stub, so that the distributed L of the Stubs, together with the distributed C of the Stubs, replaces one series tuned circuit. The Stubs replace the parallel tuned circuit.

THE ALIGNMENT

A simple, quick and sometimes satisfactory alignment can be achieved by resonating the elements to predetermined frequencies with the aid of a calibrated g.d.o. But we are never free of the strange feeling that we may give a high percentage of the possible performance away unless tests have convinced us that no better gain and/or front-to-back ratio can be achieved, no matter which adjustment gets changed. It does not matter which aerial we are talking about, the performance achieved during the alignment procedure can only be retained if the alignment is carried out with the aerial in the final operation position, e.g. on top of the mast or tower.

Any increase of the aerial's height above ground or other conductors (tin roofs, etc.) must reduce its capacity

and the resonances will therefore shift to higher frequencies.

At the same time the low standing wave ratio (s.w.r.), adjusted near the ground, will now be found at a higher frequency which may well be outside the range we intend to operate. This undesired detuning affects mainly the lowest operating frequency, especially if the elements are relatively short. The extended elements like those used on 28 Mc. are practically not affected in this regard.

It was found that the detuning amounts to 200 to 400 Kc., depending on the local conditions like earth conductivity, etc., for a 20 metre beam, if the array was first six feet and then 40 or more feet above ground. It may therefore be advisable to take this into account when the adjustment frequencies are selected.

The writer was also in a typical and not ideal position having the beam between the garage on one side and the grape vine along the fence on the other side of the backyard. Knowing that the elements can easily be tuned over a wide range of frequencies, it is therefore also very likely that by accident the reflector and director, or one of them, may change the function, which would very much upset the gain and front-to-back ratio. The only reliable method of alignment is therefore only then given when we have field-strength indicators behind and in front of the beam.

A six feet long folded dipole with a Ge diode and a 1 Ma. meter was placed about 7 feet behind the reflector to read instantly the relative backward radiation. A full length half wave dipole for 10 metres, and with extension wires for 15 and 20 metres, was installed about 80 feet in front of the beam. The radiation was received through the brick house. A length of two-core cable (any type will do) was run on the ground between the dipole and the 50 μ Amp. meter back to the beam where it was placed in a position so that both meters could be read whilst adjustments on coils or capacitors were made.

Like any other Yagi beam, we can also use here reflector resonances which are about 5% lower, and director resonances which are about 5% higher in frequency than what the mainly-used transmitter frequencies on the three bands are.

As mentioned earlier, we may now take into account the detuning effect, caused by later putting the beam in a higher position, by subtraction of several 100 Kc. from the 14 Mc. resonances. We should at least see that metallic conductors are not too close and especially not running parallel to the beam elements to reduce the detuning.

If one uses different element lengths than those described it may be advisable to use No. 13 wire for the coils for the tests because these coils are easily adjusted and bent. They should be later replaced by coils made of 1/8"

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

diameter copper wire, which is self-supporting.

We can now align each element to its three resonances with the help of a calibrated g.d.o. The coil of the g.d.o. may be held near the large aerial tuning coil if the lowest and the medium resonance frequency is checked, whilst the g.d.o. should be held near the smaller coil to measure again the medium and also the higher resonance frequency. The work now to be done is similar to the alignment of a superhet receiver to achieve correct tracking at three predetermined frequencies.

By changing the L/C ratio of one tuned circuit we can retain the lower of the two resonances but shift the higher resonance frequency. More capacitance brings the two resonances concerned closer together.

The length of the elements affects all frequencies, but mainly the lowest resonance.

The larger coil tunes mainly the lowest frequency.

The larger capacitor (parallel to the larger coil) affects mainly the medium resonance.

The smaller coil tunes mainly the medium resonance.

The smaller capacitor (parallel to the smaller coil) tunes mainly the highest resonance.

There is a slight pulling effect when adjusting one or the other capacitor or inductor, but one will soon find out that detuning of other resonances can easily be compensated. It is a straightforward job if we start with the lowest frequency. Then we see that the medium frequency becomes right without shifting the lowest frequency.

So far only the larger L and C were used. Now with the smaller L and C again the medium resonance frequency is tuned in and we have to see that the highest resonance frequency is right without detuning the medium frequency too far. Finally, we re-check the lowest frequency and perform small adjustments when necessary. This procedure is carried out with one element after the other. Only systematic work as described has a chance of success and will quickly bring the expected results.

We now connect the feeder, if this was not already done, and switch the transmitter on—using reduced power, just enough to be able to read the field strength indicators. A bandswitching transmitter or a test oscillator with a few watts of power should be used to be able to change quickly the operating bands. If we use a tuned feeder and therefore not L-C tuning for the radiating element, 300 ohm twin lead cable is quite satisfactory as feeder for the tests, or even later when the r.f. power is less than 50 watts. In this case the transmitter and the aerial coupler are retuned to the operating frequency so that correct loading occurs. If we use a flat line feeder, and therefore L-C tuning for the radiating element, the transmitter loading depends largely on the tuning of the L-C components of the radiator element. Therefore the radiator is first corrected before other elements are adjusted.

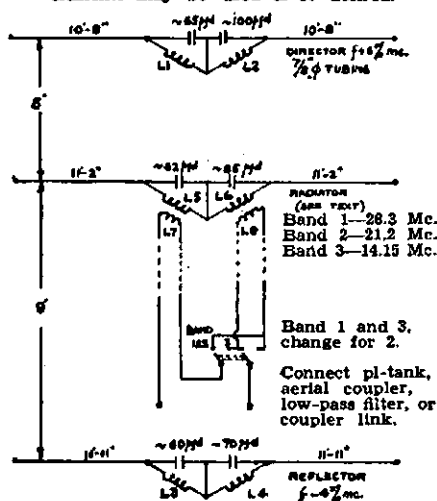
The g.d.o. tuning may be mainly understood as a useful prealignment, which may be satisfactory, but only the tests with the field-strength indicators will guarantee top performance. This

applies actually to any beam or aerial. The transmitter power may be so adjusted that the field-strength indicator, which is reading the forward gain, shows about full scale deflection; or a variable resistor may be placed across the meter. The shafts of the variable air dielectric capacitors should have insulating knobs.

The first-found g.d.o. adjustment settings should be marked to be able to find these tuning positions easily again. It is extremely interesting to watch the meters of the field-strength

Fig. 2.—L-C Tuned Triband Beam at VK2AOU.

The element length was so chosen that the beam has full size at 21 Mc. Shorter or longer elements may be used if so desired.



Any length of any co-axial or twin lead cable may be used for the two feeders. With L7 and L8 correct matching with low s.w.r. can be achieved.

L1—4 turns,	1.77 inch long,	1.58 inch diam.
L2—6 "	2.75 "	1.58 "
L3—6 "	1.86 "	1.58 "
L4—8 "	2.58 "	1.58 "
L5—8 "	1.8 "	1.58 "
L6—7 "	2.5 "	1.58 "
L7—2 "	1.5 "	2.5 "
L8—3 "	2.0 "	2.5 "

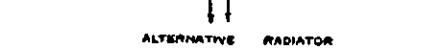
L1 to L8 are all wound with No. 6 B. & S. copper wire. (L7 and 8, 300 ohm).

L7 and L8 will have less turns for 50 ohm co-axial cable feeders.

The leads to the capacitors were 4 inches long. The leads to the coils were 2 inches long. The coils have to be mounted at right angles (decoupled).

40 pF. fixed and 50-100 pF. air variable capacitors were used.

Radiator Element if L-C Tuning is not used but a tuned feeder:



Feeder: 300 ohm t.v. twin lead, or t.v. twin lead at beam and inside the shack but 500 ohm open wire feeder between mast and shack window.

indicators whilst the capacitors are slightly adjusted and coils are expanded or pressed together to change their inductance. It is also very instructive to replace the beam with a dipole to compare the relative field-strength values. This test will also show that the beam is working properly.

At first we have to tune for top performance on 20 metres after making up our mind as far as front-to-back ratio

or forward gain should be mainly achieved. We mark the capacitor setting. Now we try the same for 15 metres by adjusting the capacitors slightly until the best results occur also on this band. Now we will see how far we have to change the large coil and the capacitor to get the best performance on both bands with the same setting of the L and C.

If the beam fires occasionally backwards, don't get a shock, remember that now most likely the director is tuned too low and acts as a reflector whilst the opposite may be true for the reflector. A 10 pF. change of the tuning capacitors may remedy the wrong adjustment. The same procedure has to be carried out with the smaller L-C components responsible for the tuning on 15 and 10 metres. The 10 metre tuning is far less critical and a "near enough" adjustment will give fully satisfactory results, whilst the 20 metre front-to-back ratio has to be very accurately tuned in.

During this operation it is advisable to re-check occasionally the 20 metre tuning and to reset the larger capacitor if required. This procedure may begin with the reflector and afterwards with the director. It may be good to remove at first the director element to prevent interference by wrongly tuned elements. When checking front-to-back ratio it may be remembered that several lobes of radiation are leaving the beam under different angles of elevation. Therefore a local receiver will give different results than a DX station's report, which does not receive the ground wave and low angle radiation.

FEEDING METHODS

The circuit of the beam includes, besides all the dimensions of the elements, coils and capacitors, also details of a feeding method for flat line feeders which the writer had tried out and developed. In this case the radiating element is also L-C tuned like the other elements. The feeders are link coupled to the tuned circuits as this is well known from link lines between tanks and aerial couplers, especially with a low-pass filter in this line we must have a low standing wave ratio (s.w.r.). It is the usual practice to tune out the inductive reactance of the coupling coils, more or less, by connecting a variable capacitor in series with the link coil at the transmitter end. By adjusting the L/C ratio of link coil and series capacitor, the s.w.r. can be affected. We know also the very effective link coupling of flat line feeders to the loading coil of vest-pocket beams.

As we have seen already with the g.d.o. the larger coil is effective at the lowest and medium frequency, whilst the energy has to be coupled to the smaller coil for the operation on the highest frequency; this coil can also be used for the medium frequency. The most effective coupling is achieved when the two required feeder cables, or actually the coupling coils are connected in series. If we don't like a switch at the aerial end of the feeder, we can use two feeders and perform the switching at the transmitter end.

The phase of the currents in the tuned circuits has to be taken into consideration. At the lowest and the highest frequencies, the currents are of

identical phase, but this is not so at the medium frequency. We therefore need the changeover switch, for example, at the transmitter end of the feeder cables.

If a suitable number of turns for the coupling coils is selected, it is possible to match any type of aerial feeder cable from 50 to 300 ohm impedance. The feeder may be coupled or connected to the transmitter final, to a pi-filter, any sort of aerial coupler, or low-pass filter.

The experts agree that the feeder with the lowest losses is still the now less-popular open-wire feeder. The greatest difficulties experienced with open-wire feeders are the danger of the beams shorting out when the beam gets rotated, and the installation of the feeder in the house. Both problems can easily be overcome by using partly 300 ohm twin lead (4 to 6 feet) between the radiating element and a fastening point underneath the beam on the mast or tower. This piece of cable is wound with two turns like a spiral around the pipe carrying the beam. From this point down to the window of the shack we can use open-wire feeder. No. 13 copper wire with two-inch spacing is very satisfactory. A small strip of perspex every two feet apart can act as spreader. Sliding down of these spreaders may be prevented by soldering a blob of solder to the feeder underneath the spreaders. From the shack window to the transmitter again 300 ohm t.v. twin lead can be used. Even r.f. power of up to 200 watts will not cause the twin lead to get warm, which would indicate high losses. In several cases quite good results were obtained with 300 ohm twin lead instead of the open-wire feeder. Transmitter twin lead cable would be suitable for all power levels.

Other feeding methods have been described lately in connection with other multiband beams which may also be used with this beam.

CONSTRUCTION

Just a few not-so-common points may be mentioned concerning the practical construction of such a beam. The writer used an oregon timber 1" x 2" 14 feet long boom. A duralumin boom would have reduced the weight of the beam. Four feet long crossarms carry the beam elements. Each cross-arm is mounted to the boom with brackets. Each half element is held by aluminium sleeves and is screwed to two ceramic stand-off insulators. The total weight of the light duralumin tubing is only four pounds. The inner ends of the elements are about four inches apart. Just as far away is a third stand-off insulator which is screwed to the boom, so the pairs of coils can be mounted at right angles to prevent coupling.

The coils are made of copper wire of 1/8" diameter, and they are self-supporting. The capacitors are a combination of 40 pF. fixed ceramic double cup capacitors and short wave receiver type 50-100 pF. air dielectric variable capacitors. The capacitors may be placed in plastic containers which are to be mounted upside down to protect the capacitors from rain. Even fairly strong elements may swing and vibrate in the wind and get bent or broken during a storm, or material fatigue will sooner or later cause break-

age. The writer's beam was once converted in this way to a "three element vee beam," before special precautions were taken.

Now the boom was extended by four feet at each end beyond the point where the tubing of the elements is fastened to the boom. Nylon fishing line triangles are now holding the elements in the forward and backward direction as well as the boom in the correct position. No trouble has been experienced over the last year in spite of several heavy storms.

The total weight of the beam and wooden boom amounts to 21 lbs. This beam is rotated by a small t.v. receiver aerial rotor, which has been doing this job for the past four years. The writer's beam is 44 feet above ground. A four feet long crossarm is mounted underneath the beam on the pole and can be swung in such a position that a fork-like piece of steel holds the boom in a fixed rest position to take the force of the swinging beam off the motor gears when the beam is not used or rotated. This cross arm is controlled with two galvanised wires from the ground.

RESULTS

During the 1957 VK/ZL Contest 150 DX phone contacts were made during 17 hours of operation on 10, 15 and 20 metres. About ten times the DX partners mentioned that it was the strongest signal from VK he could copy. Similar reports were received many times when chasing DX with tough competition. We may interpret these reports in the following way: This beam is neither a "wonder beam" nor a medium efficient "compromise." This beam is on 20 metres equal to a full size two element beam, and on 15 metres equal to a full size three element beam, taking correct tuning and identical operating conditions for granted. The beam

was often reported to be better than cubical quad aerials. On 10 metres the performance is apparently superior to the usual 3 or 4 element arrays.

It is a light and small construction which makes DX work on three bands a pleasure. This beam has more effective element length than the G4ZU beam. The version with coils, as shown, has no resonances on harmonics, which should help to suppress the radiation of t.v.i. causing harmonics, and this is in contrast to other aerials and Yagi beams which resonate at odd harmonics. If stubs are used one will find other resonances at higher frequencies.

It is often said that the tuning coils are causing excessive losses, but no explanation is given. We know that, for example, of 100 watts r.f., 75 watts would have to be converted into heat in the coils, before the QSO partner would report a signal reduction of one S point. But 75 watts would certainly heat up the coil which is, of course, not the case in practice. We know that it is quite simple to select the correct L/C ratio for an aerial coupler and its coil will remain at room temperature, because these coils have very low losses, and at some frequencies not much current is flowing through the coils.

Unsatisfactory results with inductive loaded aerials are most likely due to wrong tuning of the elements and/or mismatch of the feeder.

Thousands of inductive loaded beams are working all over the world to the fullest satisfaction of their owners. We must also not forget that the number of Amateurs who can put up a small triband beam is many times larger than the number of those who can erect three full size beams.

It is advisable to check the patent position before producing L-C tuned beams commercially.



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AMATEUR TELEVISION

PART FOUR

BY E. E. CORNELIUS,* VK6EC/T

UP to date I have discussed the essentials of a system capable of generating good pictures, ready for transmission. In later parts I will describe additional units which will enable more ambitious presentation, and better supervision of the outgoing picture.

POWER SUPPLIES

At this point it is desirable to go into the techniques of power supplies for television. Orthodox power packs, with LC filtering are useless for television, regulated power supplies being essential. Due to need for clamping and d.c. restoration, throughout the transmission chain, the system has a response effectively down to d.c. To delineate large areas of light and shade, the low frequency response must be far better than in audio practice, and a square wave tilt of less than 2% at 50 cycles is desirable. A tilt greater than 5% is objectionable, causing shading and streaking. The power supplies will therefore have to have a very low source impedance of the order of 1 ohm or less, from d.c. to the limit of the video range.

Similarly, power supply ripple of 2% at 50 or 100 cycles shows as objectionable hum bars in the picture, and become more objectionable with time. Unlike the ear, the eye does not become tolerant to the effects of hum, and power supply ripple must be of the order of millivolts.

These two features of low source impedance and negligible ripple are easily obtained from regulated power supplies, but at the expense of additional tubes, and heat dissipation. But the regulator acts as an excellent filter, and LC filtering can be quite nominal. Glow tube stabilisation is useless, as the internal impedance of the OD3, etc., are of the order of 200 to 500 ohms.

Power requirements are considerable, and the camera and c.c.u. described, on a common power supply, have a main requirement of 260 volts at about 600 mA. The use of different tube types could reduce this somewhat, but on the basis of two picture tube line time bases at 120 mA. each, three magnetic focus coils at 40 mA., and 20 video amplifiers at 10 mA. each, it will be seen that the total must be considerable.

The cost of the regulator section is not great, as almost any disposals power tubes can be connected in parallel. The main cost is in the power transformers and filter choke, and rather more electrolytics than usual. Per power pack that is, not per milliampere, the regulated power pack is more economical on this basis. If you have the facilities for winding your own transformers and chokes, the cost of these units can be cut by a factor of five at least. Winding details are given later.

There are two basic regulator types, series and shunt. For the more onerous duties, the series regulator seems the better and has been used in the camera/

c.c.u. pack. The shunt regulator is simpler and cheaper, and is used in the video mixer. While I use series regulators in the Master Monitor and c.r.o., these were built some time ago before I was introduced to shunt regulation. Shunt regulated power supplies should be quite satisfactory for these units, but I favour series for the transmitter proper. The various disadvantages and advantages of each may be summarised as below.

Series Regulation

Advantages—

1. Zero source impedance readily obtained.
2. Negligible ripple easily obtained.
3. Will maintain regulation from full to no load.
4. Has simple control of output voltage over a wide range. (This has little value in television applications.)
5. No negative supply is needed for the regulator. This also is little advantage in t.v., as a negative supply is certain to be needed for other reasons.
6. Minimum filtering needed before the regulator.

Disadvantages—

1. Requires sufficient regulator tube capacity for the full load current.
2. Has an inherent regulator tube voltage drop of over 100 volts, all dissipated in heat, with resultant higher transformer ratings and electrolytic capacitor voltage ratings.
3. Regulator tube filaments must have a separate winding.

5. Output voltage can be varied over only very narrow limits.
6. Reasonably close tolerance components are needed in the amplifier section.

Referring now to Fig. 18, the basic principle is as follows: The regulated output voltage is compared with a stable reference voltage, a glow tube, and the variations of output voltage are fed to an amplifier the output of which is applied to the regulator tubes, to offset the original change. In the series regulator, the series tube or tubes have their internal impedance varied such that the output voltage is held constant. In the shunt regulator, the shunt tube draws more or less current, causing a change in voltage drop across the regulating resistor R_s to compensate for the output changes. By suitable compensating circuits, the source impedance can be reduced to zero, this implying that any change in output current drawn causes no change in output voltage. Similarly, 100% regulation, or zero ripple implies that any change in input voltage causes no change in output voltage.

In the case of the camera/c.c.u. pack, the three line time bases cause a variation in output current of the order of 200 mA., at line rate. Capacitors would remove much but not all of the ripple, but the three frame time bases with their 50 cycle pulsing drain would require hundreds of microfarads to reduce the ripple to reasonable proportions.

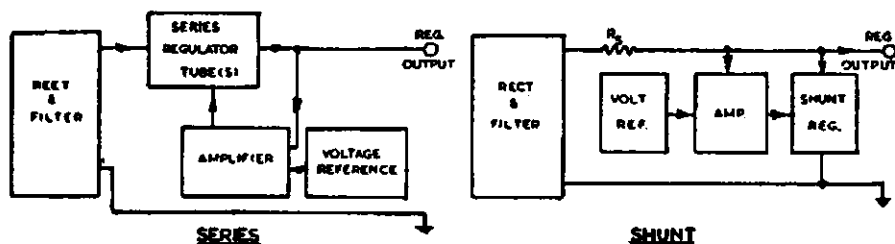


FIG. 18—REGULATED POWER SUPPLIES

Shunt Regulator

Advantages—

1. Regulator tube capacity required is only enough to cope with load current changes.
2. No inherent voltage drop, and hence much lower power transformer ratings.
3. Regulator tube filaments may be at earth potential.

Disadvantages—

1. Not easy to obtain low source resistance.
2. Not so easy to reduce ripple, unless normal filtering is good.
3. Cannot be run off load, unless regulator tube capacity is the same as for series regulation.
4. Needs a negative supply.

Two typical shunt and series regulator circuits are shown in Figs. 19 and 20. Note that direct coupling is used throughout, although additional capacitive coupling is used in places to help reduce ripple. The negative supply for the shunt type regulator is essential in order that the grids of the amplifier and regulator tubes should have their correct d.c. potentials, despite direct coupling. This is no disadvantage, as the negative supply will always have other uses.

Fig. 21 is a schematic of the camera/c.c.u. power supply, and shows that beside the +260 volt supply, there is also an output of -500 volts for the VCR139A c.r.o., -105 volts for bias, and +150 volts for screen supplies, etc. There is also a centering current supply from a metal rectifier, for the

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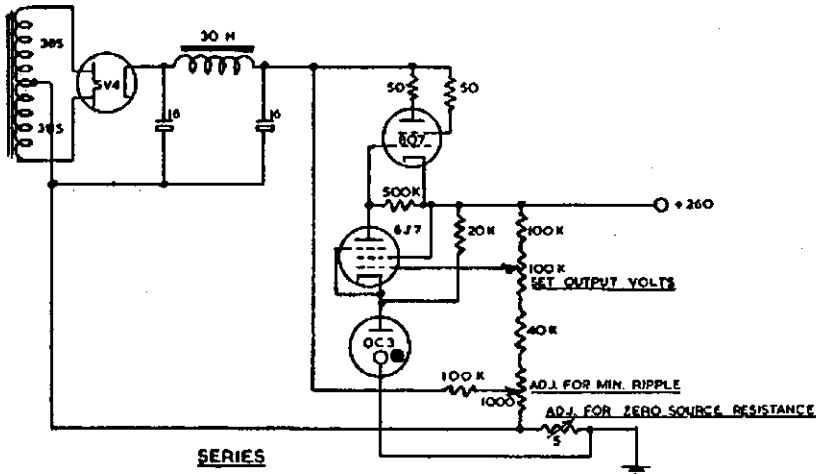


FIG. 19—SERIES REGULATOR

camera tube, and numerous filament windings for the 60 odd tubes in the system.

The camera filament supply is made 12.6—0—12.6 volts in order to reduce voltage drop in the long camera cable to a minimum. The terminal voltage of the transformer is 15—0—15 volts, a pair of variable resistors in the camera reducing this to that required, and allows for additional camera cable length. The camera tubes are wired in series-parallel groups.

In an early camera, a filament transformer was mounted in the camera proper, but it was found to be virtually impossible to keep the 50 cycle magnetic component out of the camera tube. The tube being a low velocity type, is particularly prone to the effects of magnetic fields. Later 26 volts d.c. was used for camera filaments, but after much experiment, the a.c. supply was used with negligible hum pickup.

For the regulator tubes, any power tubes are suitable, and the 6V6s were used as the layout did not allow the extra length of 807s which are ideal. The correct tube for this purpose is the 6AS7, or 6080, but are very costly. Maximum current ratings per tube are:

- 807 — 100 mA.
- 6V6 — 50 mA.
- 6F6 — 40 mA.
- 6AS7 — 250 mA. (also 6080)

This circuit is a simple regulator, i.e. not compensated, but the ripple is less than 50 mV., and the internal impedance less than 1 ohm. With compensation this could be improved further. Shunt regulation offers little advantage with this unit, as the c.c.u. will often be running without the camera during testing, and the current drain will be halved.

Metering

A voltmeter and milliammeter are more than advisable for a power unit of this size. The circuit shows that the voltmeter (a 5 mA. movement) is across a low value metering resistor in the earthy end of the OD3 voltage reference tube. Thus the meter really measures the current through the OD3, expressed as the output regulated voltages. This current is zero at 150 volts, which becomes the zero position of the meter. The major meter divisions then are 150, 200, 250, 300, 350 and 400 volts. This suppressed zero technique expands the meter scale considerably, and enables a reasonably close watch to be kept on the output voltage. The output current is metered across a 1 ampere metering resistor in the h.t. transformer centre tap. The same meter serves both functions.

If desired, the individual regulator tube currents could be metered by suit-

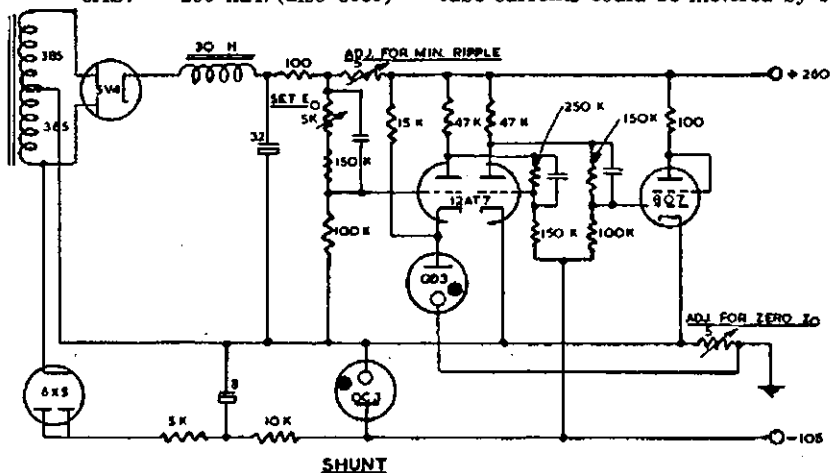


FIG. 20—SHUNT REGULATOR

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Accuracy comes the—

GRUNDIG GRID DIP OSCILLATOR

MODEL 701

- Manufacturer's specified frequency accuracy ±1.5%.
- Employs 4-position Switch: Position "E": For use as a Monitor.
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Input capacity 250 pF. maximum, output capacity 1,500 pF. maximum. A single pole five-position switch is provided which can be used for switching in parallel capacities when required.

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able 100 mA. shunts in series with the 100 ohm anode stoppers, but involves rather many meter switch positions. If the 100 ohm stoppers are mounted in the clear, a milliammeter across each in turn will locate "sick" regulator tubes. Note the equalising resistors across the electrolytics, and the 100 ohm 5 watt resistors in the 5U4 anodes. These are essential. To adjust the output voltage, vary the 750,000/2,000 ohm voltage divider in the first 6SQ7 amplifier anode cathode circuit.

DATA FOR WINDING YOUR OWN TRANSFORMER AND CHOKE

For those who wish to wind their own, transformer and filter choke data is as below. The lamination size is not critical as long as the core sectional area is at least as great as that given.

H.T. Transformer

410 volt-amperes input.
Core stack: 1 3/4" x 3" = 5.25 sq. ins.
Primary at 1.46 turns per volt, 1.78 amps. at 230 volts =
220 volts 322 turns } 19 B. & S.
230 volts 336 turns } double tough
240 volts 351 turns } enamel.
Secondary at 1.58 turns per volt (650 mA)—

450 400 350 0 350 400 450 volts
711 632 553 0 553 632 711 turns
24 B. & S. double tough enamel.
Pilot Lamp Secondary—10 turns for 6.3 volts.

Filter Choke

5 Henrys at 700 mA.
Core stack: 1 3/4" x 2" = 3.5 sq. ins.
Where volume of core = 42 cubic inches, and mean flux path length = 12" (these may differ somewhat for other laminations but will not effect the characteristics significantly).
Wind with 2,100 turns of 24 B. & S. enamel, with an air gap of 0.072".

Filament Transformer

360 volt-amperes input.
Core stack: 2" x 2 1/2" = 5 sq. inches.
Primary at 1.46 t.p.v.—
220 volts 322 turns } 19 B. & S.
230 volts 336 turns } double tough
240 volts 351 turns } enamel.
Secondaries—

- 1.—5v. at 9a., 8 turns 13 B. & S. or equivalent—Rectifiers.
- 2.—12.6v. c.t. at 4a., 10—10 turns 16 B. & S.—Regulators.
- 3.—12.6v. c.t. at 7a., 10—10 turns 14 B. & S.—C.c.u. fils.
- 4.—6.3v. at 2a., 10 turns 19 B. & S.—6X5.

- 5.—6.3v. at 2a., 10 turns 19 B. & S.—Reg. amp.
- 6.—6.3v. at 2a., 10 turns 19 B. & S.—Spare.
- 7.—6.3v. at 2a., 10 turns 19 B. & S.—Centering rect.
- 8.—6.3v. at 2a., 10 turns 19 B. & S.—green pilot.
- 9.—15v. at 3a., 23 turns 19 B. & S.
- 10.—15v. at 3a., 23 turns 19 B. & S.—Camera.
- 11.—4v. at 1a., 6 turns 19 B. & S.—VCR139A.

Note.—The value of 1.58 secondary turns per volt is selected to permit optimum integral numbers of turns for the filament windings.

Making these units will cut the cost of the component parts tremendously. So much for the power supply. Next month I will describe the four channel video mixer, which can be used in place of the camera control unit, if desired. Much work is in progress on the transmitter proper, including a method of avoiding the necessity for a sound transmitter, by the use of a 5.5 Mc. sound subcarrier modulating the vision transmitter. I will hold over description of the transmitter till late in the series, in order that this avenue may be fully explored.

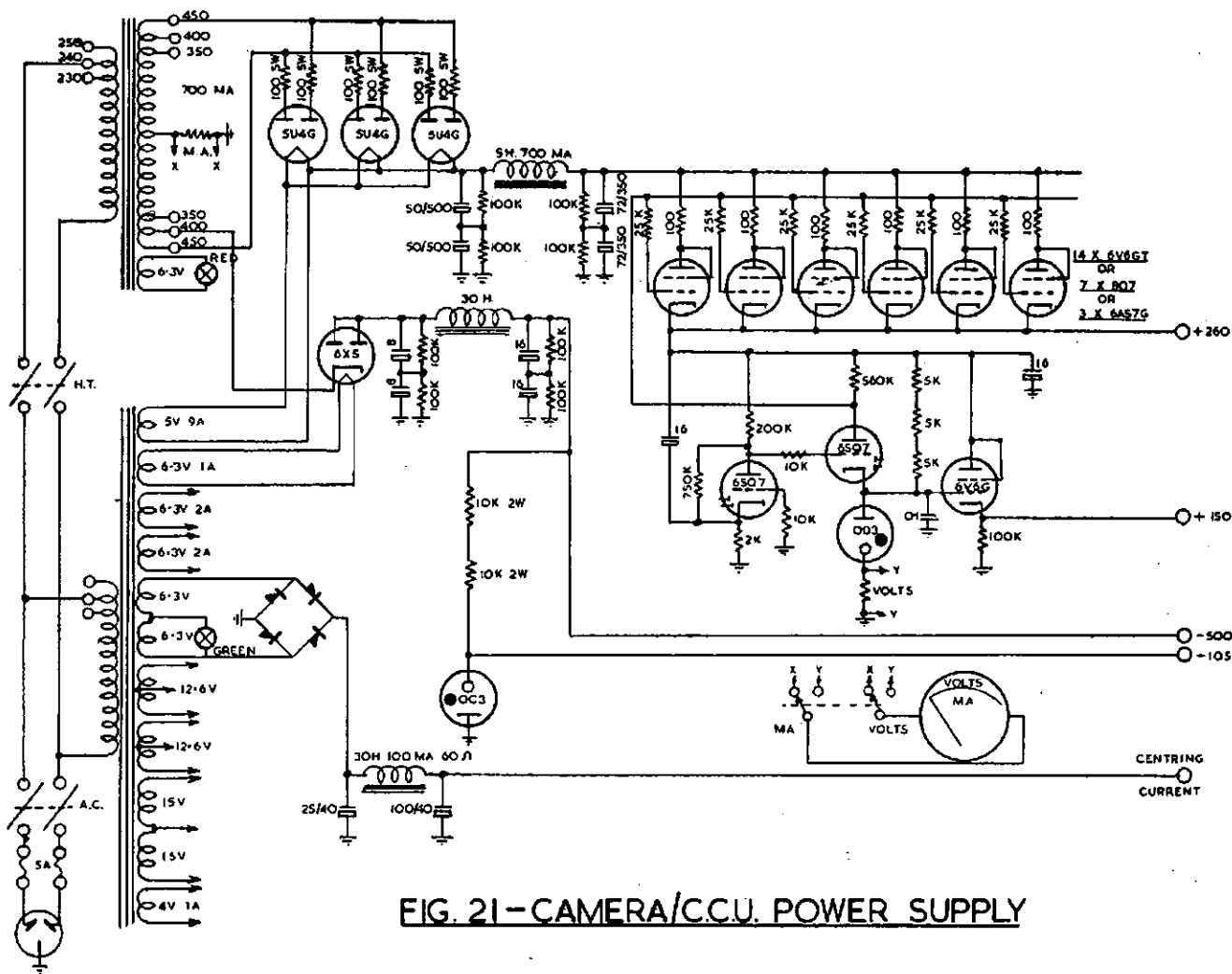


FIG. 21—CAMERA/C.C.U. POWER SUPPLY

Temperature Compensation in Transistorised Receivers

BY HANS J. ALBRECHT*

FOR some time transistors have been utilised in communication receivers. In this field, as in most branches of electronics, the use of transistors allows equipment to be simplified, particularly with regard to size and supply requirements. Well known objections to the exclusive application of transistors are their frequency limit and their temperature sensitivity. Whereas the frequency limit determines the range of maximum operating frequency for a certain stage, the temperature sensitivity has an adverse effect upon practically all transistorised stages in a receiver. This adverse effect may be analysed in detail and it is found to consist, in tuned stages, of two major components, namely a change in the quiescent operating characteristics and a variation in effective operating frequency, both due to the temperature sensitivity of transistors used.

Referring to the different methods of compensating temperature effects, an obvious approach is the use of a thermally insulated container with constant inside temperature. Certainly, this method is not very elegant electrically and cannot actually be called a compensation. While normal transistorised communication equipment does not require such a rather complicated set-up, it may be essential with standard-frequency apparatus, similar to vacuum-tube technique.

Another way of eliminating temperature effects upon the effective operating frequency is, of course, the use of crystal-controlled circuits in all oscillators. This method, however, is also in the category of effect elimination and not compensation which we will be concerned with below.

Fundamentally, temperature compensation of transistorised equipment may be achieved on a stage-by-stage basis or as overall compensation, or by a combination of both. If the number of stages is reasonably small, e.g. four or five stages, overall compensation may be simpler and more economical. On the other hand, the stage-by-stage method permits a theoretical analysis of the whole temperature problem, almost to a complete degree. Obviously, overall compensation involves far too many overlapping effects for such an analysis and its best basis is an actual laboratory measurement of the overall temperature effect, followed by experiments with compensating components and circuits. Even with only a few stages, the better approach for the temperature compensation in transistorised receivers is the stage-by-stage method, due to the presence of a variety of temperature effects.

A generally known way of stage-by-stage compensation is the method of resistance stabilisation. In other words,

the resultant quiescent operating point of a transistor stage is made insensitive to temperature variations and other fluctuations by stabilising the electric supply for emitter, base, and/or collector of triode transistors. As triode junction transistors are undoubtedly still the most popular type, we shall here mainly be concerned with them.

As has been pointed out previously, a stability factor may be calculated for a stage stabilised by normal resistors. Its value governs the amount of stabilisation and, on the other hand, the d.c. efficiency of the stage. In other words, an optimum low stability factor results in relatively poor d.c. efficiency because of the additional drain on the supply. In order to allow a reasonable compromise, the author published, some time ago, limiting figures of this stability factor for different applications^(1, 2, 3). Briefly, a factor of "9" is permissible for audio stages, while tuned stages require a factor equal to or lower than "2", for normal i.f. and h.f. In the case of oscillators, the factor should definitely be in the vicinity of unity.

It is clear that, in communication receivers, provision can be made for some external adjustment of the tuned circuit of at least the first r.f. stage. The other stages, and particularly the oscillators, must display optimum stability for their appropriate operating conditions. Before leaving the resistance stabilisation it may not be amiss to clearly point out that this method permits a relatively straightforward approach in all cases. Tuned circuits can be designed similarly to those known from vacuum-tube technique. Naturally, the internal transistor capacitances must be taken into account. Also the temperature compensation of tuned circuits in resistance-stabilised transistor stages is in no way different from that in tube circuitry. Summarising, once the resistances have been selected according to the appropriate stability factor, almost orthodox design procedure may be utilised.

As just mentioned, a high stability factor being equivalent to poor d.c. efficiency, it is advantageous to consider another method of stabilisation. This is particularly true when the corresponding stability factor has a value of the order of unity, which would mean a relatively large additional drain and, consequently, an especially low efficiency. These would be the operating conditions of oscillator stages in transistorised receivers. Here the author's method of frequency stabilisation of transistor oscillators is a very effective method to achieve absolute temperature compensation at optimum efficiency. The principle having been described previously in this journal⁽⁴⁾, comments may be restricted to saying that the frequency variation due to the sensitivity of the transistor to temperature is compensated by an equivalent

but reverse temperature coefficient in either the condenser or the coil of the resonant circuit, or a combination of both. A first application of this principle was also published in this journal⁽⁵⁾ and a more elaborate analysis of the factors involved was described some time ago⁽³⁾.

For the time being, the temperature characteristics of capacitors seem to be more reliable than those of inductances. Considering a reasonable circuit-Q, high temperature coefficients may be required and thus ceramic condensers of the titanium-dioxide type (maximum negative coefficient of 750 units per degree) may not be sufficiently sensitive. Hi-K condensers (barium titanate; strontium titanate) have much larger coefficients and are therefore extremely suitable, after an appropriately careful selection. This is necessary, because Hi-K condensers are made for uses as blocking and coupling condensers, etc., and are not normally intended for applications in tuned circuits. Nevertheless, each of these condensers has more or less defined temperature characteristics which can be verified by ordinary equipment, viz. a capacitance meter, a thermometer, and a device for changing the temperature around the capacitor. This device may take the form of a temperature-controlled oil-bath or, in the simplest case, an electric hair-drying fan directed at the capacitor surroundings which include the mercury bulb of a reasonably accurate thermometer. Admittedly, this sort of measurement is not very accurate but in many cases sufficient for approximate data. The same method can be applied in gathering information on the behaviour of the complete transistor oscillator with reference to temperature variations, as has been mentioned before. In the procedure of such a measurement it is essential to make every reading as accurately as possible.

Using this principle of frequency stabilisation, the tuning facilities must be arranged accordingly, which means that with capacitance compensation, circuit tuning should be done by varying the inductance if large tuning ranges are required. Relatively small changes of capacitances are of course always possible without effect upon the compensation. On the other hand, inductance variation for the purpose of frequency stabilisation may also be considered, either by means of a suitable core material or by making the coil itself of bimetallic strips⁽³⁾. Then the circuit capacitance may be varied in the ordinary fashion. In any case, a preferable kind of communication receiver is the band-type receiver which naturally requires only relatively small frequency variation, so that the frequency stabilisation with capacitance compensation may be applied with conventional capacitive band-tuning.

(Continued on Page 13)

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Remembrance Day Contest, 1958

The Federal Contest Committee of the Wireless Institute of Australia wishes all Australian Amateurs and Short Wave Listeners to participate in the Annual Contest which is held to perpetuate the memory of those Australian Amateurs who gave their lives for their Country during World War II. It is held on the week-end nearest to 15th August, the date on which hostilities ceased in the S.W.P.A.

A handsome perpetual trophy is awarded annually for competition between States inscribed with the names of those who made the supreme sacrifice, and so perpetuating their memory throughout Amateur Radio in Australia.

The name of the winning Division each year is also inscribed on the Trophy. In addition, the winning Division will receive a suitably inscribed framed photograph of the Trophy.

Objects

Amateurs in each Call Area (this includes those in Australian Mandated Territories and Australian Antarctica) will endeavour to contact Amateurs in all other Call Areas (VK1 and VK2 are considered to be one Call Area).

Date of Contest

16th-17th August, 1958.

Duration

From 1800 hours E.A.S.T. 16th August, 1958, to 1759 hours E.A.S.T. on 17th August, 1958. A period of 15 minutes silence will be observed by all stations on 16th August, immediately prior to the start of the Contest when an appropriate broadcast will be made from VK3WIA and relayed by the Divisional Stations.

RULES

1. There shall be four main sections to the Contest:

- Transmitting phone.
- Transmitting c.w.
- Transmitting open.
- Receiving open.

2. All Australian Amateurs may enter the Contest whether their stations are fixed, portable or mobile, but only members of the W.I.A. are eligible for awards. Portable/mobile operation is defined as transmitting and/or receiving equipment which is not connected to any private or public power mains or plant.

3. All Amateur frequency bands may be used, but no cross-band operation is permitted.

4. Amateurs may operate on both phone and c.w. during the Contest (e.g. phone to phone, c.w. to c.w., or phone to c.w. and vice versa), but may submit an entry for only one of the above sections listed in Rule 1.

An Open log will be one in which points are claimed for both phone and c.w. transmissions.

A Contestant transmitting on phone but receiving on c.w. may still enter for the phone section (and vice versa). Refer to Rule 11 concerning entry in Logs.

5. Only one contact per station per band is allowed and arranging schedules for contacts on other bands is not permitted.

6. Only one licensed Amateur is permitted to operate any one station under the owner's call sign. Should two or more operate any particular station, each will be considered a contestant and must submit a separate log under his own call sign.

Contestants operating stations other than their own shall be referred to, for the purpose of these rules, as "substitute operators." Their operating procedure will be as follows:

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.w. contacts: Substitute operators will call "CQ RD de" followed by the group call sign comprising the call sign of the station they are operating, an oblique stroke, and their own call sign.

Contestants receiving signals from a substitute operator will qualify for points by recording the call of the substitute operator only.

7. Entrants must operate within the terms of their licenses.

8. **Cyphers:** Before points may be claimed for a contact, serial numbers must be exchanged and acknowledged. The serial number of five or six figures will be made up of the RS (telephony) or RST (c.w.) reports plus three figures which may begin with any number between, or including 001 and 100 for the first contact and which will increase in value by one for each successive contact, e.g. if the number chosen for the first contact is 053, then for the second contact the number must be 054, for the third 055 and so on. If any contestant reaches 999, he will start again with 001.

9. **Entries:** Entries must be set out as shown in the example, using only

one side of the paper. Entries must be postmarked not later than 6th September, 1958, and addressed to the Federal Contest Committee, W.I.A., Box 1234K, G.P.O., Adelaide, South Australia.

10. **Scoring:** Scoring will be based on the table shown.

SCORING TABLE

		To								
		VK0	VK1-2	VK3	VK4	VK5	VK6	VK7	VK8	VK9
From	VK0	-	6	6	6	6	6	6	6	6
	VK1-2	6	-	1	2	3	5	4	6	6
	VK3	6	1	-	3	2	5	4	6	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
	VK8	6	1	2	3	4	5	6	-	6
	VK9	6	1	2	3	4	5	6	6	-

Note.—Read table from left to right for points for the various call areas.

In addition, a bonus of 25 points may be claimed for the first contact in each call area on 50 Mc. or above.

11. **Logs:** All logs shall be set out as in the example shown and in addition will carry a front sheet showing the following information:

Name Section
Address Call Sign
Claimed Score

Declaration: I hereby certify that I have operated in accordance with the rules and spirit of the Contest.

Signed
Date

All contacts made during the Contest must be shown in the Log submitted (see Rule 4).

12. The right is reserved to disqualify any entrant who, during the Contest, has not observed regulations or who has consistently departed from the accepted code of operating ethics.

13. The ruling of the Federal Contest Committee of the W.I.A. will be final. No dispute will be entered into.

14. **Awards:** Certificates will be awarded to the winners of the phone, c.w., open, and receiving sections in each call area (Northern Territory will count as a separate call area). There will be no outright winner for Australia. Further Certificates may be awarded at the discretion of the Contest Committee.

The State to which the Perpetual Trophy will be awarded shall be determined in the following way:

(Continued on Page 12)

EXAMPLE OF TRANSMITTING LOG

Date/Time E.A.S.T.	Band	Emission	Call Sign	RST/NR. Sent	RST/NR. Revd.	V.h.f. Bonus	Points Claim.	Blank
Aug. '58	7 Mc.		VK3XU	59001	VK3XU	—	2	
15 1505	"		VK6RU	58004	VK6DB	—	5	
17 1115	50 "		VK4RZ	47135	VK3QR	25	3	

Note.—Standard W.I.A. Log Sheets can be used to follow the above form.

EXAMPLE OF RECEIVING LOG—VICTORIAN S.W.L.

Date/Time E.A.S.T.	Band	Call Sign Heard	RST/NR. Sent	Station Called	V.h.f. Bonus	Points Claim.	Blank
Aug. '58	7 Mc.	VK3XU	59001	VK3XU	—	2	
15 1505	"	VK6RU	58004	VK6DB	—	5	
17 1115	50 "	VK4RZ	47135	VK3QR	25	3	

Note.—Standard W.I.A. Log Sheets can be used to follow the above form.

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REMEMBRANCE DAY CONTEST, 1958

(Continued from Page 11)

To the average of the top six logs shall be added a bonus arrived at by adding to this average, the ratio of logs entered to State licences, multiplied by the total points from all entries.

Example:

Average of the top six logs +

$$\left(\frac{\text{Logs Entered}}{\text{State Licences}} \times \text{Total of Points from all Entrants} \right)$$

Acceptable logs shall show at least five valid contacts.

The Trophy shall be forwarded to the winning State in its container and will be held by that State for a period of 12 months.

RECEIVING SECTION

1. The rules are the same as for transmitting and is open to all Short Wave Listeners in Australia. No transmitting Station may enter this section.

2. Contest times and logging of stations on each band are as for transmitting.

3. To count for points, logs will take the same form as for transmitting logs. Logs must show the call sign of the station heard (instead of worked), the serial number sent by it and the call sign of the station being called. The scoring table to be used is the same as that used for transmitting and points must be claimed on the basis of the State in which the receiving station is located. A sample log is given below to clarify the position. It is not sufficient to log a station calling CQ.

4. A station heard may be logged only once for each band.

5. Awards: Certificates will be awarded to the highest scorer in each call area. Further certificates may be awarded at the discretion of the Federal Contest Committee.

CONTEST RESULTS

1957 R.D. CONTEST RESULTS

It is regretted that when the results were published in the January issue that VK3AJP's call sign was omitted. This should have appeared in the phone section with a score of 218 points.

"CQ" WORLD-WIDE CONTEST C.W. RESULTS

AUSTRALIA

VK1ALR	14	7,524	138	9	9	B
VK2GW	AB	280,865	651	64	85	B
VK2PV	21	9,288	75	19	24	B
VK2ARD	14	24,012	147	24	34	B
VK4BG	21	13,158	102	18	25	B
VK5JT	AB	11,480	96	20	21	B
VK5MY	14	5,578	55	22	24	B
VK6RU	AB	312,153	541	82	119	B
VK7WA	AB	12,834	69	23	39	B
VK9XK	AB	127,200	416	46	60	B

NEW ZEALAND

ZL1MQ	AB	148,596	427	58	58	B
ZL2AHT	AB	9,028	88	19	18	—
ZL4BO	21	41,792	230	22	42	B
VK1APM	21	24,840	231	13	23	B

Some high scores, taken at random, of Amateurs in different parts of the world are as follows:

Single Operator:

KH6LJ	AB	794,364	1240	85	127	D
CE3AG	AB	371,668	611	75	113	D

Multi-Operator:

W3VKD	AB	609,088	701	98	209	D
W3FYS	AB	441,264	490	103	214	D
W6TPJ	AB	350,610	465	107	183	D
W9AVJ	AB	375,744	473	107	197	D
5A5TE	AB	712,272	1058	66	162	B
CN8IF	AB	773,640	1244	58	152	B
ON4SZ	AB	348,068	612	64	153	B
DJ3JZ	AB	754,580	1029	82	208	C
KG6FAE	AB	691,601	1321	76	105	D

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1958 VK4 PALM BEACH CONVENTION

JUNE 14, 15, 16

In addition to established Convention Programme, the 1958 VK4 Palm Beach Convention will feature both a W.I.C. E.N. and a V.h.f. Conference.

These items have been included so that both the country members and city members who are unable to attend meetings regularly will have the opportunity of hearing at first hand the latest information available on Government attitude, Federal and Divisional proposals, and be able to enter into discussions covering all types of equipment for emergency service.

The v.h.f. enthusiast will be well catered for with discussions covering Contest rules, band allocations and uses, interference or any other pet subject they may wish to air.

The Division has again been successful in securing the National Fitness Camp where accommodation is available for all members of the family, at a nominal figure.

The very popular Bob Campbell Memorial Contest has been arranged for Sunday, 15th, from 1430 to 1600 hours and all stations are requested to be on the look out for contest participants. For the v.h.f. chaps, a 50 Mc. contest running for the duration of the Convention will be staged and it is hoped that an Interstate break-through will really liven things up when Blindfold and Hidden 2 Metre Transmitter Hunts are not in progress.

Barbecues, ragchews, entertainment and a general good time is assured to all who attend.

If you have not been to the VK4 Palm Beach Convention before, come along and enjoy a really first class week-end.

Remember: It is not the best because it is the biggest; it is the biggest because it is the best!

Go to the VK4 Palm Beach Convention over the Queen's Birthday Week-end.

Temperature Compensation in Transistorised Receivers

(Continued from Page 8)

Beside stabilisation by resistances and the method just dealt with, we have other types, viz. stabilisation by a thermistor in the bias network or by a tandem arrangement, which is very seldom used. Thermistors are, however, a popular component for stabilising, within a certain temperature range, the operating point of push-pull output stages with transistors⁽⁶⁾. With this method of stabilisation, accurate experiments are necessary to determine the correct type of thermistor which will compensate adverse effects over a temperature range as large as possible. For push-pull output stages, the method can be recommended as being relatively efficient.

Considering a communication receiver using triode junction transistors throughout, the transistor type must be selected for each stage according to the maximum frequency of operation. This is undoubtedly of primary importance. Secondly, the temperature behaviour of the transistors is essential. Assuming, for instance, type OC44 in two r.f. stages, the first mixer, and the first oscillator, bands up to 14 Mc. could be covered with selected transistors. Much attention must be paid to the stability of the first oscillator. If band-tuning is not wide enough at the required stability, using the author's method of stabilisation, a combination of this and the aforementioned resistance method is recommended. Things become simpler with the first i.f. strip, as the frequency is reduced. Whether the oscillator for the second mixer is crystal controlled or LC-stabilised is governed by a consideration of costs. An LC-stabilised transistor oscillator is much less expensive and yet sufficiently stable.

The second i.f. strip may be designed as the first one, as far as the temperature sensitivity is concerned. Tempera-

ture effects in the detector stage can be made negligibly small by correct design. The audio part should be resistance stabilised with a relatively large stability factor. Circuit details are similar to those of the transistorised modulation amplifier the author described some time ago⁽²⁾. If the normal class A output stage shown in that amplifier is to be replaced by push-pull output, thermistor stabilisation in that stage is a suitable method.

Summarising, a transistorised communication receiver may be designed such that effects of temperature are completely compensated. Yet, the battery economy remains at a level normally expected for transistorised equipment. Other advantages are small overall dimensions and extreme rigidity.

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- (5) H. J. Albrecht, "A Transistorised Miniature Transmitter," "A.R.," Vol. 25, No. 3 (1957).
- (6) R. F. Shea, "Principles of Transistor Circuits," Wiley & Sons (1953).

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PREDICTION CHART, JUNE '58

Mc.	E. AUSTRALIA — W. EUROPE S.R.												Mc.
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CORRESPONDENCE

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publishers.

SHORT WAVE LISTENERS

Editor "A.R.," Dear Sir,

I write this letter in support of Ian Hunt's most timely comments on S.w.l. Groups, and most certainly endorse his comments.

However, before going any further with the subject, I feel it necessary to point out that I, with only about six months as an associate member, have had the utmost help and co-operation from our VK2 President, Secretary and QSL Manager. It is some of our Amateurs, not only VK2s, but in all States, whose "friendly advice and counsel to the beginner" that I wish to discuss.

Many of these chaps are quite prepared to ignore completely the s.w.l., although that individual goes to a lot of trouble to furnish information which must at least be of interest, if not help.

I have sent detailed reports to many Amateurs throughout Australia, if and when there has been something out of the ordinary connected with their transmissions, and will continue to do so. But the number of acknowledgments which I have received have been few. The majority have been completely ignored. To say the least, this is disheartening and tends to show the relationship between s.w.l.'s. and many Amateurs.

Fortunately, there are many others who are ready and willing to be of assistance to us, and who will go out of their way to assist anybody who needs their advice.

With the formation of a Listeners' Group in VK2, it is hoped that a closer relationship between Amateur and Listener in this State will eventuate, and that we, of the Group, can show by our actions that we can be something other than just another organisation.

I suggest to s.w.l.'s. in general that they make an onslaught on the two major contests this year, hop in and have a go, it's our only way to make ourselves noticed apparently. Sooner or later, some of these chaps who have been ignoring us will acknowledge our assistance.

I am not a technical man, but have been an operator for the past fifteen years, the past six of which I have been s.w.l'ing. In that time I have come to realise the importance of our hobby, and do trust that by working closer together we can do much to spread the good work of Amateur Radio.

—Don Grantley, WIA-L2022.

* * *

Editor "A.R.," Dear Sir,

The letter of Ian J. Hunt in May "A.R." gave me such a case of the "screaming hab-dabs" that I had to pen a reply. Understand that I am giving my views as a "rank-an-file" member and not as a member of the VK4 Divisional Council.

This Division sent letters to all secondary schools in Brisbane some time ago advising senior students that we were forming a Listeners' Group. We had a roll up of almost forty young enthusiasts who were Short Wave Lis-

teners and who wanted to become Hams. They were "straining at the bit" and we put a lot of valuable time into the project but when these ultra enthusiastic potential Amateurs found that becoming members of the W.I.A. Listeners' Group didn't mean that they would receive Ham tickets automatically their enthusiasm waned and soon their numbers decreased until after three or four meetings you could count 'em on the fingers of one hand and still have two fingers to hold a cigarette with.

Since this debacle, one of our Members (notice I use a capital "M"; he deserves it), Stan Armstrong, VK4SA, has been conducting a class which is unique and a wonderful example of unselfishness—there is absolutely no fee charged and the only condition Stan makes is that the members of the class should be Associates of the Division. Mr. Hunt mentioned that in three years the VK3 Group has had approximately 16 of its members successful in A.O.C.P. or A.O.L.C.P. exams; in a little over two years Stan's class has produced many more Hams than this number. He does the course in six months with the first three months on a "flat-out" basis and revision in the rest of the time. It's so good that, in the January exam., after the three months "flat out" period of the course in progress, four of the boys sat and three passed the A.O.L.C.P.!

One of the original "ultra enthusiastic" listeners who stayed with us hasn't even bothered about the class but he is still so very keen on becoming an Amateur. Mr. Hunt says, and I quote: "Of course, it will mean hard and, perhaps at first, almost hear-breaking work," to which I say, why should we have our hearts broken trying to "spoon feed" listeners who won't help themselves? If a man shows enough enthusiasm any Amateur, without exception, will help him. Stan VK4SA, the boys who run the class in Townsville, and the individual Hams in every centre of this State have shown that by the number of Hams they have produced and are producing. The questions "Do they realise the value in having such a group and have they tried hard enough?" and "Can we afford not to have an S.w.l. Group within our Division and miss the opportunities offered?" are, in my personal opinion, idiotic nonsense!

No, Mr. Hunt, you are "talking through your hat" if you include Queensland in your condemnation and should investigate before you make such statements.

—James Rafter, VK4PR.

NATIONAL FIELD DAY CONTEST

Editor "A.R.," Dear Sir,

I am so pleased that at last somebody has expressed his views regarding the National Field Day Contest. I am referring to the letter in "A.R.," May number, by George Every, VK3GE.

As a participant in the 1957 and 1958 Contests, I must deplore the lack of publicity given them, both before and after. In the 1958 event particularly I was amazed at the lack of knowledge of the event shown by fixed stations in their contacts with me. The majority did not know that the Field Day was scheduled for that day, and their com-

ments went something like this: "I didn't know there was a Contest on today, but I'll certainly give you a serial number and also look around the band for other portables."

To my mind there are other ways of publicising contests besides "A.R." The W.I.A. broadcasts for instance. I listened to the Sunday morning broadcasts for weeks after the 15th Feb., the date that the logs were due in, but not a mention was made of the N.F.D. in any shape or form, not a comment! Paragraph "C" of the duties of the Contest Committee states: "Arrange publicity of the rules of all Federal Contests, both locally and overseas, as necessary." It is my expressed opinion that whoever is responsible for that publicity has sadly fallen down on his job.

A method of publicising coming events, quite an effective method too, in my opinion, would be as follows: As many member stations as possible on all bands likely to be used for any particular contest to initiate a slogan or what have you towards the end of all their QSOs and each contact to be asked to pass the information to future contacts, something like this—VK3XYZ is QSO VK2ABC, towards the end of their QSO, VK3XYZ says, "Don't forget the National Field Day on the 26th of next month. I'll expect to QSO you again then, so pass this on to all your contacts and help to make this year's contest a bumper event, cheerio and 73."

The lack of knowledge of the 1958 day was so acute and disappointing to me that I, for one, feel very much disposed to give the contest away next year, and I am inclined to think that is what the portables who participated in earlier contests, but not the last, felt about it.

—Alf Chandler, VK3LC.

SELECTOJET

Editor "A.R.," Dear Sir,

Just an enquiry re the Selectojet as appears in every issue of the A.R.R.L. Handbook. I have no doubt that it works efficiently, there is a commercially built one, now appearing in the A.R.R.L. adverts, but to date I have had little success with my attempts. I am sure it would be of the greatest interest to your readers if you or your staff have had any practical experience with the unit and could give some hints re the construction and use of same in a short article.

—Arthur Jones, VK3ARU.

[Unfortunately no member of the Publications Committee has had any experience with this unit. Can anyone help?—Editor.]

EMERGENCY NETWORKS

Gooram W/S,

Via Euroa, Vic.

Editor "A.R.," Dear Sir,

I have just received some issues of "A.R." from August to December '57; issues I did not have. I was very interested in the letter from VK3ABT on "Emergency Networks," he mentioned bush fire work. I would like the opportunity of telling you about our Rural Fire Brigades Radio set-up.

In our group here in the Euroa area, we have eight mobile radios and one
(Continued on Page 17)

2

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BLIND LAD PASSES ORAL EXAMINATION

For several years Raymond Bedson, 20, has listened to Amateurs all over the world on his receiver. But now he has achieved his ambition—he will be able to speak to Amateurs as well.

Raymond, blind since an accident when he was 12 years old, passed an oral examination for a limited licence. The P.M.C.'s. Department, after representation by the Wireless Institute of Australia, have permitted oral exam-

He is making a meter for the transmitter with a brass scale so that he can take the readings by touch. Later he intends to construct an audio oscillator, which will vary in frequency according to the reading of his test instruments.

Raymond's licence has some restrictions. These are that his power must not exceed 10 watts, the transmitter must be crystal controlled, and must be

built and maintained by a sighted Amateur. After some experience on the air Raymond hopes that the Department will permit an increase in power.

Later Raymond hopes to get gear for the 2 metre band, and to sit for the morse test so that he can operate on all bands.

Raymond is employed as an assembly worker for a Collingwood engineering factory. He is a keen record collector and has a hi-fi set and a tape recorder.

A friend of Raymond's—another blind lad—hopes to sit for the next examination.

— . . . —

LINK COIL FORMULA

Something that has eluded most of us over the years is a clear and definite formula for finding the number of turns for that link coil. Some time ago the writer did find just such a formula, which is quoted below. Unfortunately the source has been forgotten, not having been noted, so that credit cannot be given to the original author.

Assuming unity coupling, the number of link turns is given by:

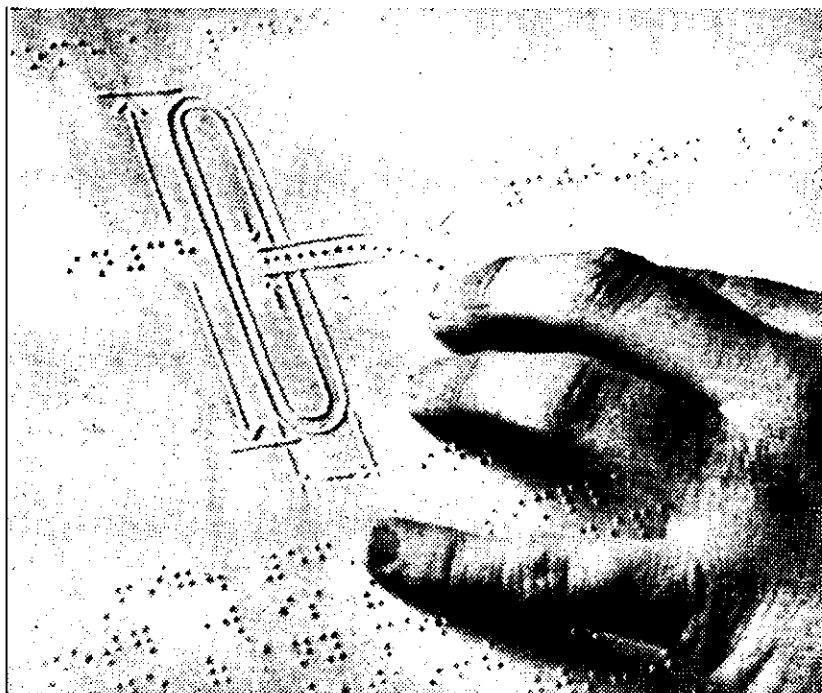
$$N = \sqrt{\frac{T^2 \times Z_1}{Z_2}}$$

where N = number of link turns.
T = number of final tank turns.
Z₁ = feed line impedance.
Z₂ = plate load impedance of final stage.

Two points are worth keeping in mind:

1. If you obtain adequate loading with loose coupling, the feed line is probably reactive.
2. A final tank with high Q makes loading easier, and increasing the final stage voltage-to-current ratio tends to increase efficiency.

—Reprinted from "Break In," Jan., '58.



Raymond's sensitive fingers trace the aerial circuit in braille.

Block by courtesy of Melbourne "Herald."


inations for the blind and in cases of physical disabilities.

He has had his receiver for three years, but wanted to be a Ham long before that. In fact, he has been Secretary of the Northern Suburbs Amateur Radio Group since 1953. He resides at 93 McMahon Road, Reservoir, Victoria.

For the last two years he has studied hard, mostly from American technical braille magazines, to which he subscribes. Raymond writes his notes and messages on his braille frame.

On April 10 he sat for his limited examination at home—"The examiner was good enough to come here for it," said Raymond—and later he learnt that he had passed. His call sign is VK3ZEB.

Since obtaining his limited license, Raymond has had constructed a 50 Mc. rig (operating frequency 50.59 Mc.) with a QEQ3/12 in the final, running 10 watts input. The antenna at present is a simple dipole. His receiver for 50 Mc. consists of a three-tube tunable converter which feeds into the AR7 receiver.



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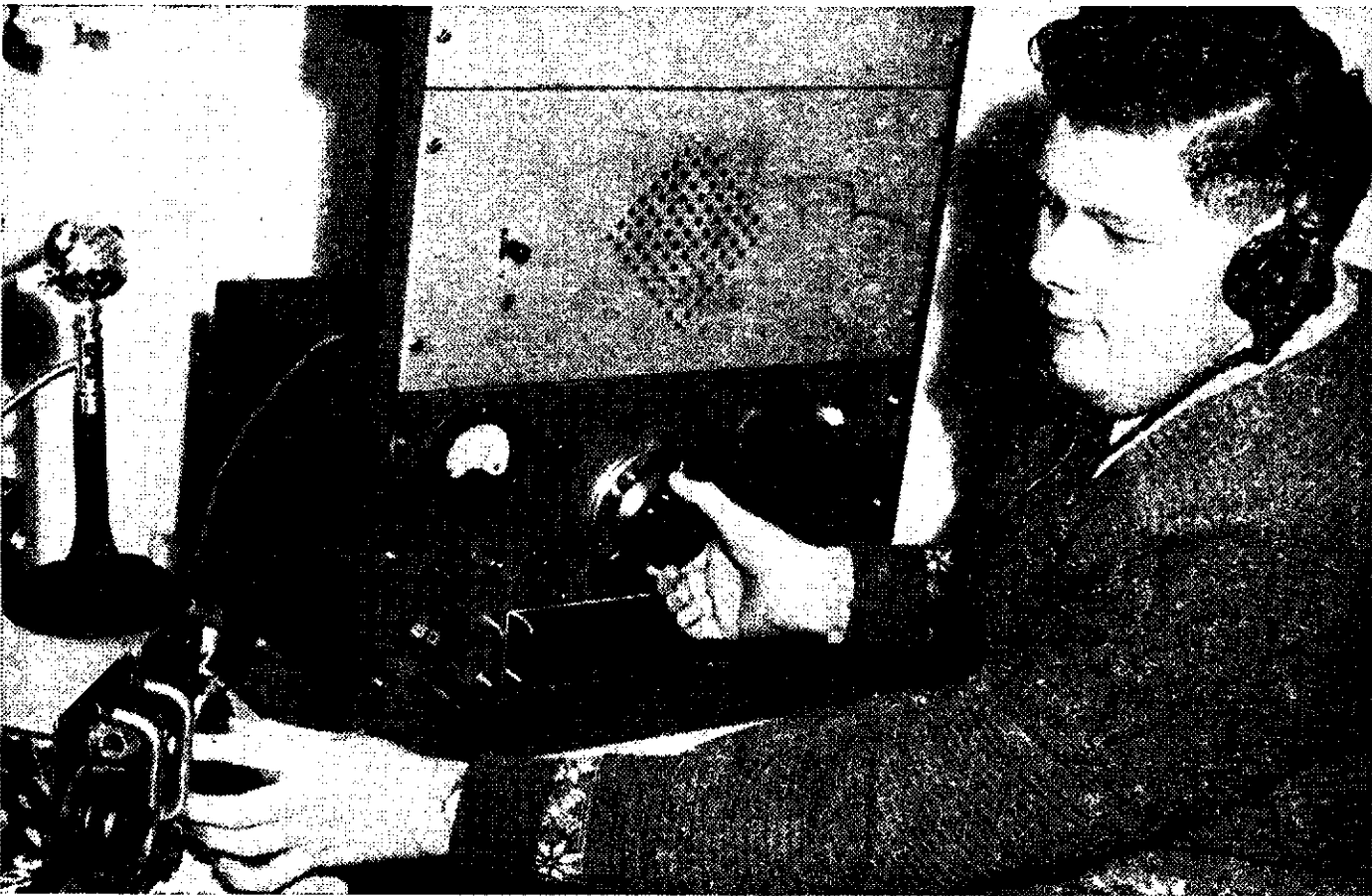
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RAYMOND BEDSON, VK3ZEB, at the controls of his receiver.

Block by courtesy of Melbourne "Herald."

CORRESPONDENCE

(Continued from Page 14)

Base set. The Base set is in Euroa. The mobile sets are installed in some fire trucks and the others in private vehicles. Three are on fire trucks, one on a Land-Rover, one on a Jeep, and three on utilities. Each Brigade purchased their own radios, no help or money from the Government; we had to buy our own batteries also. The mobile radios are situated all around the district. All of the mobile operators are farmers. All are volunteers of their own particular Brigade, all are officers, and are on call 24 hours a day all the summer, as are the rest of the Brigade members.

When a fire is reported, the mobile radio nearest to the first gets there as quickly as possible. Base comes on the air and is ready to go into action as soon as the mobile gets to the fire. In the meantime, Base notified the Brigade Captains near where the fire is to alert their Brigade and stand by. As soon as the mobile radio gets to the fire he reports to Base the exact location, what Brigades are needed and exactly where to go. What Brigades are needed is from the Captain whose area the fire is.

In our network we are on every morning at 0730, that is to find out where all operators will be, if they

will be in their own area, and pass on any weather reports received from the Country Fire Authority (C.F.A.) radio the day before. Also are on at 1205 and 1930 hours. Of an acute day we come on at 0730, 1205, then after that every hour on the hour until 1700 hours.

Our radios are all crystal locked, all are 6 volt operated. We use 12 ft. whip aerials, with centre loaded coil. Some of us carry a spare battery to a fire. Two other units have a switch that they can use their vehicle batteries while going to a fire, and their other battery while stationary.

Our Base operators are volunteers, and are on call 24 hours. Our main Base operator has a s.w. receiver and when he is at home has it tuned to 2600 Kc., our frequency, all the time and as soon as a mobile comes on the air he can hear him. I also have a s.w. set and have it on all day on 2600, so that as soon as Base comes on, I know there is a fire somewhere, and I ring our Communications Officer and let him know.

Before we got really organised and had a permanent place for our Base set, our Regional Officer's wife, Mrs. Carboon, was the main operator, and she did a wonderful job. Only the radio operators know how many hours she put in on that Base set. My wife and

Mrs. Carboon operated all one day. My wife also operated my mobile set when I had a fire on my property while I was on the fire truck.

During the winter we have skeds so as to keep the wogs out of the sets, more or less, and any faults will show up during the winter and can have them fixed.

Sometimes if the fire is big, we may have five to six radios there, have them right around the fire and have it covered N-S-E-W.

I am working on an idea now that if I go to a fire and we cannot get our radio trucks up to the fire because of hills, rocks, etc., I can take the set out of the truck, put the transceiver in one havasack and the power pack in another, and carry a 6v. motor cycle battery and use a tank whip aerial and transmit to the nearest mobile radio.

We have used our radio in searching for a lost man, two mobiles were with the search parties who were under the control of Police search party from Melbourne, and they were 25 miles away in timbered country.

We are willing to help any way possible, whether it be fire, floods or search parties. We are ready for any emergency.

Anyone wishing to contact me, I will be only too willing to answer any letters.

—A. J. McDonald.

ZEPHYR MICROPHONES

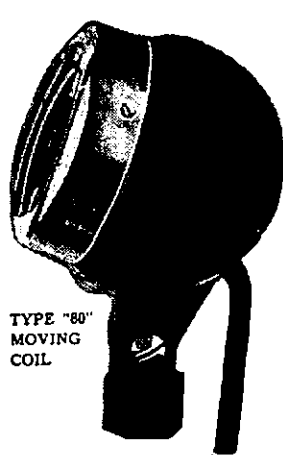


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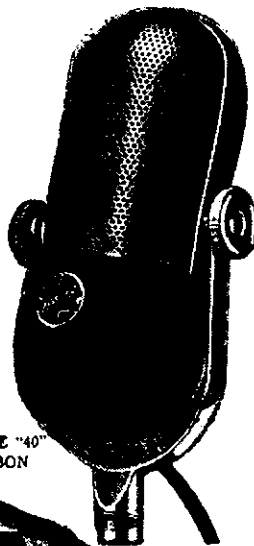


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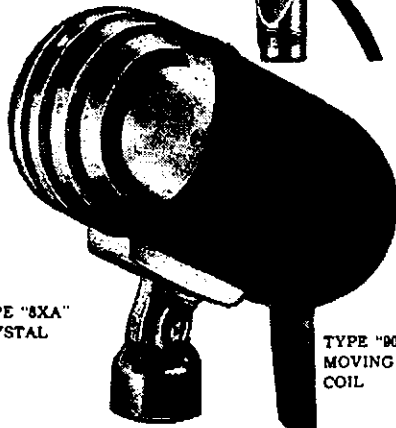


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BY ROLF SCHICK, DL3AO

WITH the rapid interest of sunspot activity during the last two years, conditions on the DX bands become more outstanding again. The QRM curve, however, follows close behind.

During the years of 1953 and 1954, I used a small converter in front of a BC454 and the results were very satisfying. The sensitivity was good which came to me as a happy surprise. The lack of selectivity (about 10 Kc. with 3 db. down) didn't disturb me in the least in the then quiet bands.

It first came to my mind that all the receivers I used so far, like BC348, BC-342, BC455, etc., were nearly useless nowadays when some locals and I worked from Luxembourg in August 1956. Using a BC342 in Luxembourg we could make 2,000 QSOs in one week of operation, but in the pile-up of some 50 stations calling us at the same time we often could only fish out the odd ones. A Q-multiplier might have helped a lot but we feared losing the compactness of the station by adding some outboard equipment.

3. Stability must be as such so that an accurate dial reading (± 2 Kc. up to 28 Mc.) is possible and that s.s.b. and d.s.b. contacts can be kept without having to finger the dial knob constantly.

4. The receiver should not cost more than \$25.

After having compiled all this information I then had to decide just how I was going to put all this into one compact unit, especially considering the fact that it should not cost more than \$25. It was some weeks later that I found the answer. How did I do it? I shall now let you in on my secret.

The receiver I had consisted of a BC455 and a BC453, of which both are very easy to get at low prices. The BC455 takes care of all-band coverage, good sensitivity and eliminates nearly all images, but using this alone does not give good results because of low selectivity and miserable band-spread. This is where the BC453 comes in. The three 85 Kc. filter gives you that 60 db's. at 4 Kc. which you have often dreamed of using on an old receiver. Don't worry about the three mixers

this 30K resistor and the antenna input of the BC453 with a screened wire.

Now we come to the bands. The BC455 is designed for 6-9.1 Mc. coverage that gives you only 40 metre reception. However, the coil boxes of the receiver can be plugged in and out in seconds and it is possible to wind a coil box for every band you desire. (It's quite similar to the well known HRO boxes.) A rainy afternoon could be put to good use to wind and adjust new coil boxes for 20/15/10. If you use the coil windings given in Table 1, you'll get good results immediately and then just a little bit of adjusting is necessary for top performance.

In the r.f. mixer coil you'll find a honeycomb winding. Unwind it completely and solder a 6K resistor across the mixer former pins 1 and 2. Then connect a 100 pF. capacitor between pins 1 and 6.

Your tuning is done on the BC453. The i.f. amplifier of the BC455 is so broad that one can dial over 100 Kc. on the BC453 to find any reworkable decrease in signal strength. I found a 100 Kc. crystal oscillator very useful which gives me "marks" on the BC455 dial. For instance, if I want to be on 21243 Kc. I get the dial of the BC455 to 21200 (zero beat to the 100 Kc. crystal) and then dial 43 Kc. up with the dial of the BC453. This gives a frequency accuracy which is better than ± 2 Kc.

All in all these two receivers do a very remarkable job. I have been using this combination now for almost a year and could QSO over 100 countries in phone. Some locals have re-built it with great success, and, too, it's not a one-man affair. Hi.

There are no doubt better receivers in the world, but if you know of a better way to get better reception from a receiver for less money, well, I for one would like to be the first to hear about it.

WRIST-WATCH RADIO

Though one may smile at this notion, already exploited by the writers of science fiction, it is not as far-fetched as might be supposed. At the annual camp of 2 Press Comm. Sqdn., Royal Signals, Army Emergency Reserve, during October, a transistor transmitter was shown, built into a match box, complete with key and power supply; the transistor used was an American 30 Mc. type actually working on 5.5 Mc., with an input of 3 mW. from a midget 4.5v. battery, while the key was a miniature micro-switch actuated by the operator's thumb. With the transmitter alone, ranges up to 1,000 yards were obtained without any aerial.

—“Short Wave Magazine,” Jan. 1958.

Band	Ant. Coil		Mixer Coil		Osc. Coil	
	No. of Turns	Length	No. of Turns	Length	No. of Turns	Length
14 Mc.	11	0.35"	11	0.35"	7½	0.24"
21 Mc.	5½	0.24"	5	0.22"	6	0.24"
28 Mc.	3	0.16"	5	0.5"	2½	0.16"

Table 1.—Note: Remove Iron Core in Mixer and Oscillator Coils!

It was through the "CQ" DX Contest of the same year that I realised that we could have done better. I was one of the multi-operators at DY3YZ who has a 75A4. If you have ever heard of the QRM from commercial stations on 3.5 and 7 Mc. here in Europe, you may know what it means to be able to work 25 W/K stations per hour on these bands.

While Knob, DL1CR, gave numbers out to so many W and K's, I monitored the frequency on a BC348 that I had in my shack. The only thing I could hear on this frequency was a S9 + 20 db. teletype station. Working with my own station back home did not give me any more satisfaction than before. One might even hear this sort of comment at a club meeting: "Heh, you must have plenty of XW8s since you don't come back when someone calls you!"

Something really had to be changed! I figured that a new receiver must have the following features:

1. Sensitivity must be good, but not too good. In most man-made equipment there is the usual amount of noise and static, however, an ultra-high sensitivity eliminates a great deal of this. Stability, selectivity and a good dial do more to give a "solid QSO."

2. Selectivity should be no worse compared to the Collins 75A4. Both s.s.b. and d.s.b. reception is a must.

involved . . . it works OK. Since much has been written on the excellent qualities of the BC453 I need not say how well this DX works as it can be used without any modification.

You probably know that the frequency coverage of the BC453 is 190-550 Kc., therefore it does not work directly in the I.F. of the BC455 (which is 2830 Kc.). These 2830 Kc's. can be mixed down very easily: The c.w. oscillator of the BC455 is (in our combination) not necessary. That work takes the b.f.o. of the BC453.

Now you simply insert a small (100 pF.) variable condenser between the plate of the 12SR7. Ground and tune it so that the (former) b.f.o. oscillates not the usual 1 Kc. up or down the i.f., but 300 Kc. down the i.f. of the BC455. With the help of a grid dipper this might be done in a few minutes. If you haven't one of these, just listen in on your old station receiver (or in a BC receiver) on 2830 Kc. with the inserted trimmer all out. Slightly turn in the condenser until you hear the tone about 300 Kc. down to the i.f., namely on 2530 Kc. This new result in i.f. of 300 Kc. can be given directly to the antenna input of the BC453.

Now you remove the third i.f. filter of the BC455 (loosen two screws and pull out like a tube) and solder a 30K resistor between the pins of the plate circuit coil. Connect the plate end of

* Reprinted from "CQ," February 1958.



Papua and New Guinea

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Duties: Assist in maintenance and operation zone and out-station radio equipment.

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Separation Allowance: Payable at discretion of Territory Administration; designed to compensate for added expense of married appointees obliged to maintain family outside Territory.

Leave: Three months after 21 months in Territory. Additional three months' leave after each six years' service and six months' furlough after 20 years' service.

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Further Information: An information handbook on the Public Service of the Territory is available from the Department of Territories, Canberra or Sydney, or from any Commonwealth Public Service Inspector, Commonwealth Employment Office or official country Post Office. Other enquiries to Department of Territories, Canberra (phone U 0411, Extension 29A).

Application: Submit on prescribed form available from offices mentioned under "Further Information":—

To: The Secretary, Department of Territories, Canberra, by 14th June, 1958.

VHF

Frank P. O'Dwyer, VK3OF
190 Thomas Street,
Hampton, Vic.

- LU Contacted by VK4NG.
- South American I.G.Y. Stations Heard by VK4 and VK5.
- W6 Heard by VK3.
- VS2 Worked by VK6.

The main points out of a month which produced some surprising openings. A month marked by the fall-off in the number of JA openings, yet producing enough to keep everyone actively looking for DX in all directions.

The outstanding event happened on April 25 when Bob 4NG contacted LU8OL and LU8OA. Signals were fair, but Bob found Spanish a language to understand. He should have had Lance SAHL at his side. Two more to go, Bob. How long before Europe and Africa come your way and you hold the first VK W.A.C. for 50 Mc.

Following the lead set by the ZL boys, the VK4 gang kept watch on the South American I.G.Y. stations and were rewarded on more than one occasion by hearing CESAAE, 49.98 Mc., then on May 8, Hughie 5BC beaming south east listened to OASAAB 49.92 Mc. between 0850 and 1045, with signal steady but peaking to S8 around 1000 hours. Station identification was heard several times during this period, so polish up on c.w. you active Z call fellows, when you copy those call signs you are in for a thrill. Both these stations run 40kw., but beam north towards the U.S.A. Under those conditions, hearing them off the back of their beams, the VK/South America path should be open for Ham stations beaming at one another, using high gain beams, efficient converters, high power. The opportunity should be there in the future to follow the lead set by 4NG.

After months of effort on everyone's part and several near misses, on April 19, 1130-1230 W.A.S.T., VS2DQ put a solid signal into VK8, working the six stations on the band at the time. Jim turned the trick by shifting down to 50.046 Mc. away from the JA QRM. Full credit to the JA stations who usually leave the first 50 Kc. of the band free for DX, only going there when they v.f.o. onto a DX station they wish to call. Col 5RO had a near miss during one JA opening when 5MT heard him being called by a DU station. Tough luck Col, there is certainly some QRM during some of these JA openings.

May 11 at 1005 E.A.S.T., Ian 3ALZ decided to see what a call towards W land would produce. No answer to the CQ, but an S5 c.w. signal near band edge signed over to ZLZDS with the call W6NLZ. In his excitement, Ian, a good c.w. operator, almost missed the call sign after hearing the W part. He followed the contact through to the end, then called W6NLZ each time he called CQ, to finally hear him go back to a ZL. The signal mostly S5, had a slow QSB to S3, but once peaked to S7. At

1030 on 50.4 Mc. a fast signal appeared, but the full W call sign was missed. Calls and listening by the alerted gang produced nothing until 1215 E.A.S.T. when a f.m. station on 50.5 broke in from due east at excellent strength, and was later identified by Mr. George Palmer as a commercial station in Puerto Rico using a very wide deviation.

Following the same pattern of east-west openings, VK8 during the period May 3-10, with one day missed, worked into ZL around midday, the May 10 opening lasting 3 hours. The quiet member from Albany, Wally 6WG, had the more consistent conditions, having the edge over the Perth gang. On April 17 Sid 3CI also contacted ZL, possibly by scatter.

A welcome re-appearance was made on the band April 26 by Doug 8DB, who celebrated it by working JA and hearing KH6 and DU. On April 27 at 2200 E.A.S.T. 9XK (Port Moresby) worked 9BW (Rabaul) on short skip, a distance of 440 miles. Signals were fair for the 21-minute opening. This same evening from 1730 to 2100 VK4 had an excellent opening to KH6, signals running S9. 9BW and 9NT have consistently worked into VK3 each week-end around 0900 E.A.S.T., whilst 9XK has found that the ZL path is good, on April 20, working 16 of them in one session. Activity has now reached an all-time high in VK9.

V.H.F. CORRESPONDENTS PLEASE NOTE

In future correspondents to this page are requested to forward their v.h.f. notes direct to Frank O'Dwyer, VK3OF, 190 Thomas Street, Hampton, Vic., to reach him by the first day of each month preceding publication. This will allow him time to compile the notes for "A.R."—Editor.

VK3 experienced their best ever night opening to JA on April 18 from 2000-2200, signals running to S9 each way. Not one of the local crowd active missed making at least a couple of contacts, 3ALZ leading the way with 16. There was much jubilation on the part of those who made the grade for the first time. The morning of the same day, JA had worked into VK2, 4, 5, 6. A sudden break through from VK4 at 2005 E.A.S.T. April 29 delighted the VK3 gang, they were able to catch up to the VK4 news, welcome back a couple of old timers and greet new comers to the band. Bob 4NG was heard at the mike from the shack of 4 Whisky Deltas. At the same period VK4 worked into VK5, while Lance 4ZAZ was heard in contact with a VK2. Apparently the VK4s find it frustrating to hear the Ws working ZL, and they cannot get a look in. Several times the ZL stations have also been heard. On April 13 3ALZ worked Hughie 5BC by back scatter and repeated the contact the following week-end by the same method of propagation.

From ZL comes the news that on April 20 ZLZDS QSOed ZK1BS (Cook Island). Who is going to work this one first? VK4 can fight it out themselves. Heard in VK6 and VK3 on 48.9 Mc., Radio Australia, one of their harmonics. An indication that the VK3/VK6 path was open at 0145 E.A.S.T. on March 31. That would have been a real night owls session, but it indicates that it is worth checking the band at all times, even when you come home worn out after a night out. Though belated, this paragraph from Bob 6BE, is ever fresh and contains a lesson which should be taken to heart by all 50 Mc. operators: "Sundry other mysterious signals have been heard. For instance, a signal from a tx obviously in trouble on 50.6 Mc. at 0015 one night, a tone modulated signal on 50.00 plus at 0100 30th March, both unidentified simply because the operators didn't send call signs."

NEW SOUTH WALES

April Meeting.—Sorry chaps that the details of this did not reach you in the last issue of "A.R." but owing to the delayed after-Easter meeting, publication was precluded. However, office-bearers for the year were elected, and together with their associate tasks are as follows: 2PM Chairman and Scribe for the "Bulletin"; ZZAQ, Secretary and Treasurer; 2OA, Vice-Chairman and O.I.C. v.h.f. gear for 2WI, Dural; 2ZAL, Contest Manager; ZCZw, Lectures Co-ordinator and Contests Assistant; 2AWZ, Publicity Officer and your Scribe. The remainder of the evening was

given over to Max 2OT who lectured on frequency and phase modulation systems, which was appreciated by members present.

Antenn Field Day, message handling contest, results given were, in order of placings: Portable section, 2ZCF, 2HL, 2ANF; Country section: 2DR, 2ZDF, 2ZDL; City section: 2ER, 2ZAL, 2MZ.

May Meeting.—Under the leadership of our new Chairman and Secretary, 2PM and 2ZAQ, an enjoyable meeting was held at the Group's regular meeting place at Gore Hill Technical College, on the usual sked of 8 p.m. The Chairman provided an informative lecture on the use of Army maps, grid references, contours and compass use, which was most apt in view of the Group's frequent field days involving the use of these essentials. Thanks Jim. Retiring Chairman, Bob 2OA, presented the Chairman's Trophy which this year went to Jim 2PM who scored 22 points over the year's contest activities. Jim was second only to 2OA with 29 points, but who, being Chairman, was not eligible for his own Cup. Congratulations to you both and to runners-up, 2ER and 2ZAV.

April Fox Hunt. This mobile night event was won by 2PM, navigated by 2ANF and 2ER, and were followed by 2AWZ with 2ZAQ, followed by 2ZCF and party. Bob 2OA with 2ZAV being the two foxy foxes, provided supper which concluded an enjoyable evening.

50-60 Mc. Activity is waning with DX becoming less frequent, however several stations are building gear and Bob 2ARG is doing good work with W.I.C.E.N. communicators.

144 Mc. Regularly heard on 2 last month were 2ZAL with additions to beam, 2PM building 407A, 6AJ4 converter, wow; 2ANF and 2DR suffering satellites, 2ZCF, 2BV, 2ZBX, 2ZBU all burning up the S.E. corner, 2ZBQ with new 4 over 4, 2ZCH going high power, 2ZCF building gear for Dural, 2ER going strong. In the country, 2DR is making regular evening contacts with 2ANF and 2ZDL of Newcastle is being heard in Sydney. 2ARG is putting a good signal over to 2APP (Young).

Dural. 2WI v.h.f. gear is progressing well and is being undertaken at present by 2ZAL, 2ZCF and 2HL. Bob 2OA is O/C and is nominating volunteers—you may be next.

Coming Up. Trusting this reaches you in time, don't miss the June meeting as 2OA is scheduled to lecture on v.h.f. converters. This will be a follow-up on Bob's well known converter article of "A.R.," Dec. '58. Also in June and on the 15th, will be a day treasure hunt; on June 25 a night mobile fox hunt. Finally, a request is made for surplus 2 mx mobile gear as several members without time to build this gear would be interested. Please contact the Secretary, V.h.f. Group, Box 1734, G.P.O., Sydney.—2AWZ.

VICTORIA

V.h.f. Meeting. The April meeting consisted of a visit to the City West Telephone Exchange. About 20 members attended and over a period of three hours they were shown the automatic and trunk line exchanges, broadcast relay facilities, telephone weather forecasting gear, automatic speaking clock, and u.h.f. radio telephone links. The u.h.f. links operating on 900 Mc. and 2000 Mc. were of particular interest to the visitors as they employed techniques suitable for the Amateur u.h.f. bands. On 900 Mc. a 2C38A was used as a m.o. in a co-axial tank circuit and this drove a 2C38A grounded grid p.a. in a co-axial tank circuit. On 2000 Mc. the m.o. used was a klystron using a temperature controlled external cavity which drove a 2C38A p.a.

The members of the Group would like to thank the P.M.G.'s. Department for the excellent organisation of the tour and for supplying extra staff to make the tour the success it was.

50 Mc. Band openings for April were rather disappointing, however a very good opening to JA occurred in the evening of the 18th when all of the VK3 stations on the band worked JAs. VKs 9XK, 9BW and 9NT have been worked between 0700 and 1000 hours by VK3s during the week-ends. Since installing his 19 x 19 ft. 12 element beam, Syd 3CI (at Nagambie) has been working consistently into Mel-

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bourne and has been working a goodly part of the DX. Jock 3ZDG has shifted his QTH to Surrey Hills, raised his beam to 40 ft without much visible means of support, and is radiating a solid signal.

Old acquaintances in VK4 were renewed on 29th when a good VK4 break-through occurred during the evening. As well as the regulars some new stations, viz., 4ZBH, 4ZGL, 4XU and 4XV were worked.

Field Day. Five portable stations were active on the last V.h.f. Field Day for the season on 20th April. They were 3ZER (2 mx), 3ADU (2 and 1 mx), 3ZCG (2 mx), 3ADG (2 mx), and 3ZAN (6, 2, and 1 mx). Home stations were active on all bands and kept the portable operators busy during the day.

144 Mc. George 3ZCG at Moe, who is active on 144 Mc. and 50 Mc., reports that the following stations are active on 144 Mc.: 3ZDP at Sale, 3ZDD at Pakenham, 3ZAB at Traralgon, 3AAV at Moe, 3ZD at Warragul, and 3DY at Maffra. 3ZAB has a new tower and hopes to grace it with a 16 element phased array.—3ZAL.

Country.—A Ballarat and District V.h.f. Group has been formed, by the active v.h.f. Amateur of Ballarat to further activity—particularly on the 144 Mc. band. The Group proposes to conduct a contest during June and July '58 as a draw-card for more activity.

- The rules are as follows:
1. The contest will be conducted over a period of eight successive Friday nights commencing Friday, 6th June, and ending Friday, 25th July.
 2. The contest will be held on 144 Mc. band only. Scoring will be by one confirmed phone QSO with any or each Group station on any contest night.
 3. Scoring will consist of five points per contact increasing by one point for each successive contact with any Group station on any one night. E.g. 6th June 3ZXY works SPO, 5 points, and then works 3ZER, 6 points. 20th June, 3ZXY works 3ZEJ, 5 points; 3ZCF, 6 points, and 3ZBS, 7 points.
 4. A bonus of 10 points per contest night will be given to every station working all Group stations active that night.
 5. A confirmed QSO will consist of the passing of call signs, signal strength reports, and traffic consisting of a five-word message, e.g. "Every dog has his day."
 6. Logs to be submitted on standard form and to be forwarded to reach VK3ZBS, 17

Daffodil Street, Wendouree West, via Ballarat, before 8th August, 1958.

Prizes will consist of: Winner's choice of Philips QQEM/20 or 10 element yagi antenna, gamma matched for 50 ohm and delivered plus a handsome certificate for 1st, 2nd and 3rd. The rejected first prize will go to the station judged the most progressive.—3ZBS.

SOUTH AUSTRALIA

April was a quieter month for v.h.f. than usual for apart from some more JA contacts of a spasmodic nature, it seemed devoid of the excitement of the past two months. Either that or we are becoming blasé.

A lot of listening was done which was rewarded on occasions, but mostly a month of building, consolidating, QSL exchanges and general cleaning up. Col 5BO is an example, who, being about No. 1 JA worker here, has become the 6 mx QSL Bureau and in addition has received a lot of literature and maps from the cherry blossom land. These include great circle maps with JA as the centre, charts and sword details, all in Japanese, giving all the information—no strain—it is thought that he will be taking on the language next to get right on the inside.

Reg 5QR contacted during a test on his p.m. and managed an improvement, although always found it good copy here. George 5GB, between jobs, found time for a quick QSO recently so his gear still functions.

Had a visit from Graham 5ZAP during which time we fired up and contacted Curl 5ZBL, and then Neil 5ZAW, finishing up with Col 5RO and Keith 5MT cross-band 6 and 2 duplex. Keith arranged the most of the gear for he was listening to Col and me on 6, transmitting on 2 with Col and me listening on 2. A perfect three-way was made.

During that time Col tried out his v.i.o. gear on 6 (as was Keith) from which it was apparent the trend for DX working to v.i.o. and local crystal was established. Most of the 6 mx boys now are so set up.

Col was on the receiving end of a test recently of a transistor crystal v.i.o. that was modulated and heard quite a distance away, so there is another way to get on 6 mx.

Bob 5RT has come up on 6 with a 6AC7 xtal osc. into a 6AG7 driving a QQ4/15 final with 20 watts, which he feeds into a 40 mx antenna. A good 5 x 9 up here anyway.

Lance 5ZBC also 5 x 6 up here with a 5 stage rig 815 final, 40w. input, into a 5 el. beam, which at present is 12 ft. high. A home brew rx right from the front end to the speaker acts as his Inhaler. Poke that beam up a bit Lance and you will get full benefit of that 40w. Welcome to the band fellow, hope we hear more from you.

Ron 5MK mentions that VS2DQ on 50.06 Mc. has worked quite a few VK5 boys on 6 mx and that VK9BW has worked VK3 and ZL, but so far not VK5. As these contacts were made at 0915 E.S.T., presume VK5 blokes were busy then.—5EP.

WESTERN AUSTRALIA

The 144 Mc. Fox Hunt took place at King's Park, the usual meeting spot. Bob 6BE was the fox. About seven cars took off at 8.15 p.m. Don 6ZAV struck trouble at the start when a bottle went in the main rx, which meant a trip to home QTH for a spare. This took about 40 to 45 minutes which gave the other hounds that much start. What a surprise Don and Roy got, when having run down the fox to be told that they were the only ones to get there! Such is luck.

144 Mc. activity is not great at present, most stations operating on 50 Mc. Lance is a new one. 6BO-6ZAV SWG checks have ceased for about three weeks—Wally having an "op."

50 Mc. activity brightened on April 19 and 20 when more JAs were worked—the scarcest stations as far as the writer is concerned are JA5s and 9s. During the break-through on the 19th, 6ZAV tuned down towards 50 Mc. and heard a signal 5 x 9 calling CQ, CQ Australia—none other than Jim VS2DQ. So resulted the first Australian-Malayan contact on 50 Mc. Jim also worked the other VK6s that were on at the time and by the tone of his voice was a very happy OM. Week-end 25th to 27th was a dead loss, not a DX signal.

The monthly meeting of the V.h.f. Group was held on April 28 and a few new members were welcomed. 6ZBC and 6ZBF among them.

The next Fox Hunt was fixed for May 28, 6ZAF to be the fox—the late date because of the All-Band Scramble to be held on May 18.

Rolo 6BO was the lecturer, his subject being, "Glow Discharge in Vacuum" and demonstrated the variety of colours obtained with various gases and minerals. Supper, as usual, ended another enjoyable evening.—6ZAV.

BOOKS OF THE YEAR FOR RADIO & T.V. ENTHUSIASTS

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★ RADIO HANDBOOK, 14th Edition	85/6 + 2/- Post.
★ BASIC TELEVISION, by Grob, 2nd Edition	66/9 + 2/- Post.
★ RADIO DATA CHARTS, by Beatty and Sowerby, 5th Edition	12/6 + 1/- Post.
★ WORLD RADIO HANDBOOK FOR LISTENERS, 1958' Edition	22/6 + 9d. Post.
★ BEAM ANTENNA HANDBOOK, by Orr	32/6 + 6d. Post.
★ CARE AND REPAIR OF HI-FI, by Feldman	31/- + 1/- Post.
★ BETTER SHORTWAVE RECEPTION, by Orr	34/3 + 1/- Post.
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President: Perc. Healy, VK2APQ.
 Secretary: Keith Woodward, VK3ZAU, Box 1734, G.P.O., Sydney.
 Meeting Night: Fourth Friday of each month at Science House, Gloucester Street, Sydney.
 QSL Bureau: Box 1734, G.P.O., Sydney. Frank Hine, VK2QL, Manager; assisted by Allan Smith, VK2AIB.
 Zone Correspondents: North Coast and Tablelands: Noel Hanson, VK2AHH, Ryan Ave., West Kempsey; Hunter Branch: R. W. Rose, VK2AGR, 17 Brooks St., West Wallsend; Coalfields and Lakes: H. Hawkins, VK3YL, 9 Comfort Av., Cessnock; Western: W. Stitt, VK2WH, "Cambijowa," Forbes; South Coast & Southern: E. Fisher, VK2DY, 3 Oxlade St., Warrarong; Sth. Western: J. W. S. Edge, VK2AJQ, Wallace St., Coolamon; Tamworth: F. W. Fowler, VK2AFP, 4 Thompson Cres., Tamworth.

VICTORIA

President: F. G. Ball, VK3YS.
 Secretary: J. R. Lancaster, VK3JL.

NOTES

Administrative Secretary: Mrs. May, C.O.R. House, 191 Queen St., Melbourne.
 Meeting Night: First Wednesday of each month at the Radio School, Royal Melbourne Technical College.
 Divisional Sub-Editor: V. M. Jones, VK3YE, 7 New St., Surrey Hills, E.10.
 QSL Bureau: Inwards and Outwards—W.I.A., 191 Queen St., Melbourne, C.I, Vic.
 Zone Correspondents: Western: W. J. Kinsella, VK3AKW, Magdala, Lubeck; South Western: W. Wines, 48 Cranley St., Warrnambool, and W. Zimmer, VK3AWZ, 70 Skene St., Newtown; Far North Western: M. Folle, VK3GZ, 101 Lemon Ave., Mildura; Midlands: R. Jonasson, VK3ND, Farnsworth St., Castlemaine; North Eastern: L. Ellason, VK3ALE, 72 Orr St., Shepparton; Eastern: J. Spark, VK3AJK, 20 Marshall Ave., Moe.

QUEENSLAND

President: Frank Bond, VK4ZM.
 Secretary: W. J. Rafter, VK4PR, Box 638J, G.P.O., Brisbane.
 Meeting Night: Fourth Friday in each month at the State Service Union Rooms, Elizabeth Street, Brisbane.
 Divisional Sub-Editor: A. Simpson, VK4ZAE, Cr. Baden Powell and White Sts., Everton Park.
 QSL Bureau: Inwards—J. Flies, VK4JF, Vanda 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, VK3CA, Box 1234K, G.P.O., Adelaide. Telephone: UX 2621.
 Meeting Night: Second Tuesday of each month at 17 Weymouth St., Adelaide.
 Divisional Sub-Editor: E. C. Daw, VK5EF, P.O. Box 44, Gawler, S.A.
 QSL Bureau: G. Luxton, VK5RK, 27 Belair Rd., West Mitcham, S.A. (Inwards & Outwards).

WESTERN AUSTRALIA

President: L. Roeger, VK6HR.
 Secretary: J. R. Elms, VK6BE, Box N1002, G.P.O., Perth, W.A.
 Meeting Night: Third Tuesday of month at Perth Tech. College Annex, Mounts Bay Rd.
 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. E. L. Dunne, VK7PD.
 Secretary: K. E. Millin, VK7KA, Box 371B, G.P.O., Hobart.
 Meeting Night: First Wednesday of each month at W.I.A. Clubroom, 147 Liverpool St., Hobart.
 Divisional Sub-Editor: W. W. Watson, VK7TY, 58 Brooker Ave., Moonah.
 QSL Bureau: J. Batchler, VK7JB, 39 Willowdene Ave., Lower Sandy Bay, Hobart.
 Zone Correspondents: Northern: K. J. Briggs, VK7LX, 18 Melbourne St., Launceston; North Western: L. S. Eddington, VK7LS, 3 Jenner St., Wynyard.

PAPUA—NEW GUINEA

President: F. N. Nolan, VK6FN.
 Secretary: G. A. Greville, WIA-L9004.
 Divisional Sub-Editor: R. Clark, WIA-L9001, P.O. Box 204, Port Moresby.
 QSL Bureau: D. S. Brown, VK9SB.

FEDERAL

FEDERAL CONTEST COMMITTEE

The following Hams will sit upon the Federal Contest Committee this year: Chairman, G. M. Bowen (VK3XU); Secretary, R. G. Harris (VK5RR); Manager, R. H. Richards (VK5DO); Committeemen, R. V. Galle (VK5QR) and L. E. Catford (VK5LC).

AMATEUR ADVISORY COMMITTEE IN SOUTH AUSTRALIA

Advice has been received from the Federal Councillor for the South Australian Division that the following will serve on the Amateur Advisory Committee: W.I.A. Members—G. M. Bowen (VK3XU), R. G. Harris (VK5RR), B. A. Palk (VK5FQ); Non-Members—A. R. Andersen (VK5GM), F. F. Bourne (VK5BU), A. B. Brooks (VK5KG).

FED. CONTEST COMMITTEE

IMPORTANT AMENDMENTS TO R.D. RULES

Elsewhere in this issue will be found complete rules for the 1958 Remembrance Day Contest.

It will be noted that a few important amendments have been made to the rules this year. These amendments were made after careful consideration had been given to suggestions submitted by the Divisions in response to a request published by the Committee in the February issue.

These amendments have been made with the object of encouraging all Amateurs to enter

CONTEST CALENDAR

Compiled by W.I.A. Fed. Contest Com.

★

R.D. CONTEST—

Dates: Saturday, 16th August, 1800 hrs.
 E.A.S.T.; Sunday, 17th August, 1759 hrs. E.A.S.T.

VK-ZL DX 1958—

1st and 2nd Week-End October.

the Contest, with particular emphasis on Amateurs in the larger Divisions who could, by a concerted effort, well contribute towards their Division winning the Contest.

The following are a few comments on the rules which have been modified, with an explanation as to the reason for such modification.

Rule 1.—No substantial alteration has been made here, but section (d) now shows clearly that the receiving section is open (viz., both phone and c.w. stations may be logged) and that there is only one section for receiving contestants.

Rule 4.—This is an important amendment and now permits phone and c.w. stations to freely work each other and providing they are transmitting in the section they have chosen, neither will lose points for themselves or their Division. Remember, however, that you must record all your contacts even should you transmit in a section other than your own and no points are claimed for so doing. Should you fail to do this, your contact, who may be transmitting in his own section, will lose his points by your omission.

Rule 14.—This amendment is vital and it is imperative that all contestants understand the implications of the formula by means of which the winning Division is determined.

The important amendment is the bonus which is now added to the average of the top six logs. Note that this bonus is influenced by the total points from all entrants.

Should you not be in the top six, every contact, nevertheless, will count for your Division. In previous contests, it mattered little whether you made 5 or 100 contacts, your log counted only as a multiplier. This may have been the reason why so many contestants did not submit a log, in fact, during some checking sessions the call "no log" became monotonous. This has now all been changed, so do not forget to submit your log, no matter how small. You are just as important to your Division now as is the top scorer, providing you have made at least five contacts.

Receiving Section.—No change has been made to the rules of this section but it has been clarified. Experience last year showed that most receiving contestants did not understand how to apply the scoring table and in some instances we found they were claiming points on the basis of the Division in which the call originated.

This is incorrect. If you remember that you are like a VK3 transmitting in Victoria, a VK6 transmitting in Western Australia, and so on, you cannot go wrong. An example of a receiving log has been shown to give you further help.

The Committee wishes you all the best of luck in the Contest. They feel you will appreciate the amendments made and trust you will all co-operate in making this the best Contest ever.

—R. G. Harris, VK5RR, Secretary F.C.C.

FEDERAL QSL BUREAU

The new address of the U.C.A.R. Bureau is Box 614, Jadotville, Belgian Congo. The Elisabethville and Leopoldville addresses are obsolete.

BERS195 reports hearing VS1BB/V59, Maldives Islands, from 1200z onwards on 14040 Kc. c.w. He also is hearing HV1CN, Vatican City, on the phone band.

One of the most successful of the many South African YL and XYL operators, from the DX point of view, is Gwen Smith, ZS1NQ, who is music principal at Helderberg College, Somerset West, Cape Province. Gwen is active on 14 Mc. c.w. and beams the fact that not many of the VK stations worked have sent QSLs. Among other achievements she has made W.A.Y.L. and W.A.S.

Novice stations in U.S.A. are soon to be allotted the prefix WA or WV, due to the W and K ranges becoming exhausted. The first districts in which the new prefix allotments will be made are W2 and W6.

A re-arrangement of district areas in France has resulted in the issue of F2 call signs.

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Complete details are not yet available. The F2 district is situated around Rouen.

Al Scarlet, W2CC, well known to VK Hams over the past twenty years through his regular weekly skeds with VK5EO, VK3HL, VK-SXB, VK3RJ and ex-VK5HG; recently enjoyed a short cruise around the West Indies. He visited KV4AA, PJ2CE, VP5AK and HH2OT. While at Curacao he also met G8RV who was enroute to Venezuela. Al enthuses over the set-up at KV4AA and deplors the many difficulties under which Herb HH2OT has to labor both in his Ham activities and in his labors as a missionary.

As a special gesture to Hams in Oceania who desire SM 1st district for the W.A.S.M. award, Bjorn Bergstrom, SM1BVQ, advises he will be holiday making on Gotland Island from 10th June to 20th August. Bjorn will be standing by on c.w. on about 14050 Kc. from 0600-0800z on the following dates, expressly to work Oceania: June 10, 15, 20, 25, 30; July 5, 10, 15, 20, 25 and 30; August 5, 10, 15, 20. His address for QSLs is S. Kyrkogatan 3, Visby, Sweden.

—R. Jones, VK3RJ, Manager.

FEDERAL AWARDS

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

Certificates have been issued to W2GT, ZL1HY, K8DDO, W2SAW, W2BXA and MP4KAC, making 77 Certificates issued to date.

—G. Weynton, VK3XU, Manager.

NEW SOUTH WALES

The April general meeting of the N.S.W. Division of the W.I.A. was held at Science House on April 24. The usual meeting night, Friday, being Anzac Day, Attendance was below normal, possibly due to the holiday next day and the very heavy rain earlier in the evening. Some 40 members were present.

The minutes of the Annual General Meeting were confirmed along with those of the March meeting. 50 new members were elected, surely an all-time record. This large number contained the names of many full members, some rejoining the Institute and others joining for the first time. Membership application forms had been sent to many non-members along with advice relating to QSL cards held in the Bureau on their behalf. Many of these forms had been returned and the applicants elected. 12 of the fifty resulted from the recent formation of the Short Wave Listeners' Group in this State.

The Secretary mentioned that since January the Division's membership had increased by 69. The proposal to start a correspondence course for the A.O.C.P. was discussed.

Mr. Ken Pincott, 3AFJ, was introduced by the President, Pierce Healey. Ken, as Technical Editor of "Amateur Radio," spoke of some of the problems associated with publishing the magazine. He pointed out that the Magazine Committee all did this work in an honorary capacity. Finance was their biggest problem. Members were asked to try and interest more advertisers in this State to use the magazine. All agreed that advertisements were of interest to readers.

Many suggestions were forthcoming from members present—to quote a few: Do away with advertising altogether. Reduce the size of the magazine. Cut publication to an issue every two months. Have punched holes to facilitate filing. Print an attractive photograph on the front cover.

Ken appealed to members to send in more original articles. These should be accompanied by photographs measuring 10 x 8 inches where possible.

A new series to appear shortly, headed "The Other Man's Station," Ken thought would be of interest to all readers. He suggested that a photograph and some 200 words describing your station be sent down.

A vote of thanks to Ken was proposed by the Treasurer, Ced Smith, who said he thought Ken's comments had given members some understanding of the problems faced by the Magazine Committee, and members had contributed by their interest and constructive suggestions.

A motion was put by George 2CB, "That at the next meeting, a new committee be formed to carry out work at Dural, and that all aspects of this be discussed." George pointed out that the old committee had become defunct, and that he, as one of the original committee, would like to see much more being done at Dural.

The meeting closed and members partook of coffee. This old scheme is again being tried after a long lapse, and will be available again at the next meeting to be held at Science House, Gloucester Street, on May 30.

HUNTER BRANCH

The April meeting of the above Branch was held at the usual date and place when 2CS, 2ZDF, 2RJ, 2ZDZ, 2GV, 2AEE, 2AQR, 2AOR, 2XT, 2FP, 2SZ, 2CN, 2FX, 2AHA, 2QB, 2ARV and six associates heard an extremely interesting and informative lecture on receiver selectivity which was expounded by Hans 2AOU. Hans gave the chaps a lot of food for thought and the wide grin on 2CS's face indicated he had incorporated a lot of the ideas of the quietest members were absent, Bill 2ZL wasn't allowed to come as he didn't get home from the previous meeting until 2 a.m., and Harry 2AFA had a sore finger from hanging up his D.K.C.C. award.

Congrats to Bill 2XT for two seconds and Harold 2AHA for a second and a third at Urunga, other lads who ventured so far from home were 2AOR, 2BZ, 2SF, 2FP, 2GV, 2XQ and Bob Bailey. The Divisional genial President and under-worked Secretary informed the gang over 2AWX all about Urunga and what we stay-puts missed. 2ZL and 2AQR visited Wal 2AXH at Terrigal to bid him bon voyage to the shaly isles. Wal can be heard working them and Pop 2AHL most nights on 40 mx during their cocktail session. The Pitt-water pals, Mac 2ADV and Harry 2AHZ, visited 2XT, 2AQR, 2ZL and the mosses at Tea Gardens. Varley 2SF piloted 2CS to the Gosford Club so that Lionel could tell the Brisbane Water boys how to build a sooper-dooper receiver; the Hunter boys have yet to endure this. Ron 2ASJ much better heard in fine form with 2XO. Welcome to Fred 2AEE on the air; glad to hear Les 2RJ and Nell 2XY giving 2WI a report. Bob 2TY, an ex-Novocastrian, heard working locals on 40 mx. Heard the best raspberry of the era, given to a Sydney fellow who tested on a group of three and then called CQ for several minutes—wonder where the oral flutter came from? 2ZL still does not believe that 2AQR dropped his 65 watts to 12.5 specially when the latter still gets two S points better than him. Bill 2ZS soon off to VR land for three years; no doubt he and Pete VR2DA will soon get together. Chaps, if you want honorable mention in this column, I'm on the phone as well as I Mc.

Next meeting of Branch will be held at 8 p.m. on Friday, June 13 (cripes!), at the University of Technology, and the social-cum-billiards at Bill's Bowery on the 25th.

VICTORIA

To those who are not so well up in t.v. and to the more experienced, no doubt, the lecture at the last general meeting proved to be a real treat.

The subject of the lecture was "An Approach to T.V. Receiver Alignment" and the visible member of the lecture team was Mr. Ian Angus. I did not obtain the names of the silent partners who operated from other parts of the building, but to all we offer our heartfelt thanks for a very pleasant and informative evening.

It would not be possible nor appropriate to try and cover the lecture in detail in these notes but suffice to say that if anyone went home none the wiser for his attendance, then he had only himself to blame.

The technique adopted in presenting the lecture was rather unique. The theory of operation of a t.v. rx and the methods of achieving the desired results were first covered by the lecturer with the aid of slides and transparencies. Then at the appropriate times, various procedures associated with the alignment of a rx using equipment previously described were gone through in a distant part of the building and presented to us in the lecture theatre by means of closed circuit television. It was certainly an excellent means of demonstrating the equipment and techniques to the most people in the shortest time and was a most uncanny experience for the audience. The split screen method of presenting certain of the information was something out of the box. It was quite obvious that a tremendous amount of work and time was expended by the staff of the Melbourne Technical College in presenting this lecture and it is hoped that we made our feelings quite clear to them in our support of the vote of thanks.

At the time of writing the last notes I was not aware that Jim Marsland had actually passed up the post of Editor due to ill health, and I have very much pleasure in announcing that Ron Higginbotham has now taken up the reins. Congratulations Ron and our best wishes for a successful term of office.

It was pleasing to note that Jim was in attendance at the last meeting and looking reasonably fit. He was there in his capacity of Treasurer and the President soon took advantage of the fact to clean up the con-

tentious points carried over from the annual general meeting of the previous month.

You may remember that things were pretty hectic at the annual general meeting and it was hard to distinguish this meeting from a grouch night. Without trying to labour the point too much, I would like to quote from a member's letter to the Council, which was in the same vein. The member concerned was at the meeting and he got the impression that the Division is, in his own words, "becoming apathetic of its own welfare." He went on to say that part of the proceedings followed very closely the rules propounded some years ago on "How to kill an organisation." These rules are very interesting and are repeated for what they are worth: (1) Miss as many meetings as you can. (2) If you attend, come late. (3) Wet weather is a fine excuse. (4) Be sure to find fault with the office-bearers and other members. (5) Decline all offices as it is easier to criticise than to work. (6) Get sore if you are not put on a committee or if appointed don't take any interest. (7) If asked your opinion, say you have none, but later tell others what ought to have been done. (8) Do the least possible and when others roll up their sleeves to help matters, howl because of the clique running things. (9) Keep contributions long overdue and delay answering all letters. (10) Don't bother about getting new members, let the other fellow do it. If enough members follow the above rules certain death to the club is assured. I am not suggesting, of course, that this sort of thing is rife in our Division, nor do I believe that the correspondent had this in mind, but it could become catching and it pays to be alive to the potential dangers in an "apathetic attitude."

As announced in the last issue every licensed Amateur in Australia will shortly receive advice of the proposal to send a delegate to the next I.T.U. Conference and be asked to make a donation towards the cost. It behoves every one of us to give this matter our serious consideration and support as the law of the jungle still applies. Divided we fall; United we stand, and I don't think anyone is silly enough to believe that we can retain our bands without a pretty tough tussle.

By the time these notes appear in print the 80 mx antenna at the rooms should be back to its old half wavelength long. Negotiations have been proceeding for months with the owners of the adjacent building to bring this about and success has at last been achieved. It is hoped that this increase in length in the antenna system will result in a much better coverage from 3WI than has been apparent in the past with the shorter antenna.

New members admitted at the last meeting were: Mr. R. A. Baurne (3ZEZ), full member, and Messrs. E. F. Wickett, C. B. Roberts, and D. A. Austin, Associates.

If the enquirer who wrote over the non-deplume of "VK3-CMM" would care to present himself at a general meeting or forward his name and address, the President and Council will be most happy to answer his queries.

Mr. G. Robertson (3WJ) is the speaker for the next meeting and his subject: "The W.I.A. Emergency Network."

SOUTH WESTERN ZONE

The zone seems to be very active, always plenty on the bands. The zone hook-ups are very well attended, but there are still a lot who could come on. What about it chaps?

The A.O.C.P. class, which is being conducted at the Warrnambool Technical School, is going along quite well. There are approximately 25 students under the teaching of ex-VK3OH, Jack O'Hara, who has intentions of getting a call for the School as a club. Most of these pupils hope to become members of the Institute. If this is true, the South West Zone will grow to a good strength.

Jack 3AJK, from Moe, visited Warrnambool on Saturday 26/4/58. He visited Bill Wines and spent the afternoon with him and his XYL. Jack tried out a new tx whilst visiting Bill and it certainly works. Jack also had one of his harmonics, Allan, as second boss. After a very nice cuppa, etc., and a very enjoyable rag-chew, we said farewell.

The minutes of the Convention have now been handed over to the Secretary, so you should get your copy soon chaps. The minutes were printed by Lindsay Moffatt at no cost to the zone. Many thanks!

We hope to have the zone's frequency meter back in the hands of the Secretary shortly, so that will be handy. Bob 3IC is doing a good job on that Type A, working portable. Quite good up here in Warrnambool, 5 and 7 to 8.

EASTERN ZONE

The Eastern Zone fox hunt for April went off successfully at Moe, taking a different form than is usual. A certain area is declared as prohibited to the hounds, where the fox remains stationary at different selected spots

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EVENINGS AND SATURDAYS

In the area, to a time table during the afternoon, whilst the hounds take cross bearings on their maps supplied, using pencils, compass, etc. Five hounds turned up and Allan Ormon was the fox. As this hunt was so successful, our next one will be of the same type, to be held at Yarram on the last Sunday in May.

David 3DY has been operating mobile around the Gippsland area working a few VK2, 5, 6 and ZLs on 80 mx, and Jack 3JK was operating portable in the Western District on 40 and 80 mx. Beg 3AVV, of Yallourn, is back on with 50w, in a new centre fed aerial. Ian 3AAV now has his 100w. rig on the air, tan an 813, and is still ironing out the modulation bugs in his bias-shift modulator, using a single 807.

David 3DY was granted permission to operate at the Careers' Hobbies Exhibition at Maffra, demonstrating Ham Radio to the public during May 18, 20 and 21.

NORTH EASTERN ZONE

On Sunday, 20th April, a very representative gathering of the North Eastern Zone were the guests of the Benalla members. At 11 o'clock all members with XYLs, YLs, and harmonics assembled at the Regal Theatre. A meeting was held in the theatre. Arthur 3AUL was appointed zone Secretary, Bill 3AHO zone correspondent.

Members of the North Eastern Zone wish to convey their thanks to Andy 3FD for his excellent work as past Secretary.

Zone hook-up times, 1300 hours every Tuesday on 40 mx, and 2000 hours every Monday on 80 mx.

It would appear that there is going to be some activity on the DX bands from 3AXW, 3ASF and 3ALE who have all bought towers and are now busily removing rust, painting and reading up on beam construction. Bruce 3AGC has almost completed a big project in the construction of a new rx. Peter 3APF still busy on t.v., 2 and 8 mx. Alan 3JI maintains daily skeds on 8 mx with 3APF, 3ALE and 3CL. Ray 3FI busy on g.d.o. project and local camera club. George 3ADZ working steadily on the construction of a new all-band tx. Congratulations to George and XYL, Ivy, on arrival of No. 1 harmonic, a son, all doing fine.

WESTERN ZONE

During April we held our Get-Together Field Day in Horsham. Had a nice gathering and it was very pleasing to note that everybody brought their wrenfof with them. Merv 3AFO and Allan 3AJX took us on a tour of inspection of the local A.B.C. broadcast station. Later we were entertained at the home of Merv and his good XYL Nora. Firstly, we had a session watching t.v., then Chas 3IB screened slides which he made of his recent trip to Antarctica. These were extra well done, and Chas must be congratulated on the way they came out. We had a complete picture of interesting scenes after leaving the Heads until he returned. Last of all we must thank Nora and Merv for treating us to such a nice supper.

MOORABBIN AND DISTRICT RADIO CLUB

At the March meeting of the Club we heard a lecture from Mr. Les Jenkins, 3ZCN, on equipment for use at ultra high and very high frequencies. Les illustrated his talk with equipment, and considerable interest was shown in some of the miniature gear brought along. Thanks once again, Les, for an interesting evening.

At our April meeting the guest speaker was Mr. George Robertson, 3WJ, who spoke to us on the Civil Defence Emergency Network, with reference to the school at Mt. Macedon and the arrangements which would be expected to operate in the event of any public disaster. Members were so interested in discussion that George got sidetracked and didn't quite finish his talk. Nevertheless, a good time was had by all. Don't forget your promise to come and see us again, George.

3APC has been active on 2 mx from our Natter Night, the first Friday of each month, and on 40 mx from portable locations in the Club hook-up on the fourth Friday of each month.

Club member Ian Caporn, 3AXC, has had a lengthy period away from work due to ill health. We wish you all the very best, Ian, for a speedy recovery, and hope to see you back at Club meetings very soon.

QUEENSLAND

A considerable amount of chopping and changing of plans has temporarily upset the normal routine of the Division's activities. This year Anzac Day coincided with our general meeting night and in order to secure a good roll-up, the meeting was postponed until the

first Friday in May. Resulting from this change in plans, the usual 2 mx Tx Hunt (held on the first Friday of each month) had to be cancelled. However, after this, we expect things to settle down once more.

At the last Council meeting Jim 4OB presented the balance sheet which was subsequently published in "A.R." Councillors were pleasantly surprised at the very efficient way in which Jim has carried out his duties and at the number of suggestions that he has put forward in an endeavour to streamline and increase the financial position of the Division. A vote of thanks was passed to Jim for the obvious effort that he has put into the office of Treasurer.

The position of Outward QSL Officer has not, as yet, been resolved, but in the meantime Jack 4JF has consented to taking on the Outward Bureau to prevent a bottle neck of cards. It is a tremendous task and with the Inward Bureau to look after as well, Jack has a job and a half on his hands!

The Convention Committee presented an outline of events and arrangements have been made with two able women, Mrs. Lane and Mrs. Ferguson, to handle the catering. The boys, Brian 4ZAP, Bruce 4ZBD and Tom 4ZBH, have already embarked on an extensive campaign to make the Convention a success. Circulars have been dispatched and it is expected that Hams who have never been seen before will turn up at Palm Beach.

The invitation is open to anyone who professes an interest in Radio or any field of Electronics. You can be assured of separate accommodation for the whole family (if you wish) with plenty of good food and an action-packed week-end of events! So what about it chaps? Keep the Queen's Birthday week-end in June free for the Convention at Palm Beach.

After the Council meeting an emergency committee meeting was held with Vince 4VJ in the chair. Preliminary details for the possible future zoning of Queensland in relation to emergency centres was discussed. A great deal of thought has gone into this scheme and it is hoped that future W.I.C.E.N. trials will gradually eliminate all the various weaknesses and we hope, finally present 100 per cent. safe coverage for VK4 towns and cities. Outside help will come via the country Amateur so once again boys—be on your toes!

W.I.C.E.N. gear will, we hope, be on display at Palm Beach and any problem you have can be aired at the W.I.C.E.N. discussion which is part of the Convention programme.

At the last general meeting standing orders were suspended in order to provide enough time for two very interesting lectures on I.G.Y. Whistlers and Isospheric Propagation. Our thanks go to Don Crowley and Everet Brown for making the evening exceedingly interesting. The lectures were very informative and anyone with a really high gain hi-fi audio amplifier and an aerial should have no difficulty in receiving "whistlers"

The meeting was resumed after the lectures and due to lack of time, many items were referred until the next session of Council.

The President, 4FP, Bill 4XO and Alan 4ZAE over the last long week-end took a flying visit to many Ham shacks between Brisbane and Bundaberg, and the hospitality of everyone was warm and exceedingly pleasant. Many old and new acquaintances were renewed and made and suggestions were picked up all along the line. The boys had a mighty time and their thanks go to all the country boys up there "who did 'em proud"!

TOWNSVILLE

A meeting of the T.A.R.C. was held last week and the stalwarts came along as usual. The club is again going into its old lethargic state, due to the non support of other members. What about it boys? Surely one night a month is not too much to expect seeing most of you enjoy daylight working? Lecturers were nominated for the next four meetings in an endeavour to draw a crowd.

Conditions for the past month have not been too startling. The Z boys working desperately to come up on 50 Mc. to work DX, as it is their only chance as 144 Mc. seems to be right out in this area.

Ray VR3A has advised all and sundry he is now the sole operator from VR3 land. He is looking for information on cubical quads, so as to try and get a decent signal out past the coconut grove.

Most of the activity in the North seems to be on the 7 Mc. band, the following stations being heard: Andy 4BW, still keeps the time ticks at 7 a.m., whilst his contacts with Harry 4ZF are now close to 1600. This, it is understood, is for a period of nearly five years and not a bad record. Basil 4ZW busy constructing a 21 Mc. comical quad, doing his own electric welding. Now uses 8HO "Hallcraft" for a spell off the Eddystone. Claude 4UX not heard from since he arrived in Bundy, after trying for a fortnight to get there. Hold up was due to floods. He has Jess and the three harmonics with him to keep him steady. Harry 4ZP been busy fellow lately, has a kitten that is capable of lifting the grid clips off his valves—roast cat any day, soon. Vern 4LK still busy listening and working Japs on 50 Mc.. Speaks now in broken English from force of habit. Shifted to new location and now free of QRN.

Don 4PW not heard on 7 Mc. lately. Worked himself out on recent emergency in his area. Bert 4BP only comes up occasionally due to QRN and works Basil 4ZW; rag-chews about the job. Harry 4HK and Alex 4MA not heard for some time now.

Harry 8HO has left the islands and came to the best State and gone into business at Mt. Molloy; has no a.c. power, so gear was left at Cairns. Vic 4BJ at Beautiful Bundy is entering the s.h. business with the three brass balls. Recently bought himself a 6146. Eric 4EC came in on mobile from Yeppon on a few mornings recently, while waiting for the fish to bite to supply the breakfast table. Bill 2UG came on whilst operating from Bell mobile during a visit to Noel 4PQ. Bob 4RW has at last got rid of noisy transformer in the street near his QTH and now hopes to improve the DX score.

Bob 4TK has his 5-band 80w. rig completed and is now busy shielding it. Has installed a multi-band aerial coupler with s.w.r. bridge complete with meter. Aften, who is known around the north as NEJ99, after his V.W. call registration number, is a very keen listener on 50 Mc. and has logged 250 JA stations on this band. Hopes to get a Z call sign some day. Nick 4WT has not been heard for some time. Never knew a honeymoon took so long. Congrats Nick to promotion as P/O. Graham 4DJ not long on the air has amassed a total of 1600 QSOs. Eddie 5OW together with Arthur 4FE have a nightly round table with Tom 4TT, Andy 4BW and joined by Frank 9FN. Eric 4EL heard again weakly on 28 Mc., but did not come back to my call for news. Ted 4EJ still in Sydney getting eye treatment and suitably looked after by all the boys there. Even "rolled up" to the W.I.A. meeting to meet many others.

MARYBOROUGH

4DJ has put a pre-amp. before his speech amps. and with a new crystal mike, has improved modulation. Grahame has nearly completed his rack tx and when not playing with his new tape recorder, can be heard on 40 and 15 mx. 4CB is getting bits and pieces together to build a modified G4ZU beam. Should perk well on that 60 ft. tower Arch. Meanwhile operating on 10 mx. 4GH removed the cobwebs from his rx and re-aligned it. Was also seen gloating over a new transmitting condenser, so it looks as though Gordon may soon make a comeback. 4BG has re-built the three aerial couplers he uses with his G4ZU beam, to eliminate some plugs and switches. Operates on 15 and 10 mx every day.

ANNOUNCING THE 1958

PALM BEACH CONVENTION

at the

NATIONAL FITNESS CAMP

AT TALLEBUDGERA

on the Gold Coast of VK4

during the

QUEEN'S BIRTHDAY WEEK

END—14th, 15th, 16th JUNE

To tell you all of the activities you can enjoy at the 1958 VK4 Palm Beach Convention would spoil the Convening Committee's fun—but here are a few highlights to whet your interest:

Conferences: W.I.C.E.N., V.H.F.

Competitions: The Bob Campbell Memorial Contest, 50 Mc. Contest, 7 Mc. Scrambles, 144 Mc. Hidden Tx Hunts and Blindfold Hunts.

Companionships: Barbecues, Rag-chews, Entertainment, Gear Pool.

SOUTH AUSTRALIA

Our Programme Committee chose a topical subject in v.h.f. converters for last month's meeting, when Gordon 5XU and Bob SPU shared the rostrum on that subject. Gordon first of all gave us a run through of his 5GL type of converter, which later was handed around (minus the crystal) for detailed inspection. It was set up for 108 Mc. use, having a 10 meg. rock and coming out at 18 to the tunable 1.1. No provision was included for identification of exact 108 megs., he having his receiver, Bendix wavemeter, etc., available in the shack to zero beat WWV and do it that way.

The antenna used with this converter uses a triple cut 51.4 inches long spaced 1 1/2 inches with the reflector 26.7 inches away 54.25 long 1st director spaced 21.5 ins. and 49.15 long, 2nd director 26.7 spacing x 48.2 ins. long. This is mounted on a swivel head (ladder to be exact) and has worked fairly well at about 15 degrees wide this-a-way and 40 degrees that-a-way (forget which).

The minitrack equipment was then described, which is far too detailed to give here, sufficient to say that it is all complete by a prominent U.S. manufacturer, and according to Gordon had to be seen to be appreciated both in workmanship and performance. One outstanding feature seems to have been its unit construction whereby easy servicing is possible by the mere replacement of faulty units and thus leave the actual fault finding and correction to the bench. Quite an idea for our modest gear!

Bob had the 108 meg. converter on display that he made up for moonwatch at the University, such having everything on board, including marker, power supply, one stage of r.f., means of checking against WWV, which by the way was that good that a beat could be made to a point on cycles.

A trough line input, with filament leads of the first r.f. 6AK5, going down the centre of the centre tube contributing to a clean noise free input, a modified Pierce osc. circuit with a 1 meg. rock provides the basis for all the beats required for both conversion and calibrating, as well as checking against WWV. 65v. being the highest voltage used, aided in keeping noise down and also temperature, thus helping oscillator stability. A very creditable job of work, that has performed according to plan.

Bob's 6 metre converter was also displayed and features of its design outlined. Started off with a 636 grounded grid, 5AK5 r.f., 12AT7 mixer, 12AT7 cathode follower, with the crystal on 8 megs. to a 6AD6 times 2 times 2 through a 12AT7 to give 50-52 megs. on 2-4 megs. on the receiver. Once again a real Bob Boper job, and some of the tips he gave us will no doubt be carried to many other similar pieces of gear.

Vice-President, Lloyd 50K, expressed the appreciation of all present when proposing the vote of thanks to our speakers.

QSL distribution and smoko then preceded the formal business of the evening, and amongst those present was seen Bram 5AB checking off a handful of rare call area cards. He tells me the score is over 208 now, and still rising. Our perigrinating Council member Doc 5MD, who was just back from VK6, also had a few nice cards, not all VK6's either.

Five new members (3 full, 2 empty, as President Brian termed them) were accepted, Divisional correspondence was at a record low, so Secretary John had a quiet time. Rex, Fed. Councillor, gave us a few items, amongst which was the idea of holding the next Fed. Convention during Easter 1959. Everyone thought this idea good one, so this Division is in favour.

As the question of badges had not resolved itself, and it was not thought it would be very early, it was resolved to reduce the nomination fee by 5/- as from date and to credit all those who had paid and not received a badge. When the new badges do come along, we will all have to buy one so it won't complicate book-keeping to thus handle things this way.

Trust Treasurer Jim to devise a means of simplifying book-keeping and at the same time keep the money. He has gone to VK1 area for a short time and has left the full responsibility of watching the funds to Doc 5MD, who by the way reminds those who haven't sent in their 1958 dues, to do so smartly to thus retain financial status. Don't put it off any longer fellows, don't wait for any more reminders, send Doc the doings and all will be well.

A crop of portables broke out over Anzac week-end, including Keith 5MT on Yorke Peninsula and Ian 5IW in Flinders Ranges, both of whom were putting in fine sigs over here. Keith used a 2225 final modulated by a pair of 8L8s, not sure of Ian's rig, but think a 322. Other portables were Tom 5FL, Gordon 5XU, Jack 5WM, Dave 5BF and Bob 5RI, and arising from reading some of their mail, it is

apparent a long wire antenna for the 122 is best for short haul with a tuned whip being tops for long range.

Les 5AX holidayed on South Coast of VK3 and operated portable/mobile whilst at different spots there. He also advises success with tuned whip and had a very interesting time, although he reckons that 7 megs. is hard to work through from there to VK5 because of the many very strong VK7 sigs heard each night. Daytime VK5 was no strain so he kept in touch that way and was able to hear the session each Sunday.

Ron SAP came on the air recently with a d.s.b. signal on 80 mx, very good too, easy to copy and the carrier really suppressed. The first try on 40 mx was not so good for the carrier turned up again and made copy by a.m. method necessary. No doubt he has it sorted out by now and can "all-band" it, so watch out Reg 5ER and link up with this new signal and so warm yours up again.

Brian 3ADV and XYL Nola dropped in recently, they being in this fine State on honeymoon. Congrats to them and we hope the shacks visited here will help Nola see how necessary "shack" life is and how the OM must have a free hand in its use, etc., etc. Anyway, we were delighted to see them and wish them all the best for the future.

DX has been very good lately with some smart doings by some of the gang on 15 and 10. Found myself in a four-way with a G2 and Harry 5EU with Joe 5JO on the hook also, a f.b. contact with all sigs heard here. Austin 5WO heard working consistently on 10 mx, Bram 5AB, Les 5LC to mention a few that have been heard taking advantage of those bands. It looks like 10 mx staying useful to end of May.

Noise levels (line mostly) continue to annoy a large number. One solution seems to live at Elizabeth where Tubby 5NO claims he does not know what we are talking about when we mention noise. Of course with no overhead cables or insulators to do their worst, it's a push over.

Some good news for the mobile boys is the introduction of the transistor OC16 which in Class B can provide enough audio to modulate about 30 watts input to a final. Transformers to couple same may be a problem, but no doubt there are some old 6v. or so vibrator transformers will be dug out and tried. Who is coming up with the first all transistor modulator?

Keith 5KH went M/M early April when according to Gordon 5XU he (Keith) was ostensibly fishing, and not hearing anything about it since, presume the ostensible fish only ostensibly bit. How did the Cqs bite Keith? Benlie & Co. 5WC advise that due to village improvements or something up there, a road is planned to pass right through their shack and antenna farm, so rather than put up with the traffic passing through the building, same is to be removed to another site. Volunteers are to be called for the day the rhombic is moved to just lift the poles out and stagger to the new spot and plant them again.

W.I.C.E.N. has stopped the roster system until next season. This doesn't mean a close down rather does it imply an opportunity for all members to get familiar with their gear and the operating procedure, your committee ask that you make as much use of the "quieter" months as possible to thus become proficient, and above all to retain the "instant" availability of the net.

Dropped in and saw Pete 5RB at Modbury recently where he is getting his gear set up in good style, and can be heard from most evenings. A new tower with a 20 mx full sized beam helps the DX and with plenty of room there quite a few sky wire plans are afoot.

Joe 5JO, that versatile and hard working boys' club type, became a proud grandfather, but not to add to the boys' club this time, a granddaughter if you please, born on 30th April. He was spreading the news so well that his final gave up the ghost and he had to fall back on the 800 ohm line to let the VK3 friends know. He, with a name like that too, spending so freely, must have been pleased. To top all, Joe's other daughter duplicated the job on 8th May, again a daughter. There is no report of the 800 ohm line breaking down this time!

TASMANIA

NORTH WESTERN ZONE

Once again Ham Radio has helped in the time of trouble. Bert 7BI, at Scottsdale, was able to contact Col 7LZ, at Launceston, and help co-ordinate P.M.G. line gangs from Launceston and Scottsdale during a recent period of telephone isolation. Could have been a W.I.C.E.N. effort if we'd been quick enough, Bert. Congrats anyway. Bad luck about the mast at the station.

Called in to see Lee 7KC at Devonport recently. Lee has changed his QTH in the last

couple of months. This explains the increase in signal strength as Lee says he still has the same piece of wet string. Lee also obtained a tower at an auction, has erected same, and mounted a t.v. beam on top. Reg 7RL, currently at Stanley, has been appointed to Georgetown, but hopes he won't have to move. So do we, Reg, we've only just got you as a member. Anybody with a circuit of a No. 19 set could help Chas. 7CF, with a loan of same. Chas acquired one of these sets a short time ago and has a desire to increase the power. Reading the mail recently and heard that Peter 7PF will be transferring to Devonport. Looks like a v.h.f. enthusiast in the zone at last.

A strange voice heard over 7JO some time ago gives evidence that Dennis 7DR is still with us. Some heavy study on Dennis' part should finish in June, so we may hear our Treasurer again. Associate Ken Brown has invested in a car. Pleased to hear you know a good make, Ken. Roy 7RN has built an amplifier which has a characteristic so flat you could use it as a straight edge. Roy says 2A3s are still good bottles. Associate Ken Hancock is still playing golf. Haven't seen any photographs in the paper lately Ken.

Associate John Lee has apparently started a freighting service between Devonport and Moie Creek. Believe he is transporting his Radio gear home whilst he changes his boarding address. Ray Schulze, another Devonport associate, has nearly worn out Hon. Sec. Max Ives' winding machine. Ray, that machine is intended for radio trannies, not welding transformers. Allan Baptist has gone in for pulse reception. He receives H.E.C. all over the band; any band.

With all this 6 mx activity, Geo 7XL has been unable to hear a thing. Appears to be quite convinced there is an ionised layer over Bass Strait which is reflecting the signals into VK3 land. Have heard a rumour in Devonport that a VK5, Harold Hancock, is with us.

OBITUARY

WILLIAM GLADSTONE TAIT

We record with regret the passing, at the age of 57, of our friend Bill Tait. He was an Associate of the Tasmanian Division and, at one time, its Secretary for four years.

Bill came here from Saragwah. He was in charge of posts and telegraphs there, at the time of the Japanese invasion; and one doubts if even the hardships that followed had much effect upon his high spirits and cheerful ways. He will be sadly missed, and the sympathy of all members is extended to Mrs. Tait in her greater loss.

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0.05/600v.	1/7 ea.
0.1/200v.	1/2 ea.
0.1/400v.	1/9 ea.
0.1/600v.	2/- ea.
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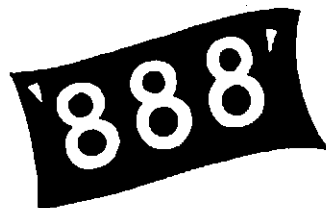
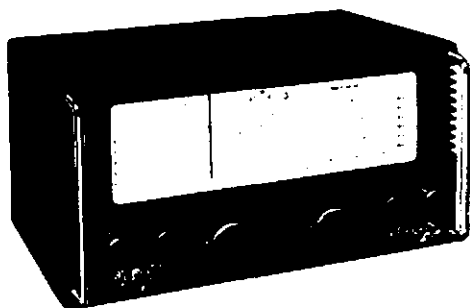
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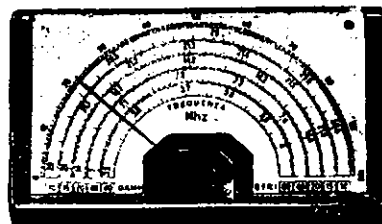
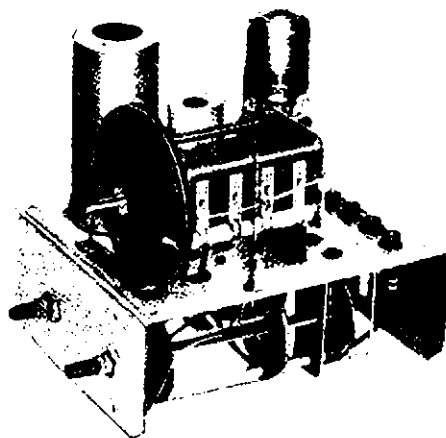
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7F7	5/- each or 5 for £1	VT127	2/11 each or 10 for £1
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 7BP7 7" Cathode Ray Tube £1
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 BC611 (SCR536) Walkie-Talkie, American, complete with valves £25 a pair
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Single Gang Condensers, 0.0004 capacity, Ceramic 10/-
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 Meters—0-0.35 amp. R.F., FSS and 101 type 10/-
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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.; 1930 hours EST, 144 Mc. No frequency checks available from VK2WI. Intra-state working frequency, 7050 Kc.

VK3WI: Sundays, 1130 hours EST, simultaneously on 3573 and 7146 Kc., 57.5 and 146.25 Mc. Intra-state working frequency 7135 Kc. Individual frequency checks of Amateur Stations given when VK3WI is on the air.

VK4WI: Sundays, 0900 hours EST, simultaneously on 7146 Kc., 14.342 Mc. and 50.172 Mc. Country hook-up Sunday mornings 0900 hours. Please call VK-42M on 20 mx and Bruce VK4ZBD on 6 mx.

VK5WI: Sundays, 1000 hours SAST, on 7146 Kc. Frequency checks are given by VK5MD and VK5WI by arrangements on all bands to 58 Mc.

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

VK7WI: Sundays at 1000 hours EST, on 7146 Kc. and 3872 Kc. No frequency checks are available.

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

EDITORIAL



WHERE ARE AUSTRALIAN AMATEURS HEADING?

Eight years ago a forceful statement of endorsement of the U.S. Amateur Radio Service by the American Communications Policy Board set up by President Truman to make a study of U.S. frequency usage and communications policy, was released in a subsequent report to the American people.

Today the United States Amateurs are told by their Telecommunications Board—the present official title of the original President's Communications Policy Board established by the Office of Defence Mobilisation—in a re-appraisal of the country's telecommunications policy that, and we quote:

"The United States considers its own Amateur Service to be vitally necessary to the National defence and security because it provides a pool of personnel trained in the techniques of telecommunications, including skilled operators.

"It shall be the policy of the United States to foster and encourage the Amateur Service because the immediate availability to all world areas of the Amateur Services' frequencies and the Amateurs who utilise them are vital during times of emergency, whether such emergency be of a localised nature or national in scope . . ."

Here is the policy of a country with untold thousands of frequency allocation problems compared to Australia prepared to support its Amateurs from the very top because they are far sighted enough and have learned the lesson of experience of the worth of the Amateur to the national good of their country.

In Australia the frequencies used by Amateurs may be in jeopardy and it is expected that support will be shown by the people who will be protecting the rights of the Australian Amateur Service and forming a futuristic policy on behalf of the Australian Government to retain the frequencies for the Amateurs of this country together with the requirements of all the other frequency users. If not, it will be a woeful outlook for a country whose geographical position makes it so vulnerable a target.

The worth of the Amateur to any country can't be weighed by how many times he operates in a week or whether he is actively on the air at all. It's his knowledge that is valuable and it is time the Amateur himself woke up and told a few people that fact. "Use them or lose them" . . . as we often hear mouthed should be a minor worry. It's the support of our communications people we expect right now.

FEDERAL EXECUTIVE.

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A New Receiver Tuning Principle

Wide-Range British Receiver With Interesting Features

RECENTLY VE7AIK wrote to us to ask what we thought about the Racal RA-17 receiver, and we could only answer that we didn't think anything because we didn't know anything about it. This surprised VE7AIK no end, and he promptly sent us a flyer he had on the receiver. This in turn prompted us to get in touch with the manufacturers, Racal Engineering Ltd., Western Road, Bracknell, Berkshire, England.

The RA-17 Communications Receiver is expensive and it is made in Europe, so it isn't likely that we will see very many in the United States. The receiver is handled in Canada by Instronics Ltd., Stittsville, Ont., so some of our VE neighbours may be telling us about it over the air in the near future. The manufacturer was kind enough to forward enough information for us to pass along on what we think is a novel and interesting approach to receiver design.

Perhaps the outstanding feature of the receiver is the tuning method. The RA-17 has continuous coverage from 1 to 30 Mc. A large knob on the front panel is labelled "Megacycles"; it is set to the megacycle range you wish to tune. For example, a little dial face on the front panel indicates "2", so the receiver is currently set to tune 2 to 3 Mc. **The setting of this dial is not critical!** (One would expect it to be very critical, so why it isn't will be explained later.) You then tune the range with the left-hand large knob and read the frequency from the horizontal scale. That horizontal scale is a strip of film 60 inches long, with a calibration mark every kilocycle. To change bands you merely turn the "Megacycles" knob to the right range and, to confuse you a little more, no switching is involved!

Since this tuning device is so unusual, perhaps it had better be described before we get on with the rest of the receiver. The block diagram of Fig. 1 shows what is used in the front end of the receiver. The v.f.o. tunes 40.5 to 69.5 Mc., and its control knob is the one tied to the "Megacycles" scale on the panel.

Let's assume that the v.f.o. is set to 50.5 Mc. Although all of the harmonics of the 1 Mc. crystal will be hitting the second mixer, the signal in the plate circuit that gets through the 37.5 Mc. filter will be the beat with the 13th harmonic (13 Mc.; $50.5 - 13.0 = 37.5$ Mc.), and this 37.5 Mc. signal is applied to the third mixer. In the signal channel from the antenna, a signal at 10.5 Mc. would beat with the 50.5 Mc. v.f.o. and be heterodyned to 40.0 Mc., pass through the first i.f. stage and enter the third mixer. In the third mixer it would beat with the 37.5 Mc. energy to give a signal at 2.5 Mc., which could then be tuned in by the 2 to 3 Mc. receiver. (The 2 to 3 Mc. receiver tuning is tied to the 60-inch long scale that reads "Kilocycles".) It

should be apparent that under the above conditions signals in the range 11 to 10 Mc. would be heterodyned to the range 2 to 3 Mc. and could then be tuned by the 2 to 3 Mc. receiver.

But if about this time you're wondering how they keep the v.f.o. stable at this high frequency, the answer is, "They don't have to." Suppose the v.f.o. drifted to 50.6 Mc. Its beat with the 13 Mc. harmonics of the crystal would be 37.6 Mc., and its beat with the 10.5 Mc. signal would be 40.1 Mc. The beat between 37.6 and 40.1 Mc. is still 2.5 Mc., so although the v.f.o. drifted 100 Kc. the signal stayed on the same frequency at the input to the 2 to 3 Mc. receiver.

100 Kc.) range from -6 db. bandwidths of 150 cycles to 8 Kc.; the three sharpest bandwidths are obtained through the use of crystal-lattice filters.

Two a.v.c. characteristics are available: a fast a.v.c. with a 200 millisecond discharge and a slow a.v.c. with a 1 second discharge. The S meter can be switched to read either "r.f." or "a.f." level; this is probably our usual S meter circuit for the r.f. level and a rectifier in the audio for the a.f. level.

An over-all drift of less than 1200 cycles during two hours after a cold start is claimed for the receiver, and after two hours it is said to be less than 200 cycles, which is about as close as one can read the dial.

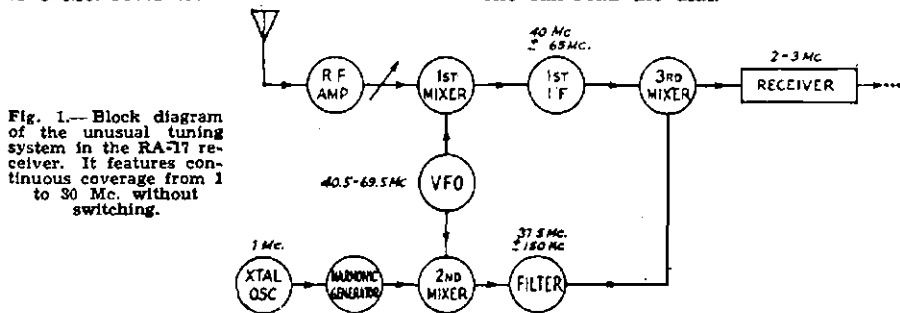


Fig. 1.—Block diagram of the unusual tuning system in the RA-17 receiver. It features continuous coverage from 1 to 30 Mc. without switching.

The foregoing is not by way of implying that the RA-17 has oscillators that drift badly; all we can say about that is to quote (later) what the manufacturer claims. We did want to point out the ingenuity of the system, and the arithmetic was easier with a 100 Kc. drift.

To recapitulate a little, it should be apparent that the receiver stability depends upon the stability of the 1 Mc. crystal oscillator and the h.f. oscillator in the 2 to 3 Mc. tunable portion. Nothing is ever switched in the v.f.o. circuit, and it need be set only approximately to the right frequency for any given tuning range.

The arrow in the link between the r.f. amplifier and the first mixer in Fig. 1 is to indicate that tuned circuits are used here as well as some attenuation. Normally the front end might be set to a broad-band condition that requires no tuning. Should the signal be of such amplitude that it requires attenuation, 40 db. is available in steps of 10 db. Should a strong interfering signal be troublesome, the antenna range switch can be set to the appropriate band and the antenna tuning control rotated to peak the desired signal.

The tuning of the RA-17 is the major point of departure from conventional receiver design, and the remainder of the receiver incorporates what are currently considered to be desirable characteristics. Calibration check points every 100 Kc. are obtained from the 1 Mc. oscillator and a regenerative frequency divider. Six degrees of i.f. selectivity (obtained at the third i.f. of

The receiver is said to sell for around £400 (over \$1000 in Canada), and as yet no U.S. distributor has been appointed. We have been told that the receivers are already finding their way into Ham (and Commercial) shacks around the world, and some day it may be possible for some of us to log a little operating time with them.

In the meantime, there is no good reason why enterprising "do-it-yourself" Amateurs cannot apply the tuning principle to home-made receivers and transmitters. —B.G.

REPORTS WANTED ON WEATHER STATION TRANSMISSIONS

The Commonwealth Bureau of Meteorology, in collaboration with the Australian Antarctic Expedition, has installed an automatic weather station at Davis Bay, Long, 133 deg. east. The station, which is running 40 watts input, is operating simultaneously on 7.315 Mc. and 15.845 Mc. Four transmissions take place daily, viz., 0035, 0645, 1205, 1855 GMT. The signal which is c.w. consists of (1) VNX repeated 14 times, (2) break sign, (3) the barometric pressure which is coded in the form of two letters of the alphabet, (4) break sign, (5) the temperature coded in two letters, (6) break sign, (7) the coded wind speed and wind direction. The whole is repeated twice and the letter V ends the transmission.

The Bureau would be glad to receive reports of these transmissions. Reports can be forwarded to Keith VK3ZED who is operating on 50 Mc. from Heidelberg, or to the Director, Commonwealth Bureau of Meteorology, Box 1289K, G.P.O., Melbourne, C.I.

* Reprinted from "QST," Mar. '58.

AMATEUR TELEVISION

PART FIVE

BY E. E. CORNELIUS,* VK6EC/T

THE VIDEO MIXER

This unit is a refinement which, while by no means essential, will permit considerable flexibility in the system. The t.v. Amateur will spend much of his time on air radiating a pattern, not a live picture. For the many tests he will want to apply to his equipment, and that his viewers may want to make, a grating pattern (crosshatch or grid) is very useful. This can be generated electronically, and save running that precious camera tube unnecessarily. Similarly the station identification can be taken from a transparency from a flying spot scanner, and again save the camera tube.

No matter what is radiated, it must have standard blanking and sync, and be of the same high quality as the camera signals. So a unit having the pulse mixing facilities of the c.c.u. is necessary. The mixer unit to be described fulfils this function, and will allow four picture inputs to be handled in a professional manner. These could be camera, flying spot scanner, pattern generator, and maybe that second camera, yours or someone else's, for a more ambitious production.

ohm outputs, a 75 ohm monitoring output, and four 75 ohm inputs.

All switching is done by means of push-buttons, and each channel has its individual gain control. Blanking and sync. insertion are the same as in the c.c.u. The superimposition facility is handy when conducting scan linearity tests, when the camera picture of a linearity chart is superimposed on the grating signals. Camera scan linearity can then be measured directly from the picture, and adjusted directly.

Fig. 22 shows a block schematic of the system. A keyed clamp is essential after the mixer, as a cut, or a fast lap or fade, causes plate current surges in the mixer output, which the clamps control, preventing picture "bounce". The second clamp is to set a stable black level before insertion of sync.

The mixing technique is done with the aid of one pentode per channel with common plate load, all but the working channel biased to cut-off. Push-button selection of the desired channel causes the bias on the selected channel tube to fall under the control of R/C time constants, and that of the outgoing channel to rise. If both con-

ciated lamp to indicate what switching has been accomplished, and to indicate at a glance which channel is "on air", and which being previewed. Changes of switching rate through slow, medium, fast and cut are also done by push-button selection, but as four R/C circuits have to be switched for each speed, and the push-button units has insufficient contacts, relays are used for the actual switching of the R/C circuits. The change from "lap" to "fade" is done by a key switch which changes the switching bias from -8 to -16 volts.

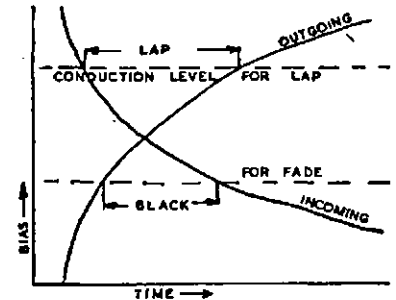


FIG. 23—R/C SWITCHING

CIRCUIT

Mixer Section

The switching section is shown at lower left, V1, 2, 3 and 4 being the mixer tubes, with common 500 ohm plate load. Its output is coupled to V6, a 6BX6, which has the keyed clamp V5, a 6AL5 in its grid circuit. Blanking is inserted by the common plate load of V6 and V7B, a similar circuit to the c.c.u. The blanking pedestals are clipped to the black level by the GEX 34, under control of the 250,000 ohm Black Level control. The 500 ohm resistor from the GEX34 to the potentiometer arm is the true plate load of V6. Unlike the circuit of the c.c.u. described in May, no white clipper is provided.

The output of this stage then feeds the feedback output stage V9, V10, 11 with the grid of V9 clamped by V8. Sync. insertion by V12 is again similar to the c.c.u. circuit. The clamp keyer is V13, a 12AT7, but any twin triode, or pair of triodes will do there.

The switchable R/C time constants are the 2 μ F. capacitors, and the sets of 1 meg., 470,000, 68,000 and 5,000 ohm resistors, introduced by the appropriate relay. A simplified circuit of this switcher is shown in Fig. 25. The 25,000 ohm resistors in series with the supply are to prevent variation of the bias on cut-off channels, when switching is performed.

Push Buttons

The make contacts on the push-button units were used for switching, leaving only breaks for the supervisory

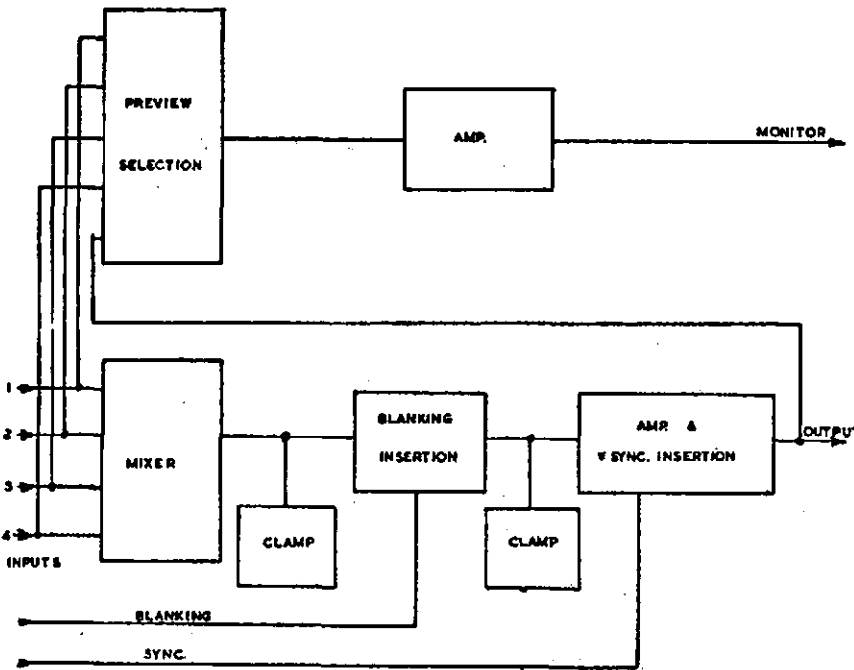


FIG. 22—VIDEO MIXER BLOCK SCHEMATIC

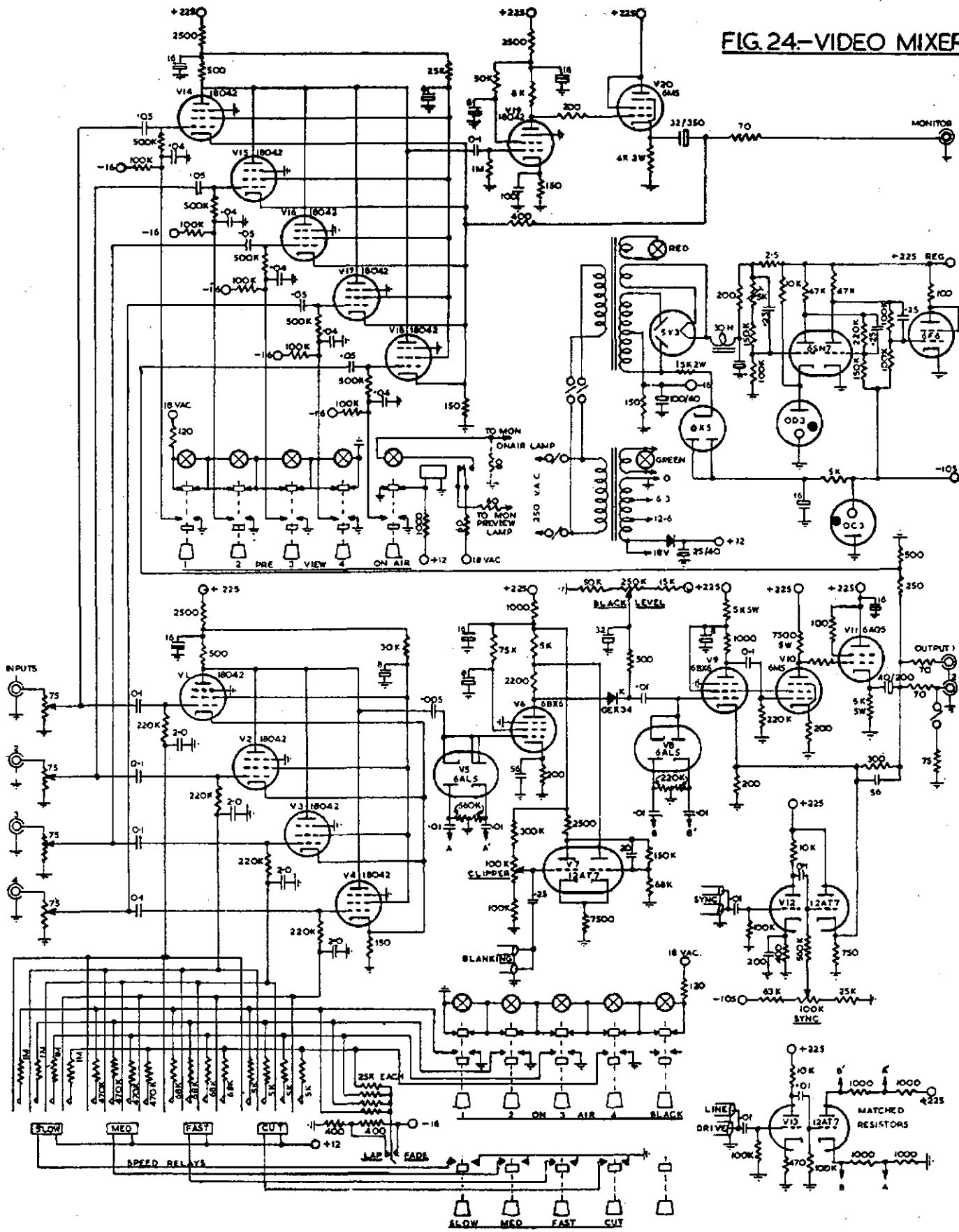
The mixer is designed to lap dissolve or fade at three different speeds, or to cut, from any one to any other of these four inputs, and to make superimpositions. There are preview facilities of each of the four inputs, and for the on-air signal. The system is of 75 ohms impedance throughout, with two 75

ohm outputs, a 75 ohm monitoring output, and four 75 ohm inputs. The result is a lap dissolve. If one is cut off before the other conducts, the result is a fade. When the changeover is (almost) instantaneous, the result is a cut. Refer to Fig. 23.

The switching on preview is similar, but without any variation in time constants. Each push-button has an asso-

* 157 Wood Street, Inglewood, Western Aus.

FIG 24.—VIDEO MIXER



lamps. These were all wired in series, and the break contacts wired across each channel lamp, using an 18 volt a.c. supply, through resistors, for the 6 volt lamps. Depression of a push-button removed a short from the appropriate lamp. Future development is to wire further external lamps in series, mounted on camera or appropriate unit, removal of a short from the group giving on-air lamp signals to c.c.u., camera, f.s.s., etc. Note that the fifth mixer push-button is labelled **Black**. This is the equivalent of "off air", but in t.v., even when no picture is being transmitted, sync. and blanking are, and hence the designation "black" for no picture.

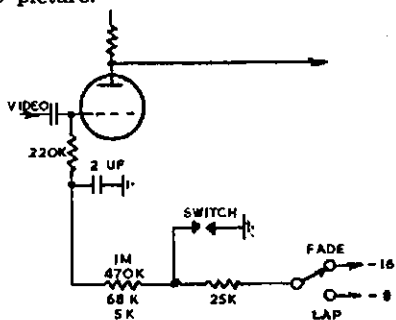


FIG. 25—SWITCHING

Preview Section

The five mixer tubes, V14 to V18, provide preview of the four incoming channels, and the outgoing "on air" signal. Switching is similar to that in the mixer, but with simplified circuitry. The supervisory lamps are arranged such that circuits are provided to a pair of lamps marked "preview" and "on air" on the master monitor, to act as a warning that the monitor might not be showing the "on air" signal, but a preview channel. A changeover relay is needed to provide this facility.

The preview amplifier is arranged as a feedback amplifier, with the five mixer tubes V14-V18 acting as the first tube. As only one is conducting at any time, this is legitimate, and a common cathode resistor is used for all five, and feedback taken to this point. This enables the bandwidth to be maintained to about 10 Mc., and the low output impedance needed to feed a high quality monitor at some distance away.

Power Supply

This is shunt regulated, and the difference from the series regulated unit described last month can be seen. The requirements are 225 volts at 120 mA. and as only the 5Y3 filament winding is used, an 80 mA. 385 volt transformer is not overrun, particularly with choke input. The 2.5 ohm resistor in series with the 225 volt line is a compensating resistor for 100% regulation, and is adjusted to give minimum ripple on a resistive load, say a 25 watt lamp.

Components

The push-button units are advertised currently in "Radio & Hobbies" at 7/6 a set, and the relays were from two U.S. Navy I.F.F. units, with the contacts modified somewhat to give four

separate "makes" on the switching relays. The tubes used in the mixers, 18042's, were used because they were available, but due to the low anode loads, any pentode of reasonable G_m can be used, such as the 6AU6, 6BX6, 6AM6, 6SH7, 6AC7, EF50, etc.

The use of 18042's with their 18 volt heaters required a special filament winding, but this 18 volt supply was handy in providing a useful voltage for the rectifier for relay operation, and for the supervisory lamp. The rectifier is also a "disposals" type, of the $\frac{3}{4}$ " unfinned variety, with six discs in series for half wave rectification.

The 75 ohm input potentiometers should be carbon types. Mine are IRC wire wound, and their inductance causes some overshoot in the 3.5 Mc. region. They will be replaced when carbon types can be obtained. Some disposals gear has 100 ohm carbon potentiometers which would do admirably, if shunted with 300 ohm carbon resistors.

The 2 μ F. capacitors in the mixer grid R/C time constant circuit can be AEE Microcaps, PMG can types, or anything in between, depending upon space and what you have.

Simplifications

This can be done by the reduction of input channels, with two as an absolute minimum with perhaps key switching to the inputs of the channels to provide four inputs to two channels. The preview facilities can be omitted in toto, but with corresponding reduction in flexibility and scope. Twin triodes could be used for the mixer tubes, one triode per channel, as the anode loads are adequately low for triode wide-band operation. Use high μ tubes in this instance.

Adjustment

Using a c.r.o. on the output, terminated in 75 ohms, with no input, adjust the clipper preset control as in the c.c.u., described in May. Similarly check the operation of the **Black Level** and **Sync.** front panel controls. Apply a signal of level between 0.7 and 2.0 volts p.p., at 50 Kc. or higher to one channel and check that the channel comes in and out with the appropriate push-button, and that the channel gain control has full control of level.

Apply two separate signals to two channels, and check the operation of the "lap" and "fade" time constants. Under "lap" conditions, as the c.r.o. shows the outgoing signal decreasing, at about half normal level, the incoming channel should be about the same, the two adding to full output level. Under "fade" conditions, the outgoing signal should fall to zero just before the incoming appears. Check for all four channels.

Check that with about 0.7 volts p.p. at any mixer channel grid, 1.4 volts p.p. (with sync.) appears at the output, and also that 1.4 volts p.p. appears at the monitor output, terminated in 75 ohms. This ensures that all gains and levels are standardised. If not, adjust the overall gains of the mixer, or preview channel, until these conditions prevail. The feedback series resistor is the logical point to vary the gain.

Note: When testing gains, it is essential that the test signal used should be well above line frequency, 50 Kc. or

higher. If frequencies much below this are used, the keyed clamps will cause severe attenuation. In effect the clamp will attempt to obliterate the "hum" it sees on the amplifier tube grid, and its effectiveness is greater, the lower the frequency. In normal usage of course, the clamp operates on the blanking pedestal, but under test conditions, these pedestals are absent, at least before V6. This applies also in tests applied to the c.c.u., which was not mentioned when I described that unit.

In the sense that it inserts standard blanking and sync., this unit will replace those functions of the c.c.u. If the picture and waveform monitors are provided elsewhere in the chain, addition of camera control facilities in the video mixer, i.e. focus, beam intensity and target potential, will make the c.c.u. unnecessary. The master monitor to be described next month has both picture and waveform monitors, and can replace these functions of the c.c.u.

Intercom. Facilities

The video mixer becomes the key point in a transmission chain, and it is from this point that overall control of the system is effected. With the camera out on a long cable, two-way talk back between these two units is essential. In practice, programme sound is also fed to the cameraman, to help him co-ordinate his picture with the commentary, or sound. A "split" pair of headphones, with programme sound in one ear, and intercom. in the other, also has a carbon mike on a moveable arm fixed to one side of the headband. This enables the microphone insert to

(Continued on Page 17)

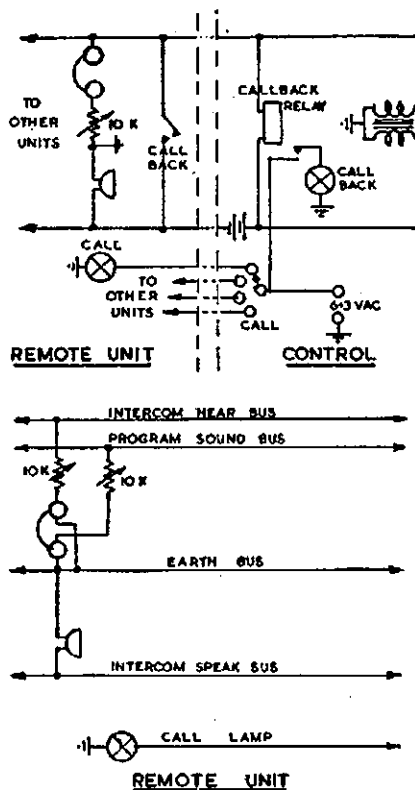


FIG. 26—INTERCOM

ZEPHYR MICROPHONES

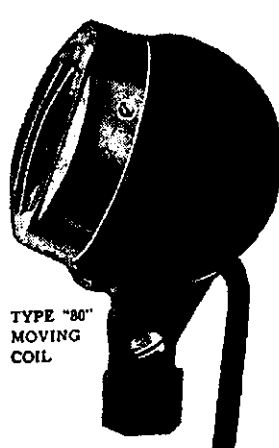


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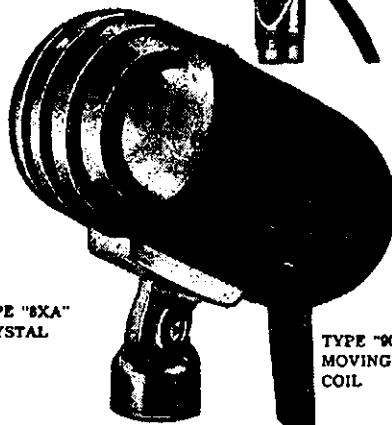
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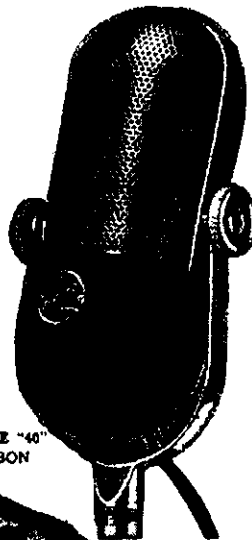


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Reading and Writing for Emergency Net Operators

BY NORMAN BURTON,* BERS11494

(Note.—The author's views are not necessarily those of the Publishers.—Ed.)

WHILST listening recently on the DX bands, the author was puzzled to hear a station calling CQ and stating it was "Victor Kilo Two Zulu Zulu Zulu." The first reaction was to grab the current List of Countries and see where this rare DX was. This proved to be disappointing as it was not listed, and the conclusion arrived at that it was a pirate. A day or two later, the call was heard again, very strongly and obviously a local signal; then the light dawned—it was the new Planned Phonetic Alphabet. Hastily sorting a pile of unpaid bills, demand notices, parking summonses, threats of legal action, etc., in short, the usual kind of junk that accumulates on the Amateur's desk, I found the complete list. By this time the station had gone off, presumably since no one answered. This reticence must be ascribed to the aversion of the average Amateur to working suspicious stations. The silence was clearly an invitation to study the new Planned Phonetic Alphabet.

Perusing the document from A to Z (this last letter can be pronounced either as in English, i.e. "Zed", or if you are an Elvis Presley fan "Zee", and either form is acceptable and correct; the latter form it should be pointed out, far from being new and modern, is Ye Olde Englishe form and was common usage until about the time of Nelson. As a young nation it is suggested the form "Zed" be used as this is more in keeping with the times.)

The document of the new Planned Phonetic Alphabet is full of surprises; not the least is the realisation that the planner was an expert in his field and that field is quite obviously pig farming. It has, however, the inestimable value of being a Planned Alphabet and is in consequence a Modern Planned Phonetic Alphabet, whereas earlier Phonetic Alphabets were just the haphazard efforts of the "hoi polloi" (Greek to you) and clearly were not suitable for general use by H.M. Forces, etc. The fact they were used at all must be ascribed entirely to the "Non-U" influence that was so prevalent during the Wars. There is not the slightest doubt that had we, during these hostilities, had the benefit of a Planned Phonetic Alphabet then the Wars might have been speeded up (on the other hand, of course, they could have been slowed down). All this casualness has now been rectified and we have a brand new Planned Phonetic Alphabet.

Let us examine it in some detail. For the first time ever the Phonetic Alphabet allows clear distinction between users who are U and Non-U. Take the letters K and L. These are given as K—Kilo and L—Lima, but

there is no indication as to how they are to be pronounced. If you are a Non-U you will naturally say Kilo and Lima (pronouncing the letter "i" as in eye), but if you are a U, you will show your better breeding and say Keelo and Leema. This allows you to air the knowledge of French so carefully belted into you with a cricket bat in the Second Form at good old St. Fanny's, the old Alma Mater—for Non-U readers, I will explain that "Alma Mater" is Latin for "Our Mother" and has nothing to do with a Hollywood personality whose vital statistics are 39-25-38 (unfortunately).

NEW PHONETIC ALPHABET			
A — Alfa	N — November		
B — Bravo	O — Oscar		
C — Charlie	P — Papa		
D — Delta	Q — Quebec		
E — Echo	R — Romeo		
F — Foxtrot	S — Sierra		
G — Golf	T — Tango		
H — Hotel	U — Uniform		
I — India	V — Victor		
J — Juliett	W — Whiskey		
K — Kilo	X — X-ray		
L — Lima	Y — Yankee		
M — Mike	Z — Zulu		

This division into U and Non-U is carried even further by introducing Greek letters, alfa, delta, etc. (Note to readers: I have had to use the Anglicised version of these letters as the printers, like those who printed the New Phonetic Alphabet had no Greek type.) Logically these letters should have been shown in Greek type but apparently the planner of the New Phonetic Alphabet decided against this logical course on the score that Amateurs would take a quick look at the New Phonetic Alphabet and say, "What's the use, it's all Greek to me." In actual practice, of course, they do this anyway, so the same effect has been achieved even though greater effort has been needed to achieve it. This is, of course, one of the benefits of having a thing Planned.

Having dealt with the division of the New Phonetic Alphabet into two, for U's and Non-U's, let us pass to a few more examples. Take "R". This is no longer Roger, but an emasculated sound "Romeo", and "J" is no longer Jig (or Jerk if you are American) but "Juliett", and "P" has ceased to be "Pip" or "Peter" and is now "Papa". Imagine a future aid battle. Ground calls up the fighters, "Red Papa calling Red Flight, can you hear me?" The Flight Leader, who is in aircraft J for Juliett, replies: "Romeo, Romeo; Juliet answering." At this point a third voice, probably the

enemy, butts in with "Romeo, Romeo, where art thou, Romeo?" and everyone is so convulsed with mirth that the action ends.

With female ground operators things can be even more amusing. Maybe on reflection this is the real purpose of the Planned New Phonetic Alphabet; it is our secret weapon. This is a truly monstrous thing, devilish in its conception, nothing more or less than a device to reduce the enemy's strength by making him laugh himself to death. Whether it is in accordance with the Geneva Convention is open to grave doubt.

Reflect again of a tough fighter pilot acknowledging a message "Romeo, Romeo." The thing is inhuman; it is not too much to say it is fiendish.

At this point I feel we should all nip round to the "H" for Hotel and have a stiff "W" for Whiskey to overcome the shock. Taxation, too, is introduced, see "U" for Uniform.

On reflection the question arises should we as Amateurs, who pride ourselves on rugged individuality, use the code? The answer can only be found by having a look at a few examples. Take G3HFD—this becomes Golf Three Hotel Foxtrot Delta. HB9DZ—Hotel Bravo Nine Delta Zulu. The three letter W calls offer more scope. W9BPH is no longer William Nine Big Panama Hats but Whiskey Nine Bravo Papa Hotel, which sounds like a resume of a story from "Golden Gems for Little Gentlefolk", and the portable calls seem even more asinine. Take W4DLS/P, Whiskey Four Delta-Lima (see how the U and Non-U pronunciation complicates things?) Sierra Stroke Papa.

The more one examines it the more one becomes convinced that the best thing to do is to collect all copies existing of the New Phonetic Alphabet, have them arranged in date or numerical order, and then burn them; carefully omitting to have any carbon copies made before they are destroyed.

Summing up, therefore, it is clear this New Phonetic Alphabet was never intended for Amateur use; it couldn't be used. Hams all over the world would laugh themselves to death, so let us forget it and carry on as we are with our Able Baker Charlie, etc., even though this has not the advantage of a Planned Parenthood. After all, one could ask, "Is your planner really necessary? The answer is definitely NO.

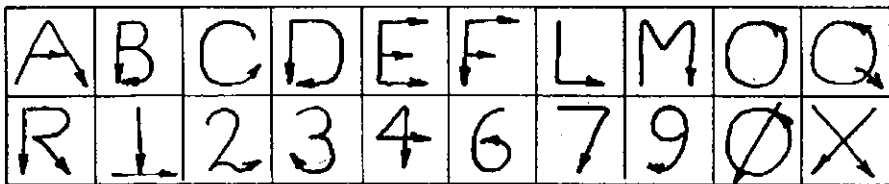
With the member of the Emergency Net, the position is far different. He HAS to use the code; there is no equivocation about the matter. Suppose he does not use the code. What happens? The message cannot be passed since it is not in the prescribed form as laid down by the planner and this can lead to serious repercussions. For instance, the lace mats for the tables in the Paratroop Sergeant's Mess may not be delivered and you will see at once

*130 The River Road, Revesby, N.S.W.

the serious consequences such an event can have on Other Ranks.

Some difficulty will arise amongst the Emergency Net Operators and to obviate this, it is suggested a large chart be affixed to the wall with the New Phonetic Alphabet printed on it in letters of sufficient size as to be easily readable from the normal operating position, somewhat on the lines of an optometrist's test chart but without the graduations of type sizes. A draw curtain can be arranged to cover the chart when not in use, or when operating on the Amateur bands, so eliminating distraction and confusion. The chart will be of great assistance and once the position of the letters on the chart has been memorised the Phonetic word will be quickly found. Using this system the transmission and reception of a message need not be more than the usual shambles.

EXAMPLES OF PRESCRIBED FORM OF PRINTING



Note.—In actual message writing there is, of course, no need to print the small arrow heads on the letters; their omission will be understood by the reader.

Concurrent with the Planned New Phonetic Alphabet it is incumbent on the Emergency Net Operator to write all messages in the Prescribed Form of Printing to be adopted for the Writing of Telephone, Telegraph (including Wireless Telephone and Telegraph), Semaphore, Lamp and Heliograph Messages. This is MOST IMPORTANT as if the messages are not written in the Prescribed Form they cannot be read. It is suggested that practise in writing in this manner be done listening to Slow Morse transmissions.

As none of us know how to write, the planners have again come to our assistance. They have got out a chart

which is truly one of the wonders of the 20th century. It shows us how we can, with a minimum of brain fag, learn to write and so put down on a Prescribed Form of Message Pad any message we have the misfortune to receive. Exact details (see illustrated examples) are shown as to how to write each letter, where to start, where to end, which way the strokes are to be made (indicated by arrow heads) and even which way the curves (clock or anti-clock) are made. In short, it is the berries for the busy Emergency Net Operator, as with not too much practice he will soon learn to write.

Once he is able to write, he is presented with a second wonder: that of being able to READ the messages he has written down on the Prescribed Form of Message pad transcribed from the New Planned Phonetic Alphabet. This will give him a lot of pleasure,

for instance, he may see . . . xyt who-smtp rrppls alakseifnekd wpwlsith-teofnf wot in hell . . . and seeing this, he knows IN A FLASH he has written down a lot of gibberish. The realisation he has done this may make him glow with pride enough to put the modulation neon to shame or it may not.

What happens next? There are two courses of action dependent upon the moral fibre of the man himself. If he has any pride left he will at once switch off the rig and go and play two-up down at the local "H" for Hotel. If not, then his family are likely to find him some hours later with a wild look

in his eye muttering unintelligently and writing down on the Prescribed Form of Message pad short terse words which are nonetheless most descriptive of both the Alphabet, Planned, Phonetic, New, Services for use of, and the Prescribed Form of Printing to be Adopted for the Writing of Telephone, Telegraph (including Wireless Telephone and Telegraph), Semaphore, Lamp and Heliograph Messages.

BOOK REVIEW

"THE RADIO AMATEUR'S HANDBOOK"

We recently received copies of the 35th edition of "The Radio Amateur's Handbook", published by the A.R.R.L. This handbook is invaluable to the Amateur who wishes to remain "well up" on current affairs in the Amateur Radio world.

Each year portions of the "Handbook" are revised. In line with this policy, the 35th edition contains much information that is new. More space is devoted to "Semi-conductors." The chapter on H.F. Receivers has not been greatly altered, although a transistorised "Q Multiplier" is described. Chapter 6, H.F. Transmitters, has been altered quite a lot and new designs are described.

The 34th edition was better from the point of view of information for calculating the constants necessary in pin-networks. However, the space saved in shortening some popular chapters has been devoted to a more lengthy discussion on "Suppressed Carrier and S.S.B." Chapter 11 is now devoted entirely to this subject.

In Chapter 21, the "Montmatch Mk. II." is described together with the latest versions of Amateur built test equipment. The latest available (in the U.S.) tube types are included in Chapter 26.

The section that will make your mouth water is the "Catalogue Section" at the rear. It is a great pity that Australian Amateurs are unable to buy equipment that is available to practically any other Ham throughout the world.

The whole book is well written, easy to understand, and can be thoroughly recommended to beginners and experienced Amateurs.

Our copies from: Technical Book and Magazine Co., 295-299 Swanston St., Melbourne, C.I. and McGills Authorised Newsagency, 183 Elizabeth Street, Melbourne, C.I. Australian price, 46/3, plus postage 2/-.

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Our copy from Data Publications Limited, 57, Maida Vale, London, W.9. McGills will have it here in Australia during the month. Australian price is 6/6 approximately.

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21 Mc. Quad for 300 Ohm Feed

BY J. W. S. EDGE,* VK2AJ0

After hearing on the air the other day that one had to construct two Quads to keep one up in the air, I thought it was time that I at last wrote to "A.R.," hoping to get same in print and perhaps help these fellows to keep their Quads in the air.

This Quad has been up at VK2AJ0's now for over two years, has withstood all the elements, and has assisted this station to work well over 100 countries on 21 Mc. since it first made its appearance on top of the tower.

Most of the data that could be found on Quads was for one turn on the radiator, but as at the time co-ax was scarce here, it was decided to try two turns and use 300 ohm ribbon. In due course, the completed Quad was erected, and with a field strength meter out in the paddock, tests were made against a ZL Special that had previously been the 21 Mc. standby.

Upon tuning the Quad with the shorting bar on the stub of the reflector, my mate and I were amazed to see that the field strength from the Quad was in the order of 3 db. better than the ZL Special. As we had previously proved a gain of approximately 7. db. for the Special, we were agreeably surprised with the result. Back-to-front ratio was better on the Special but forward gain of the Quad was best.

The best point of gain on the shorting bar is fairly critical, it worked out at approximately 3 feet up the stub in my case. Measurements are cut for approximately 21.2 Mc., and spacing is approximately 0.2 wavelength.

* Wallace Street, Coolamon, N.S.W.

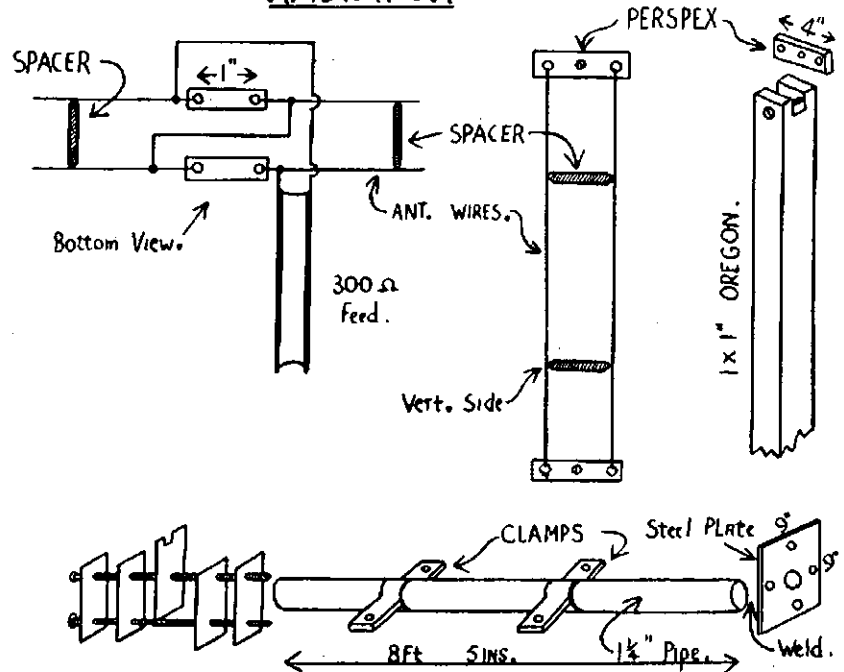
On the construction angle you will find when all is bolted together that you will have a light but strong beam, if directions are followed.

In the bottom diagram of the boom in the exploded end view, (1) is the 9" square steel plate welded to piping, (2) is the inside 9" square wood block, (3) one of the 1" x 1" spreaders, (4)

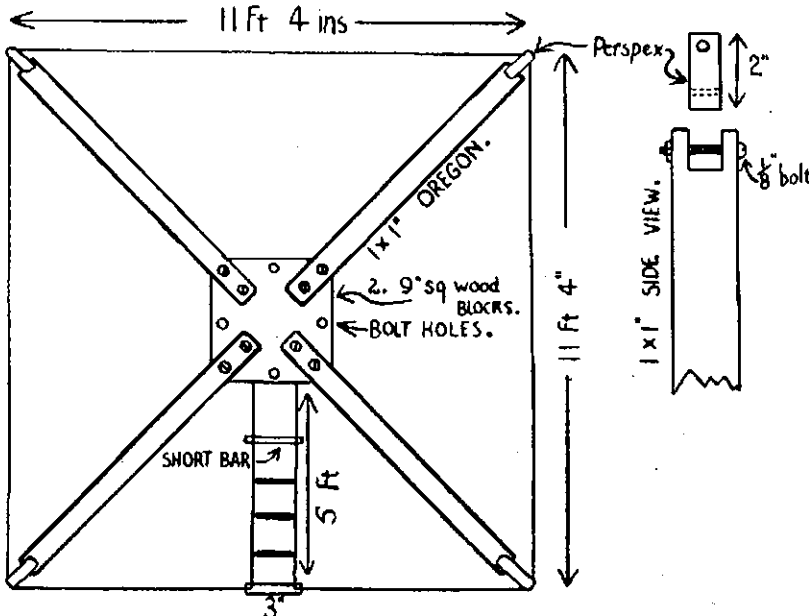
the outside 9" square wood block, (5) a light 9" square piece of steel plate (could be lighter in weight than piece welded to pipe), (6) bolts, four required to bolt all assembly together (I used 3 1/2" long 1/4" bolts).

It is most important that the spreaders are held by wood screws, either through the outer or inner wood block.

RADIATOR



REFLECTOR



I have not diagramed the radiator, but construction is identical, except that no stub is used, and of course two turns are used. The perspex insulators are let into the spreaders, across horizontally, not vertically, as they are in the radiator. You will also have to allow at least 1" in that the spreaders for the radiator will be 1" longer than those in the reflector, because the insulators in the reflector protrude 1". 3/8" bolts are used to hold the perspex insulators in place. Wire used here was 7/029 enamel covered aerial wire, but most any wire is suitable, say 12 or 14 gauge.

I would be happy to answer any queries, either by letter or on the air, in regard to the Quad, but I am sure that if you do erect one you will be as pleased with its performance as I am. Go get that DX!

- Timber and Hardware required:
- Approx. 66 feet of 1 x 1 Inch Oregon.
 - Four 9 inch square Wood Blocks.
 - Perspex and Spacers for Antenna.
 - Four 9 inch square Steel Plates.
 - 8 ft. 6 in. of 1 1/4 inch Water Pipe.
 - Bolts and Screws.

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EVENINGS AND SATURDAYS

Adjustment of Gamma-Matched Parasitic Beams*

Step Procedure for On-the-Ground Tuning

BY KATASHI NOSE, KH6J

AFTER having sweated through countless hours of "adjusting gamma match until the proper match is obtained" on some 40 assorted home-made parasitic beams from 2 to 20 metres, the conclusion is that this is easier said than done—and that authors, including myself,¹ have been prone to underestimate the work involved.

This article concerns a single-band 0.1 or 0.15 wavelength spaced, parasitic beam, co-ax fed and gamma matched—as simple and straightforward a system, mechanically and electrically, as can be devised.

THE GAMMA

Fig. 1A, the commonly used gamma-matched radiator, consists of loop ABCD to which is attached the half-wave radiator EF. The loop ABCD need not be rectangular, and Fig. 1B works precisely the same as Fig. 1A as has been demonstrated many times. This latter really is Fig. 1C in disguise, the shunt-fed grounded quarter-wave radiator, familiar to the broadcast industry, and works on the principle that the one-turn loop ABD is used to excite radiator AF through voltage developed across section AB. The series capacitor is used to tune out the reactance, which is always inductive. The quarter-wave section EA of Fig. 1A can be considered to be a phantom ground, which in the case of Fig. 1C is earth.

The gamma rod spacing is critical only at the AD end, and in broadcast practice it is usual to approach the radiator at a gradual angle. At Amateur frequencies, anything from No. 12 wire² to tubing equal in diameter to the radiator have been used (see Handbook nomograph); and spacings at the AD end on the order of one inch at 144 Mc. to 6 inches at 14 Mc., with intermediate values for other frequencies, have worked out successfully.

MATCHING TO FEED LINE

When the average Amateur speaks of "tuning a beam," he refers to two distinct processes. The first is that of adjusting the matching system, the gamma in this instance, to offer the proper termination to the feed line. The second is that of adjusting element lengths for maximum forward gain or front-to-back ratio. These two processes interlock to a certain degree.

The first process is carried out by tuning loop ABCD, together with appendage radiator EF and the gamma capacitor, to provide the proper termination at the desired frequency. Among the factors which influence this are:

If it is true that experience is the best teacher, the author has had a higher education in the adjustment of parasitic beams. This article gives you the essence of what he has found out in the course of tuning up some dozens of such antennae on a wide variety of Amateur bands.

(1) Length of the gamma rod (about 7 inches for 144 Mc. to 44 inches for 14 Mc.)

(2) Spacing and size of the gamma rod (spacings about 1 inch for 144 Mc. to 6 inches for 14 Mc.)

(3) Gamma capacitor (about 7 pF. for 144 Mc. to 100 pF. for 14 Mc.)

(4) Radiator length (460 divided by frequency in megacycles³).

(5) Proximity of objects, including parasitic elements and their resonant lengths.

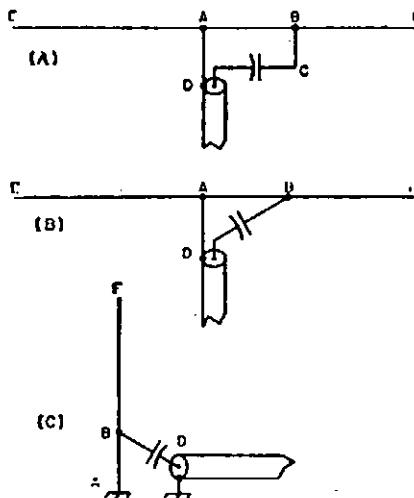


Fig. 1.—The gamma matched radiator and its family relationship to the shunt excited vertical.

Unless one of these parameters is fixed one can get hopelessly lost, since they all interlock to varying degrees. In this method the radiator length is fixed and the others worked against it. Remember, a coil-capacitor combination can be made to show the proper termination but is not the best radiator.

EQUIPMENT

A ratiometer (Monimatch, s.w.r. bridge, etc.) plus your transmitter, preferably low power, is all that is necessary. The simplest kind of s.w.r. meter or r.f. bridge, requiring only a few watts of power, is preferred.

The simple field-strength meter shown in Fig. 2 plus a v.o.m. with at least a 100 microampere movement is required if you want to make front-to-back adjustments. Use of a grid dip meter as a source of r.f. voltage is unsatisfactory in this application, nor is one required at any time unless used as mentioned later.

ADJUSTMENT OF GAMMA

Mount the beam on a convenient support at a height easily reached from the ground. The top of a stepladder is convenient—or even a fence post. The roof top is better but not necessary. Don't be too concerned about surrounding objects; tuning under poor circumstances is better than no tuning at all.

(1) Adjust the gamma to the suggested dimensions. Make the reflector 5% longer than the radiator, and the director 4% shorter. Additional directors should be successively 4% shorter.

(2) Install the s.w.r. meter at the transmitter end of the feed line and adjust the power output for proper operation of the meter at half sensitivity. This is done to extend the range during final adjustment. Only a few watts are required—the lower the power the better, since "hot" adjustments are to be made.⁴

(3) Move the s.w.r. meter to the antenna end of the feed line, placing it in such a position that the meter can be seen while making subsequent adjustments.

(4) Adjust the gamma rod length for minimum s.w.r. A temporary sliding shorting bar consisting of two battery clips screwed back to back is convenient. It is unlikely that this adjustment alone will produce a minimum.

(5) Adjust the gamma capacitor for maximum s.w.r. Alternate the adjustments between gamma rod length and gamma capacitor setting for minimum s.w.r.

(6) Finally, touch up by adjusting the radiator length slightly, but not more than one or two per cent. If a greater change is needed, go back to steps 4 and 5 and try another combination.

In all three of the latter steps the adjustments should allow the s.w.r. to go through a minimum and then rise again. By this time the s.w.r. reading should be so low as to make the reading unreliable on the scale being used, so shift to the most sensitive scale on v.o.m., if one is being used, or increase the sensitivity of the meter by cutting out more resistance if a Monimatch type is being used.

If at any time you should lose your place, or have any doubt as to the correctness of the adjustment, re-adjust

⁴ Take due precautions, such as grounding, the inner conductor of the co-ax through an r.f. choke, to prevent high voltage from appearing on the antenna should a blocking capacitor fail. Additionally, it is suggested that the centre conductor be grounded through another r.f. choke at the antenna end.

* Reprinted from "QST," Mar. '58.

¹ Nose, "A Lightweight 14 Mc. Four Element Beam," "QST," Nov. '48.

² Nose, "A Lightweight 21 Mc. Three Element Beam," "QST," April '54; "The A.R.R.L. Antenna Book," p. 283.

³ Different sources give figures varying from 460 to 480. A large number of experiments tend to favour the former figure. I would like to hear about the experience of others.

HINTS AND KINKS

MOBILE HINT: A PENCIL WHEN YOU NEED IT

Ever hunted for a pencil while mobilizing? Keep one on the top surface of the dashboard. A piece of magnet from an old speaker will stick to any convenient location on the dash. And an ordinary wooden pencil with about three wide-spaced turns of baling wire or equivalent (not copper) around the shaft will cling to the magnet. For long trips, a piece of scratch paper can be placed beneath the magnet, which will hold the paper firmly enough for quick operation notes.

—H. A. Thomas, W5HJM ("QST," Mar. '58)

A "TEE" TRAP FOR V.H.F.

The construction illustrated in Fig. 2 provides a means of connecting a series-tuned v.h.f. trap across a co-axial cable without actually cutting into the line. The idea was developed for use with a 144 Mc. converter that was picking up Television transmissions along with the 144 Mc. signals, but it may be used to free co-axial lines of other types of interference.

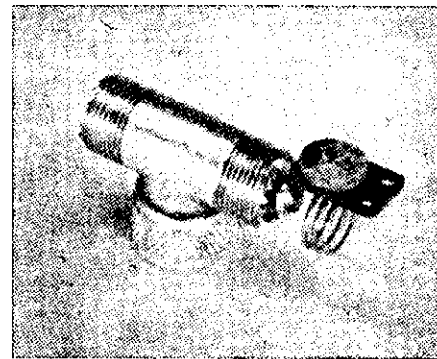


Fig. 2.—W8TPL's series-tuned "Tee" trap. C and L, discussed in the text, form a series-resonant circuit at the frequency of an interfering signal. Capacitor illustrated is a 6 to 30 pF. trimmer.

The connector used in the assembly may be either a type 83-1T or a 31-008 (BNC), both made by Amphenol. If the former is used, a good joint between coil and connector can be made with a 1/2 inch No. 8 brass machine screw. A piece of solid copper wire may be used for the same purpose when the connector is a type BNC.

If possible, solder the rotor arm of the padder to the outside of the connector so it will be grounded when the unit is installed in the line. Naturally, tuning adjustments can be made with less difficulty if the rotor is grounded.

Values of C and L that will series resonate at the interfering frequency can be determined quite easily with the aid of a grid dip meter. If a grid-dipper is not available, the coil size may be varied—by the cut-and-try method—and the capacitor adjusted until the interference is suppressed. There is no reason why a trap of this type cannot be used to suppress a v.h.f. harmonic generated by a low-power transmitter. However, it may be necessary to rig a shield around the tuned circuit.

—R. V. Nedtmyer, W8TPL ("QST," Mar. '58)

insulators, between any convenient supports that are as far away as possible while still showing a half-scale reading with the back of the beam pointed at the dipole. If these adjustments are being made on the roof top, the pick-up dipole draped over the neighbour's roof is fine; otherwise, even draped over a hedge is satisfactory.

Run a long two-conductor lead from the dipole to the beam so that effects of adjustment can be watched. It is best that the lead wire be laid on the ground to preclude r.f. pick-up. Proceed as follows:

(1) Adjust reflector length for minimum pick-up. This adjustment is very critical, a change of one half inch producing a decided change in meter reading.

(2) Adjust director length for minimum pick-up. This adjustment is not as critical as that for the reflector.

(3) Increase the sensitivity of the meter or move the pick-up dipole closer (or increase power) as adjustment proceeds so that a half-scale reading is obtained at all times.

(4) In both (1) and (2) a minimum should occur as the proper length is passed.

(5) Reinstall the ratiometer in the feed line and check to see that the s.w.r. has not changed materially. If it has, re-adjust according to the procedure given previously, keeping the radiator length a fixed quantity except for minor touch-up.

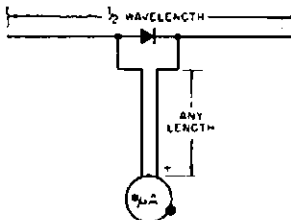


Fig. 2.—Sensitive field strength meter using crystal diode (such as a 1N34) and microammeter. The latter should have a range of about 100 microamperes full scale, and may be the meter in a volt-ohm-milliammeter if a suitable low current range is incorporated.

In practice, a change of one half inch or so in element length will not be noticed at the receiving end of a contact, but it is comforting to know that it is "on the nose." Raising the beam into position does not change the s.w.r. as much as one is led to suspect, and this method is the next best to making adjustments with the antenna in its final position.

ERRATA

In the "Amateur Television" series of articles, the author has pointed out the following omissions and alterations:

Part 1.—Sync. signal generator circuit drawing, V7B cathode resistor is 4700 ohms.

Part 2.—April, page 6, column 1. Paragraph beginning "Stage 2 (V9)," amend figure in denominator of equation from 2200 to 120. Throughout text, for cascade, read cascade, when referring to c.r.t. phosphors.

Part 3.—Circuit Fig. 15. Coupling capacitor omitted from anode of V2 to clamp V4 should be 0.004 uF.

radiator to the calculated length and start all over. The sequence is: gamma rod, gamma capacitor, and radiator length for touching up.

Depending on size of the beam and the frequency, you may have to duck out from between or under the elements after each adjustment, if such movement results in a change in the s.w.r.

If a satisfactory minimum s.w.r. cannot be attained during any of the three latter adjustments look for:

(1) Radiator length too far off, preventing resonance (see below).

(2) Poor Q in gamma capacitor and loop system. The W2VS type of concentric capacitor⁵ has excellent Q and is preferred. Spacers should have low power factor. Plastic tape is unsatisfactory, and you will have one big mess if you use high power.

(3) Poor co-ax connections. Solder all co-ax to connectors. In one instance a right-angle connector showed an open circuit only when installed in a line.

(4) Beware of unmarked surplus short lengths of co-ax in connecting the ratiometer. It is better to cut a short length from the same piece used for the feed line.

(5) Telescoping elements not making electrical contact. Test with an ohmmeter. If there is no coating of grease on the inside at the telescoping joint, put one on and tape up the joint with plastic tape after final adjustment of length.

(6) Excessive harmonic content or parasitics in the r.f. source, either through mistuning, or inherent in transmitter.

(7) Ratiometer improperly calibrated or not working properly. Test with a noninductive resistor—not at the bridge co-ax terminal but at the end of the co-ax where it connects to the gamma.

The first mentioned item is the most frequently occurring trouble and usually accounts for freak gamma dimensions or capacitance. Check the resonant frequency by shifting the transmitter frequency 200 Kc. higher and lower and observing where the minimum s.w.r. occurs. If the minimum occurs at other than the desired frequency, re-adjust the radiator length and repeat all steps.

If none of these measures work, couple a grid dip meter to point D in Fig. 1A with the feed line off. You will find several dips; the most pronounced for the radiator, a less-pronounced one higher in frequency for the director, and another lower in frequency for the reflector. This will give you an idea as to how far off resonance you are. There have been cases where resonance occurred outside of the range of the transmitter.

ADJUSTMENT OF DIRECTOR AND REFLECTOR

The second phase of tuning will be omitted by most Hams, as formula lengths work out fairly well. Adjustment for maximum front-to-back is much easier than for forward gain because the former is quite sharply defined. Moreover, it is more dramatic when demonstrating the beam!

String up a half-wave dipole with a diode detector, using pieces of string as

⁵ Reynolds, "Simple Gamma Match Construction," "QST," July '57.

100,000 hours

WITHOUT FAILURE

A. W. V. RADIO RECEIVER LIFE TEST NO. 55

Life Test Conditions - 2 hrs. on, 20 mins. off.
 Cycling - 10 Brand Line Receivers - (4 valve)
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 Life Test Receivers - 2,000 hours.
 Life Test Duration - 100
 Total Valves Tested - 10-3-58 to 28-4-58.
 Production Period:

Valve Type	No. Tested	No. Failed	Fault	Hours Failed
6X4	22	0	0	0
6BE6	22	0	0	0
6V7	10	0	0	0
6AQ5	12	0	0	0
6SA6	12	0	0	0
6AV6	10	0	0	0
6AU6				

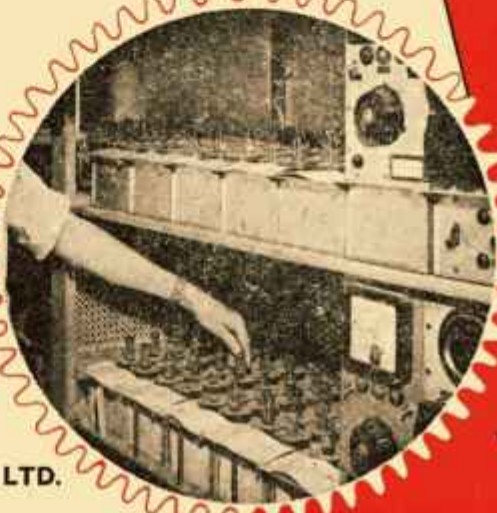
Total hours attained -- 100,000
 Maximum hours attainable -- 102,000
 % Maximum hours attainable -- 100%

M. J. Everett
 W. J. Everett
 VALVE TESTING LABORATORY
 28/4/58.

In keeping with their policy of maintaining the highest possible standards of valve reliability, the Amalgamated Wireless Valve Company employs many rigid life tests.

One such test is the 'Radio Receiver Life Test'. In this test, samples of Radiotron Valves taken at random from production are fitted in brand line receivers and operated for varying lengths of time under cyclic "on/off" conditions identical to those encountered in the field.

The life test report shown here demonstrates as a result of this policy, the outstanding reliability that is to-day, synonymous with the brand Radiotron



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 47 YORK STREET, SYDNEY

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CORRESPONDENCE

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publishers.

S.W.L. GROUPS

Editor "A.R.," Dear Sir,

As President of the VK5 S.w.l. Group I would like to comment upon the letter by Ian Hunt and published in "A.R." in May. Firstly, I would like to say that, almost without exception, I heartily endorse his remarks. A great deal of good can come from the formation of S.w.l. Groups in each Division, both as regards personal benefit by the individual, and collective gain by the W.I.A. It is certainly incumbent upon all members of the Institute, whether Amateur or Associate, to encourage the activities of S.w.l. Groups.

The point upon which I wish to comment is contained in the second paragraph of Mr. Hunt's letter which reads as follows: "However, I am rather perturbed at the apparent lack of interest in States other than Victoria, in the promotion and encouragement of Short Wave Listener Groups within the various Divisions of the W.I.A."

As far as the VK5 Council is concerned this criticism does not apply. Ever since our Group was formed in February 1955, Council has given every encouragement to s.w.l.'s, and it is certainly not from lack of official support that our Group is not as active as we had hoped. Council has always been ready to assist the Group and individual Amateurs have provided talks and lectures on numerous occasions.

Frequent publicity has been given the Group over VK5WI and through the W.I.A. notes in the Press and it is largely due to this that the Group has achieved a measure of success.

I quite admit that the VK5 Group has not been able to supply regular notes for "A.R.," mainly due to most of the Group members being more interested in the technical side of Radio than in Short Wave Listening. It is apparent that the future of the VK5 Group lies in promoting the technical aspect as most of its members are keen to obtain the A.O.C.P.

In closing, I would like to acknowledge the efforts of Ian Hunt in promoting the interests of S.w.l. Groups in VK. The VK5 Division is most appreciative of his work and we wish him every success in the future.

—James N. Paris (WIA-L5006).

Editor "A.R.," Dear Sir,

Correspondence subsequent to a letter written by myself being published in the May issue of "Amateur Radio," leads me to write further in an effort to allay any misconceptions which may have arisen concerning S.w.l. Groups, and my comments thereon.

I wish firstly to state that my letter was not intended as a condemnation of any particular Division or Divisional Council, but was meant merely to point out the need for attracting newcomers to Amateur ranks.

In furtherance of this aim I feel that S.w.l. Groups are undisputably an ideal

method, if properly organised, of attracting persons who would not otherwise come into contact with Amateur Radio or the W.I.A. This is the primary and most important function of an S.w.l. Group. The aim of such a Group is **not** to train young members as Amateur operators, although it can be seen that a natural outcome of Group activities is that many members will finally take this step. I wonder if such would be the case if no facilities were provided to capture the interest of these persons and hold it up till the time that they are in a position to sit for the examination?

As far as the hard work necessary in putting an S.w.l. Group on a sound footing is concerned, I might point out that here in Victoria the S.w.l. Group is run by the listeners for the Division. Since the formation of the Group much sound advice has been received from the Divisional Council as a body and also from individual office-bearers and members, but apart from this advice and a restraining hand, when required now and then, no further call has been made for assistance in running the Group by its members. However, the friendly attitude and encouragement given to the Group members by all other Full Members of the VK3 Division has left nothing to be desired, and for this we are very thankful.

As far as conditions pertaining in other States are concerned, I do not and have not at any time claimed to be an authority. I do know this though, here in VK3 we have a successful Group organised. If it can be done here, why can't it be done in other places, too?

In conclusion, I would like to say that if any person is interested in s.w.l'ing or in the formation of S.w.l. Groups, they need only write to me at 211 St. George's Road, Northcote, N.16, Vic., and I will try to be of as much assistance as possible. I hope very soon to have obtained that coveted Ticket and I want to be able to operate until I can be classed as an Old-Timer. I won't be able to if there are no Ham bands though, and I still maintain that they can only be preserved if we strive to keep the number of active Amateurs increasing.

This can be done by attracting new members by the formation of Short Wave Listener Groups.

—Ian J. Hunt (WIA-L3007).

SHORT WAVE LISTENERS

Editor "A.R.," Dear Sir,

Re s.w.l.'s. not receiving acknowledgment from Hams. Well the s.w.l.'s. may only have themselves to blame.

I was a s.w.l. around 1930 and had little trouble as my s.w.l. card was accompanied by a self-addressed stamped envelope.

However now, S.w.l. Groups could work in with the W.I.A. for an exchange of cards, etc.

Each S.w.l. Group could have its cards printed in bulk and these cards designed to give the information necessary for a complete report.

—W. N. Short, VK2ARA.

PREDICTION CHART, JULY '58

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I.T.U. FUND DONATIONS

All licensed Amateurs throughout the Commonwealth of Australia have now received a circular letter asking for donations to send an official Amateur delegate to Geneva to the International Telecommunication Conference commencing in July 1959.

The appeal officially opened on 1st June when the letter was mailed to Amateurs irrespective of membership of the Wireless Institute or not. Although letters were forwarded to licensed Amateurs, there are probably quite a number of new calls which have been issued since our records were amended. Quite a number of these have already forwarded donations and are recorded below. If you have not received an official notification, cards will be available from your local Division—please let us have your donation too.

All donations should be forwarded direct to the—

Federal Secretary,
Box 2611W, G.P.O.,
Melbourne, Vic.,

and should not be sent to the Victorian Division, unless you are a member of that Division and wish to send your donation there. Members and non-members alike may send their donations to their local Division, but the acknowledgment may be delayed for publication in "Amateur Radio." Please keep sending your donations and help to swell the Fund. The receipts to 7th June, not necessarily including those sent to your local Division, are £541/3/6, and official acknowledgment to these subscriptions is given below.

£10/0/0

L. Simpson, VK3LI.

£5/5/0

J. E. Rumble, VK6RU.

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W. Hall, VK2XT; R. E. Macintosh, VK2AFQ; A. Holst, VK3OH; H. Kinnear, VK3KN; G. Glover, VK3AG; J. A. Taylor, VK3AJT.

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R. J. Whyte, VK2AHM; S. Fairbairn, VK2ZDF; Dr. J. Kingsley, VK2ACF; K. L. King, VK2ABK (£3/2/0); J. Thompson, VK4KP.

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D. S. and D. A. Robertson, VK1ATR and VK1YL; J. A. Adcock, VK3ACA.

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R. M. Marsden, VK2VW; J. R. Watt-Bright, VK2YN; J. P. Vesper, VK2PV; E. J. Dickson, VK2AFM; N. McLeod, VK3NM; V. H. George, VK3HJ; D. G. Hawthorne, VK3ZC; G. B. Vincent, VK3AGV; L. M. Stone, VK3LW; D. Portley, VK4DP; G. F. Barton, VK5BN; W. P. Burford, VK5FB; P. A. Jones, VK7PJ; R. B. Parker (Vic.).

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E. Penikis, VK1VP; H. R. Carter, VK2HC; J. W. Smith, VK2AEJ; N. A. Millar, VK2AQH; C. D. Hutchison, VK2YP; H. D. Howe, VK2QH; G. Colton, VK2UM; T. Davis (N.S.W.); W. B. Magrussen, VK3AHT; E. C. Manifold, VK3EM; W. A. Butement, VK3AD; P. S. Lang, VK3ADN; J. H. Laurence, VK3PF; E. K. Webb, VK3EX; D. D. Payne, VK3FH; A. T. Hutchings, VK3HL; R. A. H. Blake, VK3ZFM; G. M. Hull, VK3ZS; A. I. Dunnicliff, VK3AAV; J. R. White, VK3AJW; F. R. O'Sullivan, VK4UK; R. M. Gebhardt, VK5RI; B. Condon, VK5CO.

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£1/5/0

S. Lloyd, VK2ZDL.

£1/1/0

A. W. Stowar, VK2ACK; O. Bested, VK2AEB; R. N. Sneddon, VK2WS; D. Broadley, VK2AFU; B. Ash, VK2ABT; P. Page, VK2APP; T. C. Bruce, VK2GT; G. Sutherland (N.S.W.); R. H. Hilder, VK2AFT; G. H. Hall, VK2AGH; A. Barnes, VK2CE; S. H. Savage, VK2PL; K. J. Claffey, VK2AK; C. E. Whiting, VK2ACD; R. W. Patterson, VK2AJW; F. V. Smith, VK2NV; J. H. Wall, VK2JC; A. R. Hennessy, VK2ZAL; W. J. Peell, VK2WJ; J. B. Doran, VK2ANL; K. A. Kimberley, VK2PY; J. G. Cowan, VK2ZC; W. Moore, VK2HZ; D. Haberecht, VK2RS; E. J. Fisher, VK2ZY; E. F. Davies, VK2FE; J. C. Treby, VK2ATT; S. W. Grimley, VK2VK; W. A. Thomas, VK2ZBI; R. T. Busch, VK3LS; A. R. Roy, VK3ADR; C. A. Hughes, VK3CA; C. McDonald, VK4CD; K. Langsdorf, VK4OR; R. J. Fitzgibbons (Qld.); R. F. Gilles (Qld.); L. H. Duncan, VK5AX; R. V. Galie, VK5QR.

£1/0/0

K. G. Laycock, VK1ZA.

G. G. Bower, VK2OI; M. Sobels, VK2OT; C. Russell-Watt, VK2WT; L. M. Wilson, VK2ALM; E. C. Howard, VK2CX; L. Kelsall, VK2AKV; B. E. White, VK2AAE; R. McKew, VK2AVQ; J. A. Ackerman, VK2ALG; L. Pinke-vitch, VK2OB; J. B. Webster, VK2ZCV; L. Piesse, VK2IX; Dr. A. Dan, VK2ABU; Dr. R. J. Douglas, VK2ON; W. N. Short, VK2ARA; L. Mashman, VK2OB; R. Rose, VK2AQR; W. Otty, VK2ZL; N. Otty (N.S.W.); E. J. Porritt, VK2AL; J. Pratt, VK2ZBF; J. W. Lambert (N.S.W.); H. R. Gray, VK2AFA; R. C. Goadsall, VK2ARG; O. Sice (N.S.W.); N. Dash (N.S.W.); F. J. M. Phillips, VK2ZQ; J. C. Kearlins, VK2AKC; J. A. Mitchell, VK2JA; J. T. Edwards, VK2AKE; P. J. Healy, VK2APQ; H. W. Unger, VK2UJ; J. L. Hazlewood, VK2AAT; G. C. Page, VK2BQ; W. J. Smith, VK2GS; N. A. Hanson, VK2AHH; N. G. Beard, VK2ALJ; J. C. Turner, VK2AJQ; C. P. Smith, VK2CD; C. Jeffery, VK2ACK; C. N. Hughes (N.S.W.); R. Lopez (N.S.W.); D. M. Grantley (N.S.W.); W. H. Kennedy, VK2BT; R. J. Sleeman, VK2ARS; J. E. George, VK2AXG; H. Ruckert, VK2AOU; J. S. Cuming, VK2PM; W. Barden, VK2ABZ; N. Fenton, VK2ZBQ; R. K. Dodd, VK2ZAA; J. B. Goodman, VK2ZAG; H. J. Hart, VK2HO; D. Woollett, VK2ZDE; J. T. Greenhalgh, VK2ADF; A. I. K. Clarke, VK2IC; D. Duff, VK2EO; A. Borland (N.S.W.); A. E. Behrmann, VK2BD; D. E. Evans, VK2AYE; R. M. W. Finch, VK2OA; E. K. Morehead (N.S.W.); J. T. Jarrott, VK2ZBY; R. Weeden, VK2PN; F. T. Hine, VK2QL; K. G. Scott (N.S.W.); M. T. Morell, VK2ZBZ; D. A. McAskill, VK2DM; V. Fitton, VK2SF; R. H. Palmer, VK2TF; R. A. Holt, VK2HW; I. Pogson, VK2AZN; L. H. Cartwright, VK2ZJC; J. H. Hill, VK2ADT; L. T. McLoughlin, VK2GV; J. W. S. Edge, VK2AJQ; R. C. Cook, VK2SZ; D. Pearsall, VK2AS; W. B. Jones, VK2AVJ; W. H. Pitt, VK2WH; B. Holland, VK2ZAD; D. Hodgins, VK2AT; G. C. Bastow, VK2UB; R. Hookway, VK2AAQ; A. Chestam, VK2ADB; M. S. Latham, VK2AO; M. Eagles, VK2ALA; J. K. Fullagar, VK2AJY; S. Smith, VK2APS; D. C. Hayes (N.S.W.); J. B. L. Watt, VK2OV; B. Bslough (N.S.W.); B. J. Reed (N.S.W.); J. Ponetsmuller (N.S.W.); E. A. Druitt, VK2AXD; G. Slawson, VK2AFN; N. Burton (N.S.W.); B. J. Foster (N.S.W.); M. E. Pleffer, VK2MP; J. E. Hills, VK2AJH; E. A. Jayne (N.S.W.); J. B. MacLachlan (N.S.W.); R. J. Jackson (N.S.W.); N. Taylor, VK2ASQ; N. Wilde, VK2DR; R. B. Bensley, VK2VD; N. Durham, VK2QA; A. J. C. McMahon, VK2ADM; C. K. Blanch, VK2GI; H. J. Pickett, VK2AHP; B. K. Hall, VK2YU; A. C. Freeman, VK2AS; T. G. Phillips (N.S.W.); D. Kirby, VK2ALX; D. Judd (N.S.W.); L. W. P. Smith, VK2AWS; J. O'Hife (N.S.W.); B. Starke, VK2ZCO; W. H. Hannan, VK2AXH; A. J. Brown, VK2IK; B. J. O'Sullivan (N.S.W.); V. McMinnell, VK2GK; W. J. Lewis, VK2YB; J. C. Pinnell, VK2ZR; H. Solomon, VK2AJZ; A. J. Mead, VK2JM; J. G. Virtue, VK2GJ; C. Foster (N.S.W.); C. M. Croke, VK2MN; L. McMahon, VK2AC; J. F. Graydon (N.S.W.); G. W. Mann (N.S.W.);

C. Johnsdn, VK2YJ; P. James, VK2ER; W. L. Hayes, VK2AJL; M. Riley, VK2ARZ; A. K. Gee, VK2AGG; I. Curthoys (N.S.W.); L. McCosker (N.S.W.); R. Wilkins, VK2WQ; E. J. Baker, VK2FP; F. T. Hill, VK2HQ; R. C. Prout, VK2CN; G. V. MacLeod, VK2FF; G. W. Reed, VK2OW; J. H. Rath, VK2HY; W. O. Yates, VK2AWY; E. G. Clare, VK2ZEC; S. C. Burton, VK2AYB; S. T. Pemberton, VK2SP; L. Gilbertson (N.S.W.); P. H. Crocker, VK2PR; A. H. Gray, VK2IJ; P. L. Hay, VK2AQO; A. P. Reynolds, VK2AP; L. Baber, VK2RJ; D. W. Shepherd (N.S.W.); M. Price (N.S.W.); G. H. Shelly, VK2QF; W. T. Nicholl (N.S.W.); G. D. Partridge, VK2VU; W. A. Cooper, VK2AQJ; J. Trall, VK2XQ; C. V. Fleck (N.S.W.); J. E. Thompson, VK2AHT; T. J. Evans (N.S.W.); R. McD. Stuart, VK2ASJ; J. Hamilton (N.S.W.); R. Lear, VK2ASZ; P. F. Christie, VK2ATE; P. W. White, VK2ZEW; R. Eagling, VK2AEY; S. Davies, VK9AD; R. H. Fookes, VK2AKJ; W. Cromie, VK2MZ; K. Pounsett, VK2AQJ; R. Rayner, VK2DO; A. Lewis, VK2AHL; O. Hornblower, VK2AMT; W. Hill, VK2AVH; G. Pearce, VK2IV; I. Marshall, VK2JI; C. Coyle, VK2YK; Griffith Radio Club, VK2AGJ; G. Randall, VK2AUR; G. Warner, VK2AVW; R. Weston, VK2AYK; R. Thomas, VK2TK; I. Bailue, VK2TN; W. Cavanagh, VK2WC; K. North, VK2ZAN; G. Paterson, VK2AHJ; D. Murphy, VK2AAN; G. Knox, VK2AKH; E. Groves, VK2DG; S. Bourke, VK2EL; M. Datson, VK2GE; J. Ramage, VK2HK; W. Cox, VK2ZAC; J. Ferguson, VK2ZAX; B. Doland, VK2ZED; T. Barnes, VK2ABI; G. McLeod, VK2ADC; R. Smith, VK2AIU; W. Salmon, VK2SA.

V. Maddern, VK3AEQ; L. Harding, VK3AHL; M. Anderson, VK3AMA; J. Downie, VK3AFD; E. Avenell, VK3AVE; H. Hargrave, VK3BN; R. Schmidt, VK3LY; A. Nickson, VK3NE; R. Grogg, VK3RA; R. Haynes, VK3RU; F. Bail, VK3VS; L. Fisher, VK3AF; J. Woodburn, VK3AGD; I. Grant, VK3AIN; K. Peters, VK3AKP; P. Lemprriere, VK3ALL; R. Jones, VK3BG; D. Scott, VK3DY; W. Middleton, VK3AIT; K. Rankin, VK3KR; R. Boase, VK3NI; C. Buckingham, VK3QU; A. Haddrell, VK3ZFC; J. Power, VK3AF; A. Reid, VK3AHR; L. Uther, VK3AHU; L. Allen, VK3ALH; T. Sowers, VK3AOG; B. Lloyd, VK3AOL; S. Lloyd, VK3AST; D. Terrill, VK3BP; M. Howden, VK3BG; L. Walters, VK3CN; G. Butler, VK3GB; G. Every, VK3GE; P. Gibson, VK3GX; R. Jepson, VK3JJ; P. Marsland, VK3NV; W. Sargent, VK3SC; G. Dennis, VK3TF; A. Evans, VK3VQ; L. Paul, VK3XO; R. McGregor, VK3XZ; V. Jones, VK3YE; A. Costello, VK3YV; L. Frith, VK3ZA; I. Woodman, VK3ZBI; B. Stares, VK3ZBS; A. Morrison, VK3ZBY; R. Owen, VK3ZCR; W. Bell, VK3ZFG; D. Goss, VK3ZFK; A. Bell, VK3ABE; H. Michell, VK3AEM; C. Ewin, VK3AGC; P. Fawcett, VK3AFP; G. Hughes, VK3AUX; R. Higginbotham, VK3RN; R. Bradshaw, VK3SX; D. Walker, VK3ZBW; J. Tutton, VK3ZC; W. Rice, VK3ABP; D. Harkin, VK3ADJ; M. Collins, VK3AFO; R. Morris, VK3APM; C. Searle, VK3ARX; A. Stow, VK3AS; O. Holst, VK3BY; E. Clynne, VK3HZ; J. Herd, VK3JK; L. Herman, VK3NF; W. Jackson, VK3XM; C. Rann, VK3AAK; R. Smith, VK3YU; D. Robinson, VK3ALD; F. Freeman, VK3ALG; A. Cook, VK3AIC; D. Williams, VK3ACW; W. Zimmer, VK3AWZ; A. Brown, VK3AJW; A. Thornton, VK3IV; J. Lancaster, VK3JL; C. Philip, VK3KL; F. Cropley, VK3LR; R. Hall, VK3NZ; J. McConnell, VK3RV; S. Wildgery, VK3SE; R. Humphreys, VK3WO; R. Anderson, VK3WY; K. Roget, VK3YQ; W. Francis, VK3ZCG; J. Hamilton, VK3ZCJ; J. Hudson, VK3ZEF; F. Sullivan, VK3ZJ; N. Storck, VK3ZO; C. Buckley (Vic.).

J. Weddell, VK4FT; S. Henkel, VK4SH; A. Greenham, VK4AG; A. Burton, VK4FE.

A. Rechner, VK5ZCR; C. Hewitt, VK5CT; J. Kilgariff, VK5JT; D. Hancock, VK5RJ; R. Deane, VK5KR; D. Wilson, VK5VU; V. Cook, VK5AC; B. Smith, VK5BV; S. Buckenfield, VK5DA; W. Heinrich, VK5HR; H. Brock, VK5UZ; H. Fisher, VK5ZAB.

Dr. Kelly, VK7LL; V. Dore, VK7JD; D. Clifford, VK7DC; L. Durkin, VK7JP; A. Hubbard, VK7AX; J. Brown, VK7BJ; L. Crooks, VK7BQ; T. Barnes, VK7BT; C. Harrison, VK7CH; K. Millin, VK7KA; L. Edwards, VK7LE; L. Jensen, VK7LJ; M. Loveless, VK7ML; R. O'May, VK7OM; R. Barker, VK7RM; W. Grewling, VK7ZAG; A. Gatehouse (Tas.); D. McKelvey (Tas.); I. Nichols (Tas.); C. Spiegall (Tas.).

F. Nolan, VK9FN; R. Coleston, VK9XK.

Under £1/0/0

J. A. Teehan, VK2FW, 18/0; W. G. Kirchner (N.S.W.), 15/0; C. Barwick (N.S.W.), 15/0; E. Smyth, VK2AJA, 18/0; G. Harriman, VK2ADZ, 18/0; F. M. Crisp, VK2LX, 18/0; R. Ellison, VK2ML, 10/-.

S W L

Ian J. Hunt, WIA-L3007
211 St. George Road,
Northcote, N.16, Vic.

Well here we are again after an unfortunate break in S.w.l. news which, however, was due to pressure of other business.

As a result there is a great deal of news to catch up on. The Card of the Month Contest is one matter which dates back as far as May. The results to date of this contest are as follows: May—12 cards entered; card from CR6AO submitted by Ian Hunt judged the winner. June—15 cards entered; card from C.B.C. Radio Canada submitted by Maurice Cox judged the winner; and for July another card submitted by Maurice, namely that of G3GYH.

So as to facilitate Interstate interest in this Contest we ask all Interstate Groups to send us the details of the card judged the best of the month from among their members. Details of the winning entries will be published in this column.

N.S.W. S.W.L. GROUP

The inaugural meeting of this Group was very well attended and official listeners' numbers were allocated to financial members present. So far to my knowledge at least 22 of these numbers have been issued. At this meeting an address was given by Norm 2ALJ on various aspects of s.w.l'ing and some very interesting QSL cards were displayed.

Group office-bearers elected were: President—Barney Smyth; Vice-Presidents—J. Dawson and Bob Luther; Secretary—Barry Cartwright; Assistant Secretary—Bruce Forman; QSL Manager—David O'Dea.

The first general meeting of the Group was held on 2nd May with 15 members present. A lecture was given to the Group by Frank 2QL who is QSL Manager for the VK2 Division. Frank lectured for two hours on the functions of the QSL Bureau, design of QSL cards and postal regulations concerning same. The lecture was very well received and numerous questions were asked. No doubt some very interesting cards will appear as a result. The chaps all wish me to express their thanks for your efforts Frank.

Any other of you VK2 s.w.l.'s who wish to join this Group can contact the Group Secretary, Mr. B. Cartwright (WIA-L2002), 45 Chelmsford Road Wentworthville.

Our congratulations are extended to the New South Wales Division on the formation of an S.w.l. Group and we hope that the move will prove to be a wise step in the right direction. However, you VK2 s.w.l.'s, remember that your Group will only be as successful as you make it yourselves and that some hard work will be necessary. So rally around and give it your support and then watch yourselves go places.

Don Grantley, to whom we may now refer to as WIA-L2022, has written a couple of letters telling me a little of what goes on in Holbrook. Don states that he is very interested in the current Contests (see "A.R." for April '38 for details) and is awaiting a batch of 2,000 QSL cards from the printer, so it looks as if he is going to keep pretty busy with his listening. He also throws out a friendly challenge on behalf of VK2 listeners to all other States to try and beat them in the Contests. So go to it all you s.w.l.'s everywhere and we'll see just which State can top the poll. Don states that Dave Jenkin and his t.r.f. rx have his sympathy. His faithful old t.r.f. is at present undergoing its first overhaul for eight years and should no doubt be working much better by now. Amongst the other gear used by Don are the rx section of a No. 19 set, an SCR322 for v.h.f., an all-band converter for use in front of the No. 19, with the antenna a vertical. Other equipment coming up includes a 2 and 6 mx converter and a preselector unit.

Well that finishes the news from VK2 for this month. We hope to hear more from your chaps up there between now and the next issue of the magazine.

VIC. S.W.L. GROUP

The April meeting of the VK3 Group was very usefully employed in setting the general business of the Group on a sound footing. Discussion took place on many and varied topics and some very good ideas concerning future policy and activities were forthcoming.

At the May meeting of the Group 15 members were present including two new members, Ron Loutif (Balwyn) and Trevor Boussard (Blackburn). Our old friend George 3WJ was also present and just as interested and enthusiastic as ever. Apologies were received from our President, Len Poynter, and Geoff Morris whose antenna we were told had unfortunately blown down during the recent very high winds in Melbourne. We hope you have it re-erected by now Geoff. The job of compiling reports of band conditions for the purpose of inclusion in the Sunday morning broadcasts, including details of stations heard, was placed in the capable hands of our Assistant Secretary, Maurice Cox. All who have reports for this purpose can contact him during the day at MXV 110 Ext. 388 to pass on the details.

After further discussion of a general nature Ian Hunt demonstrated to the members an antenna tuner which covers all Ham bands by band switching and briefly described its mode of operation as well as explaining how useful an adjunct can be and how cheaply a good antenna tuner can be built.

No doubt you read in the June issue of "A.R." of how Raymond Bedson, one of our blind members, has passed his examination for a limited licence. Raymond, who now has the call sign VKZZEB, was one of the early members of the VK3 S.w.l. Group with the listener's number of WIA-L3008. I wish to convey the heartiest congratulations of the rest of the Group members to him and I also believe the wishes of all listeners throughout the country. A very fine effort indeed and also a fine example to those other members of our Group who unfortunately undergo the same handicap as he. We are looking forward to hearing something of Raymond's exploits now he is "On the air." He always was a very keen listener and not so long ago was instrumental in alerting the Melbourne v.h.f. gang upon the occasion of a break through.

Correspondence received from s.w.l.'s within VK3 includes letters from Ian Thomas, of North Clayton, and Horace Barling of Geelong. Ian States that he is very interested in joining the Group and I hasten to assure him that he will be very welcome to do so. If any others are interested come along to our meetings at 8 p.m. on the last Tuesday of each month. They are held at the W.I.A. Rooms, 191 Queen St., Melbourne.

Horace is unfortunately an invalid and therefore can't get about very much. However, despite his handicaps he made his own t.v. antenna which by all accounts works very well. The rx used for most of his listening is an American "Zenith" 5-valve Trans-Oceanic, six shortwave bands and broadcast, two loop antennae, a telescopic whip antenna, and provision for an external antenna are built in. Speaker or phones can be used as desired. The main antenna in use is a 20 mx doublet about 40 ft. high. Horace, however, being a pensioner, cannot easily afford to purchase the various radio magazines which he would like to, and he has asked me if I can do anything to help. I'm sure he won't mind me mentioning this, and anyway it is something I have had in mind for some time. If any of my readers have any issues of the more popular radio magazines which you don't want, I would be very pleased to hear from you. There are a number of persons who could make good use of them including people in the same boat as Horace who are hard put to even get out of the house, and also some of our very young members who are still attending school and only receive a few shillings pocket money each week. Here's your chance to help some of these chaps, so if you can send any of your old back issues of magazines or old handbooks to me care of the W.I.A. rooms or bring them along to the Institute meetings I'll be most pleased. I can promise you that they'll go to help some person who really deserves them. This project of help for other Radio pals could possibly be adopted in other States too. Possibly some of the Geelong gang could drop around to see Horace at 215 Little Malop Street too.

TASMANIA

And so now last but not least in my mail bag for this month comes a letter from Rod de Balfour of Launceston, Tasmania. Rod states that interest in the Northern Zone of VK7 has livened up of late and that he hopes soon to be able to let us know of a few more s.w.l.'s in that part of the country. He is still using the old faithful 6-tube superhet covering 80 to 10 mx, with plug-in coils, and has just about finished building a "SAX preselector." His next project will be an 11 or 12-valve double conversion job.

The antenna farm which helps to bring all that good DX seen pretty well every month without fail in the DX column, conducted by that same worthy man Frank 2QL previously mentioned, is as follows: (1) Half wave 7 Mc.

doublet, (2) Half wave 14 Mc. with tuned feeders, (3) Cubical quad antenna for 14 and 21 Mc. mounted on a 44 ft. mast. Rod states that the 20 mx quad works very well on 10 mx too and thoroughly recommends this type of antenna to all s.w.l.'s who contemplate building a beam. He points out that they are simple to build and get into operation, easily supported and rotated due to their light structure, and what is more important to many s.w.l.'s, cheap to build. His beam has stood up to a 70 m.p.h. gale without suffering any damage at all. At present his total of countries heard is 149, on phone and c.w., with 94 countries confirmed. During April he heard a total of 88 countries. Rod also says that if anyone is interested in his cubical quad, and its associated supporting structure which enables it to be lowered to the ground quite easily, he would only be too pleased to help if they drop him a line. His address is 29 Gorge Road, Trevallyn, Launceston.

Well I think that pretty well wraps up this month's doings. Remember, if you have any news let's hear from you without fail. Also, if you wish to be featured as S.w.l. of the Month, write and tell me all about your background, that is excluding gaul sentences of course, and also about your activities.

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FIFTY MEGACYCLES

Over the past month DX has eased off considerably, but despite the onset of cooler weather activity remains at a high level and not too much escapes the notice of the boys on the band. As Bill 4WD expresses it, "DX stations are now as scarce as hen's teeth." The odd DX signals comes through in all Divisions except VK7 and rewards the patient listener. South American signals have faded out of the picture, and despite efforts by VK6 no South African stations have been heard, likewise no VK6 signal has disturbed the serenity of those on watch around the ZS/ZE area.

Have you sent in the log of your season's DX activities to the W.I.A. yet?

Russ 9XK received a report that he had been heard by W6PUZ at 1000 E.A.S.T. on April 19, the first VK9 signal to be heard across the Pacific. Bad luck, Russ, that you missed his calling you and that no contact was made. Some of these openings can be will o' the wisp affairs, of short duration, one of the intriguing aspects of the band. During most days of May the band was open from VK9 to ZL 9BW having possibly his best day on May 18 when he worked 12 ZLs. The ZL gang appear to have a lien on the DX during this period, working into VK6, VK9 and W. The VK9s have faded out of the picture in VK3, but VK9NT helped himself to some VK2 and VK4 contacts when the going was good.

VK4 came into the picture in VK3 on May 19 and 26. Apparently VK3 caught the closing of the band at 1725 E.A.S.T. on the first occasion, signals sounding like locals when first heard, but fading out by 1740. From 1745 until 1800 on the latter date, 4ZBP and another VK4 were heard in contact, but despite calls no contacts were made, apparently they were the only two VK4s on the band at the time. Signals were good. May 27 found 3AHO, North Central VK3 putting an S9 signal into Melbourne when he was working a VK9. JA signals appeared in VK3 at both 1325 and 1800 E.A.S.T. on June 1, but it must have been one way traffic, no contacts were made. This same day 9NT at 0800 E.A.S.T. worked 4ZAZ (Mt. Morgan) and 4NG, and was heard by 4WD at S9, but the band folded before Bill could make a contact. VK2 scored on May 25 when contacts were made with JA stations. When the path VK6/ZS has been good on 28 Mc., Bob 6BE and others of the gang there in VK6 have been attempting 28/50 crossband contacts with the South African gang, but so far conditions have not been suitable and no 50 Mc. signals have been heard either way.

With continuous DX off for the time being, and the DX QSL cards arriving, station operators should now find time to analyse both their logs and their activities over the last few months. Quite a number should be eligible for the "AJD" 50 Mc. award, two examples being Bob 4NG, who has QSOed close to 400 separate JA stations, and Bill 4WD, who has worked

130 of them. And time should also be found to prepare a log of DX contacts and DX stations heard (together with anything out of the ordinary) for forwarding to the W.I.A. as requested. This latter should be regarded as a MUST. The "Worked All VK" 50 Mc. award is just out of the reach of quite a few stations, particularly the Z call fellows who are using the band for the first season, simply because of lack of activity in the Northern Territory. They badly want another "5JD effort", Jack having filled the gap for many a few years ago when he was temporarily located in Alice Springs. But it would need to be on phone this time, the use of Al would leave too many struggling.

As an indication of activity in VK4 the following stations have been heard lately: VK4s JO, WD, ZAF, ZBF, ZAA, ZBD, ZGL, ZBJ, Ross ZAT moving QTH, and Max 4HD, with the country gang scattered from the Darling Downs to the North Coast. In VK3 an average of 11 stations are on each night, not all active at the same time, with others sitting on the fence, tuning and listening. Several times hopes have raised with the appearance of auroral flutter on signals, at other times by the Korean f.m. station on 49.6 Mc. putting in a good signal.

Do not fail to prepare those duplicate logs and send them in. It is not time wasted—it may be something gained.

NEW SOUTH WALES

V.h.f. During May.—Hi, chaps. Well, it is pleasing to report that v.h.f. activity has improved over the month, with more contacts being heard; in addition four new call signs have set up shop on 2 mx. Tony 2ZDC is running an 829 from Strathfield. Bob 2TY with an 1143 from Hunters Hill. Harold 2AWH of Auburn and 2ZEW is operating from Panania. A hearty welcome is extended to these calls. 2JM was another new call sign but turned out to be Arthur sporting his new two letter call. Vale 2ATA.

May Fox Hunt.—This all-day hunt included a progressive tx hunt and a mobile fox hunt in the afternoon. Several catches were made on the course which extended out to Richmond. The winner of course was that Green Elot again flown by "fat out" Bob and "firm grip" John, 2OA and 2ZAV. They were nevertheless closely followed by our chairman, 2PM, with Phil 2ER, brought up by 2AZO, John 2ATO and Co., 2ANF, John 2ABZ and Bill with Dick 2ZCF and crew following. They tell us Dick that it is illegal to drive on the footpath! Dick and crew had a narrow squeak with a broken brake line whilst on one of their nocturnal tows.

May Night Fox Hunt.—The hidden tx was to have been 2ZAV, however John was not heard and Dick took over as mobile fox with hounds 2ANF, 2ABZ, 2AWZ-2ZQA, 2PM-2ER, 2ZAL and 2ATO-2AZO hot in chase. 2AWZ with 2ZQA had first kill for 3 points, 2ZBB was put in with 2 points and 2PM had second kill with 1 point. The unusual evening concluded in hamburgers at a nearby shop. The July mid-winter contest will be held on Sat. and Sun. evenings, 12th and 13th July, between 8 and 11 p.m. There will also be a night fox hunt in July and full details will be given via the Bulletin and 7.30 p.m. Sunday V.h.f. Broadcast on 2 mx.

Morse Practice.—The new morse session is now in operation and can be heard from 2JM Mon. 7 p.m., 2BV Tues. 7.30 p.m., 2ABZ Thurs. 7.30 p.m. These sessions are designed to assist you towards obtaining full tickets and reports would be appreciated.

Country News.—Peter 2APP (Monteagle) is being copied in Sydney by 2ANF and 2ARG. Also working are 2BT (Eugowra), 2ZAA (Tumut), 2PN, 2BT, 2WH and 2DR. The V.h.f. Group is hoping to organise a technical day in Sydney for the benefit of country chaps who can make the trip. More details will be available later. Also a technical committee has been organised and your v.h.f. queries should be addressed to the Sec., V.h.f. Group, Box 1734, G.P.O., Sydney.

Frequency Checks are now being given by Phil 2ER at the conclusion of the Sunday V.h.f. Broadcasts and this service is appreciated by members.

Some interesting tests are being carried out on 5 mx by the Blue Mountain boys with a view to utilising this frequency for W.I.C.E.N. v.h.f. links and in particular with small battery sets. 2MZ, 2HZ, 2ANF, 2AZO and several city chaps have carried out these tests. Well chaps there should be a lot more activity to report next month with all the 522s and the Commands going around, so go to it.—2AWZ.

VICTORIA

V.h.f. Meetings.—The May v.h.f. meeting consisted of a lecture on Amateur TV equipment by Charlie 3AAK and Geoff 3AUX, who

have previously exchanged t.v. test patterns and sound. Geoff, who uses an iconoscope camera tube runs 40w. to a pair of "door-knob" triodes operating as self excited oscillators. To obtain a wide enough response for the video signal, series modulation is used. Charlie, who is using a flying spot scanner, uses an 832A oscillating on 288 Mc. which drives a QQE08/40. Both stations are using 6CW7 cascode converters in front of normal t.v. rx's. The July v.h.f. meeting, which will be held at 8 p.m. at the rooms in Queen St. on Wednesday 16th, will discuss the changing of the present field day rules for the 1958-59 season. To give other field day stations and home stations an idea of the type of gear used in the field, field day operators are invited to bring along their gear.

6 Metres.—DX activity for May has been low compared with the previous months of the year. There was great promise of DX when Ian 3ALZ heard W6NLZ working ZL2DS on c.w. on 11th May at 1000 hours, however though he repeatedly called W6NLZ, Ian could not get a reply. On the same day and the next day an f.m. station on 50.4 Mc. was heard peaking in the direction of Central America about noon by some VK3 stations but again no contacts were made.

JA made a brief appearance on Monday, 12th May, when JAI4EQ portable JA0 was heard calling CQ by Jim 3AZY and the Republic of Korea f.m. station on 49.6 Mc. was heard by Melbourne stations, however once again no QSOs were made.

New stations on the band include Ray 3ZEB and Keith 3ZED, both operating in Melbourne. An old identity, 3ZQA, has returned after a fairly long absence, however David may not be with us for long and may be operating for a period in VK2. Look out VK2!

Don, ex-6ZAK, now 3ZGK, and Len, ex-6ZAT, now 3ZGT, who are over in Melbourne to further their studies, are operating on 6 mx and should soon be operating on 2 mx. 6 mx operators were surprised to hear "duck talk" from Glenroy during May. After b.f.o.'s were turned on and carefully manipulated, the signal was identified as emanating from Reg 3SF, who is, as far as known, the first VK3 to use s.s.b. on 6 mx. Reg has volunteered to give a lecture on his gear and details should appear in the next issue of "A.R."

2 Metres.—Some good openings have occurred within VK3 during May, however activity on 2 mx has been fairly low and possibly the openings were not utilised to their full extent. Les 3ZCN, who is now operating with a 12 over 12 beside a 12 over 12, has been making some good DX contacts and within two nights contacted 3ZCW (Ouyen), 3NN (Yannac) and 3ANQ (Warnambool), and heard 3ZEA (Rainbow). A warm station to look for at Warnambool is 3ZCQ who is looking for Melbourne contacts.

Activity at Ballarat is quite good and by the time this reaches the press the Ballarat gang's 2 mx contest should be in full swing.

1 Metre.—The note writer would appreciate any reports of activity on this band or the higher v.h.f. bands. If you have any information you can forward it to Mac 3QO, John 3ZAJ or direct to Frank 3OF. Peter 3ZAF may soon be heard operating airborn mobile on 288 Mc., he has made one attempt at becoming airborne (with a flying machine), however due to the strong gusty winds was forced to cancel the attempt. Best of luck Peter, hope you make it next time.—3ZAT.

SOUTH AUSTRALIA

A rather uneventful month for v.h.f. in VK5. I'm afraid, although 6 mx is still producing some spasmodic DX, being open to JA as late as 1st June. Curl 5ZBL was out, as usual, but takes it all very philosophically. That old stalwart, Neil 5ZAW, seems to be about for most openings, and most evenings too, for that matter. One or two new calls have appeared. 5KY being heard working 5XV. Gilbert 5ZGW has some very fine gear ready to go, except for a bug or two in the cascode front end of the converter. He has built a very nice four element array from materials purchased from a local t.v. beam manufacturer, at a price which compares more than favourably with dural from disposals sources. While talking of economy, the price of the miniature twin tetrode QQE03/12 has recently been halved, and makes this a very worthwhile bottle for multipliers, drivers and mobiles up to 15w. input.

Bob 5PU has elaborated on the 50 Mc. converter which he described hurriedly at the end of his joint lecture with 5XU on satellite rx's. The EC91 grounded grid r.f. amp, feeds a 6AK5 pentode r.f., into half a 12AT7 as mixer. The other half doubles to 32 Mc., the 18 Mc. output of a 6AU6 modified Pierce osc. (8 Mc. rock). The resultant 18 Mc. beat is fed via a bandpass coupler to half another 12AT7,

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W.I.C.E.N. NOTES

where it is mixed with the 16 Mc. output of the crystal oscillator to provide 2 Mc. output via the remaining half of the 12AT7 as a cathode follower. This set-up provides the image noise rejection of an 18 Mc. i.f. with the freedom from birdies and i.f. feed-through, and the high local oscillator stability of a 2 Mc. i.f., where the communication rx tunes like a b.c. set, with better selectivity, of course! Note that since only one crystal is used, no spots are introduced by the double change within the converter.

There have been reports received from various parts of the world of extended range v.h.f. communication by means of reflections from the latest Sputnik rocket casing. To do anything useful with such reflections, high angle and wide angle or steerable antennae would be required. We often hear of passive arrays on mountain tops enabling contact between otherwise shadowed areas, but here is a reflector which, in favourable positions, "sees" both Melbourne and Adelaide at the same time. Who will make the first satellite contact in VK7?

6ZAW now has his 6 mx beam up 42 ft. and is making up a multiple array for 2 to go up on top. A transistor Q multiplier is being added to the Command rx. A transistor osc. on 8 megs. crystal controlled, with an input of 3 volts 1½ mills., a harmonic of which can be heard on 50 megs. modulated, not bad with 0.0045 watts. Curl 6ZBL uses the following line up: 6AC7 from o.t. xtal to 24 megs., 7C5 to 48, 7C5 amp. on 48, 832 final on 50, 56, or 144, or 288 with plug-in coils and outboard modulator.

Col 5RO advises 9MT and 9BW were to be on 50 megs. from 8 to 6.30 a.m. each day with a sked to VK3 for anyone who wants to work them; so get up early is the trick fellows. Recently Col had a comeback from a DU on 50 megs., but not good enough to make it a contact. David 5AW still active on 8 and 2 and continues to work into VK3 occasionally.

JA openings continued during May and last report before completing these notes being from Neil 5ZAW who worked JA1, 2, 3, 4 and 5 districts on Sunday, June 1, and from all reports he was the only one on to them. Pays to be vigilant doesn't it Neil. Hughie 5BC managed to identify OASAAE recently, but have not heard if he worked him or not.

Associate member Don Pitt (we can delete associate. now) has received his call sign—5ZBG. Congratulations from all the boys Don, who at present is working on a 322 tx for 2 mx and a converter to pull in the 2 mx DX.

WESTERN AUSTRALIA

50 Mc.—ZL signals broke through to Perth on Sunday morning, May 4, when ZLAGY worked Rolo 6BO and Don 6ZAV. This was the only signal heard on the band—no JAs that day. ZL signals came through for the following nine days and worked VK6s who were fortunate to be home at the time. ZL2DS was prominent for the whole time, but signals came in earlier and earlier each day. ZL2DS was heard on Sunday morning, but conditions were not very good. Later in the afternoon the m.u.f. changed from east to west to north and south and JAs were worked by 6BE, 6BO and 6ZAV.

6CL has his final on 50 Mc. and is working Perth stations regularly every night; Milling is approx. 105 miles from here.

144 Mc.—Activity on this band has not been good. 50 Mc. has priority apparently. Lance 6ZBK on 2 has crossband contacts with 6ZBU, 6CB, 6ZAV and 6BO. Ian 6CL puts a good signal at times into Perth on 2 in checks with 6BO and 6ZAV. Ian says v.h.f. has got something—I'll say.

The Fox Hunt on Sat. night, the 24th.—Tom 6ZAF owing to a car "prang" was unable to fulfill the fox's shoes, so Rolo 6BO and Harry 6ZZ filled the breach at the last moment. Don 6ZAV and Roy were first in, followed by Don 6HK and Sid 6SJ. Don 6ZAV was quite close to the fox with only a creek and a foot bridge between them, when a voice came out of the speaker "What, have you run out of road." By golly we had, there wasn't any more for the car to run on, until with much backing they got the road to the other side of the creek, to find the other half of the previous dead road, at the end of which was a beam standing out in the headlights. Roy said to Don this looks a bit phony. Wat it? I'll say it was, on the end of the feeder hanging through the fence was a plastic "mug." Supper was at 6ZZ's QTH, and this ended another good night.

The V.h.f. Group meeting took place on Monday night, May 26, with the usual good roll up of members. The talk of the evening was by Tom 6ZAF on Electronic Counters with a demonstration on a counter built by Tom in his work at the University. Very much enjoyed by all, many thanks Tom.—6ZAV.

The most outstanding news this month appears to be the progress of W.I.C.E.N. in VK2 where so far 123 members have been enrolled and State divided into six areas under Area Commanders.

Another bright note from VK2 is production of 58 Mc. Communicator which it is proposed to use. Full details have been prepared in duplicated form. A copy of this item has been forwarded to the magazine so that all who may care can get to work. (This will be published in the near future.—Ed.) Our congratulations go to VK2ARC.

VK2, VK3 and VK4 have all been fortunate enough to secure Type 122 Sets for W.I.C.E.N. operations.

We are anxious to obtain advice and suggestions from all users with a view to publishing in "Amateur Radio" a complete picture of how to do it by those who have done it.

The importance of maintaining watch at all times on 3501 and 7002 Kc. should be borne in mind at all times for it is upon these frequencies that all initial emergency calls should be made.

A complete picture of frequencies employed by each network will be published as soon as Divisional Co-ordinators have forwarded their reports. Additional frequencies will then be advised as they come into use.

FURTHER RULES

The following rules complete the "Instructions to W.I.C.E.N. Operators."

Action Following Emergency:

- 1.1 Amateurs concerned in any emergency activity should set down on paper a full report covering those activities before details fade from their memory. A copy of the report should be sent to the Divisional W.I.C.E.N. Co-ordinator for collation.
- 1.2 Any matter such as press reports relevant to the action or event should also be forwarded to Divisional W.I.C.E.N. Co-ordinator.
- 1.3 Any criticisms and suggestions for improvement should likewise be forwarded to Divisional W.I.C.E.N. Co-ordinator.

General:

5.1 Preparations for possible emergencies should be made well in advance.

5.1.1 Such preparations should include—

- (a) Network alignment.
- (b) Special requirements.
- (c) Address codes.
- (d) Suitable equipment.
- (e) Pinpointing sources of emergency supplies.

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- ★ Should you have the materials for that certain project, but do not have the time or are so placed that you are unable to complete the job, drop us a line and we will be pleased to assist.
- ★ Should you also have any equipment you would care to sell or exchange, please write giving all the necessary details including the price. An effort will then be made to include your item or items in the following month's advertisement.

SPECIALS FOR MONTH OF JULY

- 1 only NEW ALL-BAND TX (r.f. section only) using Geloso driving a 6146 into 813 p.a. including 10v. filament transformer. Unit is mounted on heavy duty chassis and panel. Price £80.
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5.2 Anticipation of an emergency and pre-warning of Control Station and network generally will often mean the difference between success and failure.

5.2.1 For example: The approach of a Storm, Flood or Fire is, in many cases, preceded in a given area by certain conditions which give due warning. Notifying the network enables City Amateurs to be alerted ready to maintain watch during business hours; furthermore it ensures that traffic originating in the City will be received from network which has been alerted.

5.3 A warning system based on the American Conelrad is very desirable. A simple system of this type in use by Amateurs in areas where fire and flood danger is high is recommended in the initial stages.

5.3.1 System consists of timer adjusted to emergency calling frequency and fed into i.f. stages of b.c. receiver, so that when a station comes up on the frequency, call is superimposed upon the programme causing listener to take predetermined action to locate the Amateur and get station on the air.

5.4 Each member of W.I.C.E.N. should keep his Divisional Co-ordinator posted with alterations to equipment capacity and seek advice and assistance when in doubt.

ATOMIC CLOCK

Scientists at the National Bureau of Standards in the United States are working on an atomic beam to serve as a super-accurate standard of time. The atomic beam will replace the tiny crystal of quartz that has controlled the frequency of an electronic oscillator, adopted in the 1920s as the United States' standard. The crystal is used in conjunction with a 10,000 dollar electric clock which tells time with an error of no more than one part in 100 million. Scientists believe that the new atomic standard will achieve an accuracy to at least one part in 10,000 million. This would mean a cumulative error of no more than a second every 300 years. Experiments are under way that may make atomic clocks accurate to one part in 1,000,000 million. Atoms of the element caesium—a silvery metal that is liquid at ordinary temperatures—are used in the new standard.

—"Radio 23," February 1958.

NOTES

NEW SOUTH WALES

The May general meeting of this Division, held at Science House on May 23, was devoted entirely to business. The two motions before the meeting were dealt with after the usual reading of minutes and correspondence.

The motion relating to changes in the Rules of the R.D. Contest was stood over at the request of the mover, Frank 2QL.

George 2CB had asked at the previous meeting that the Committee for Dural should be reformed and that work to be done at the Division's station VK2WI be discussed.

Bob 2ARG spoke on the necessity to get VK2WI fully operational as soon as possible. W.I.C.E.N. networks were now operating and simulated emergency practice sessions were to be held shortly. Volunteers were forthcoming to construct some items of equipment at their homes and others stated their willingness to assist in the work at Dural.

The Correspondence Course for the A.O.C.P. examination was again discussed. The most debated aspect was the method by which students would be asked to pay. It was finally resolved that the Division would commence this course and the Council was empowered to get the scheme under way.

HUNTER BRANCH

An interesting and educational lecture was presented by President Lionel at the May monthly meeting of the Hunter Branch and this time even Bill Hall kept awake. Those present being 2ARV, 2AQR, 2CS, 2ZL, 2AOR, 2ZDL, 2AFA, 2QB, 2AEE, 2XT and Associates Hughes, Finch, Gray, Sutherland, Davis, Stobbs, McLoughlan, Richardson and Prigg. The night was complete with a couple of films.

Due to the fact that the writer has been on holidays information is very scarce, had hoped to pick up some scandal at Bill Hall's social, but could not make it. Talking of Bill, rumour has it that he is shooting off to Japan when 2CS' threat to use s.s.b. bears fruit. Keyhole Harry, the well known identity of Roseville, visited 2ZL, 2XT and met 2AQR in the open, where there was more room, before he went back to his home State in VK6. On my trip I was able to prove that Col's 2ASF, cold, cold south was only a myth; other stations called on were Muriel 2AIA, Pop 2AHL, and Bill 2ZS, bidding the latter bon voyage on his move to VR land in July.

The Terrigal Tiger is still being worked with excellent results and to date with his portable call sign of ZLIAUL has been using the gear of Jack ZLIAOF, Ted ZLIANI and Hilton ZL2MN. Wal proposed a toast at the Palmerston North Convention before a multitude of 287.

To fill in, may I mention the extremely bad operating on 40 these days. Apparently these jokers haven't heard of a dummy antenna, nor do they know how to check a modulator without inflicting their horrible noises on the air. This does not refer to those "pickello petes" who have no ticket and several well known identities are among the culprits. Other nasty noises are the canaries, those who whistle, out of tune of course, to see if the r.f. meter moves or the pea-lamp brightens. I'm afraid we need someone to resurrect the Old Man to point his Wouff Hong Overseas Invaders are making enough inroads into our bands without these jokers making a mess of what is left.

Don't forget the next meeting which will be held at 8 p.m. on 11th July at the University of Technology, and Bill Hall puts out the welcome mat at his premises on Wednesday, July 23. See you all there.

VICTORIA

George Robertson's (3WJ) lecture at the last meeting was somewhat different from the usual run and was the most thought-provoking we have had for some time. He gave a resume of a recent civil defence course he took at Mt. Macedon where he attended as a W.I.A. representative. The course itself is run by the Commonwealth Govt. and from all accounts is of a very excellent nature. As George explained, the whole basis of civil defence is self preservation and the course defines the ways and means of bringing this about, firstly by anticipating the types of attack to be expected, and secondly by working out a programme of defence against each form of attack.

The most likely methods of attack in any future conflict seem to be nuclear, gas or bacteriology. Nuclear warfare is probably the most spectacular due to its tremendous powers of destruction. Should the attacker be interested only in total destruction this is probably the likeliest form of attack, but for obvious reasons it would not be the best form for an enemy who hoped to use the country's

resources after the attack. This is where gas warfare would come into its own, as with modern gases whole nations can be wiped out and the country's resources left intact for future use. Nice thought! Fortunately, bacteriological warfare is dragging its feet somewhat and is virtually ineffective as a major tool of war at this stage.

Having outlined the methods available, George then went on to describe the available methods for effecting civil defence for the various forms of attack. In the case of an atomic attack, the task is really formidable because of the terrific destruction which takes place and in addition the job is complicated by the after effects of radioactivity. Rescue operations under these conditions have mostly to be done on foot as normal vehicles are rendered inoperative by debris on roads. This means, of course, that any radio gear taken into the affected area for communication purposes must be of the lightest possible construction. It must also be composed of readily obtainable parts. Unfortunately transistors are destroyed as such by radio activity and cannot be used in this type of equipment. In actual fact, radio communication will probably only play a secondary role in an area affected by a nuclear attack as most reliance will have to be placed on the well established means of communications which in our case is the P.M.G.'s Department. However, the Amateur will have a very important role to play, not in the field of operating, but more in the capacity of a maintenance man or an instructor with some scope, no doubt, as a portable operator.

Some of the data George gave regarding a nuclear explosion of the 40 megaton variety was almost incomprehensible. For instance, a bomb of this size dropped on Melbourne would cause complete and utter destruction of everything within a 12-mile radius of the city. The crater alone would be about 4 miles across and 100 ft. deep with a 100 ft. lip around the circumference. Needless to say rescue results would be reduced to a minimum in that area and those who did survive would probably die from radiation anyway. The fall out from such a blast would also devastate an indeterminate area of land outside the 12-mile radius. Rescue operations for such a blast would probably have to be organised to embrace thousands of square miles of country. The horrors of an atomic attack are really frightening and it is hoped that the world comes to its senses before another one of these is let loose.

The question of civil defence is very much to the fore in N.S.W. but in Victoria the activity is only slight. This is probably due to the fact that more civil emergencies occur in our sister State and the need for unified control is more pressing. Whatever the reason, the fact emerges that N.S.W. has a civil defence organisation financed by its Government whereas no such organisation exists in this State as yet. Needless to say, the VK2 Division of the W.I.A. is an active participant in C.D. in that State but we have still to make a move. Obviously it would be impracticable for the VK3 Division to initiate much in this direction on a civil basis, but there is nothing to stop us from being prepared in our own sphere of activity and what could be better than joining in field days, transmitter hunts, and the like. The Division provides all the necessary activities and the organisers of these functions are yearning for more support, so go to it. Many thanks George for a very enlightening and thought-provoking address.

By the way, arrangements were made, after several requests, for W.I.A. car badges to be made available to members and the price is 30/- each. Up to date there have been no orders, so what about it, chaps?

Visitors at the meeting were Ken Robinson and Max Spiller, and new members admitted: Full Members—G. W. Small (3ZEA), S. L. Skinner (3AFL), D. M. Eales (3LQ), D. G. G. Johns (3ZD), D. Guy (awaiting call). Associates—J. C. Knight, R. F. Bowley, J. W. Martin, A. Ormond, J. W. E. Edmonds.

In order to retain the 50 Mc. band it will be necessary to create some activity and also to give evidence of this activity. David Wardlaw is still collecting reports for this purpose.

The Chairman of the V.h.f. Group would like further support by active members other-

SILENT KEY

It is with deep regret that we record the passing of:—

VK5BY—Dougall Whitburn.

VK6FT—Fred Tredrea.

FEDERAL

AMATEUR ADVISORY COMMITTEES

New South Wales: Messrs. B. H. Anderson, VK2AND; G. G. Hall, VK2AGH; L. H. McMahon, VK2AC.

Victoria: Messrs. R. A. C. Anderson, VK3WY; F. P. O'Dwyer, VK3OF; N. L. Storek, 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, VK4LM.

South Australia: Messrs. A. R. Anderson, VK5GM; F. F. Bourne, VK5BU; G. M. Bowen, VK5XU; A. H. Brooks, VK5KQ; R. G. Harris, VK5RR; B. R. Palk, VK5FQ.

Western Australia: Messrs. J. A. Cook, VK6A; J. R. Elms, VK6BE; E. C. Machin, VK6VM; J. R. Rumble, VK6RU; S. J. Smith, VK6SJ; H. J. Stephens, VK6ZZ.

Tasmania: Messrs. J. C. Batchelor, VK7JB; M. H. B. Hurburgh, VK7MH; L. R. Jensen, VK7LJ; K. E. Millin, VK7KA; W. N. M. Nisbet, VK7BN; D. M. Watson, VK7DW.

FEDERAL QSL BUREAU

Eavesdropped from VK9JF, when on sked with W3VKD on 28th May: "Will be leaving Cocos in about eight days and due arrive Singapore 20th June . . . no date set for wedding. My new QTH will be care Cables and Wireless, Penang . . . was there about four years ago. I hope to sign VS2JF . . . the rig stays on Cocos but do not know if any of the boys who are coming here are interested." Our congratulations and best wishes for the marital status, Mike.

A picturesque QSL card is that of ZL2AVQ, of Napier, New Zealand. The operator Doug, previously held the well known call sign of ZK1AB at Raratonga, Cook Islands. He retired from business activity to live at Napier. His station is located 300 feet directly above Hawkes Bay. Doug, welcomes VK contacts and will send one of his technician QSLs to all stations contacted. He will also QSL any outstanding ZK1AB contacts. QTH is 8 Ormond Road, Napier, N.Z.

Each year the U.S.S.R. Central Radio Club holds an international c.w. contest. Each year no worth-while VK participation is evident. Each year the promoters send to VK some thousands of brochures giving details of the contest. Each year these brochures arrive AFTER the contest is over. This year the contest was scheduled for May 10 to May 11 and the details arrived on May 17. A request was sent the promoters two years ago asking for at least one copy by airmail so that publicity can be given the event.

ZL3VB, Chatham Island, can be found on 14025 Kc. and also on 3584 Kc. around 1930 E.S.T. VK2FR, a Met. Officer on Lord Howe Island, plans to use 14 Mc., and VK2AIR expects to be active from the same location for one week in July. It is rumoured that both these islands are likely to be classified as new countries, shortly by the A.R.R.L.

—Ray Jones, VK3RJ, Manager.

CONTEST CALENDAR

Compiled by W.I.A. Fed. Contest Com.



R.D. CONTEST—

Dates: Saturday, 18th August, 1800 hrs. E.A.S.T.; Sunday, 17th August, 1759 hrs. E.A.S.T.

VK-ZL DX 1958—

1st and 2nd Week-End October.

wise the Group will become non-representative and could become handicapped in making its decisions.

Mrs. May advises that fairly comprehensive details of the AR7 are now available from the rooms at 3/6 per copy. This should help to satisfy the many requests for this information.

Congratulations to Ray Elliott, 3ZAE, on attaining 100 two-way contacts on v.h.f. bands. Ray was presented with his certificate at the meeting. It is hoped to make the next lecture a v.h.f. night and the President has this in hand. Perhaps Ray will give us the low-down on these bands.

It may not be generally known that the books recently reviewed in the magazine are available to members through the library. To save you looking back, the titles of these books are the "A.R.R.L. Handbook" and "Quality Amplifiers for A.C. Mains." Further additions are expected from time to time.

WESTERN ZONE

Towards the end of May, Stawell and district radio enthusiasts had the pleasure of being present at Jim Farrer's (3DP) wedding. The lucky young lady was Miss Myrtle Davidson. We all wish Jim and Myrtle all the best of happiness in their future lives. Alan 3HL, who spends most of his Haming time on the DX bands, is now planning to operate more on the 10 mx band. Merv. 3AFO, who recently completed building his own t.v. set, has been obtaining excellent results. Congrats, Merv. Bert 3EF, of Warracknabeal, joined in on a zone hook-up recently. His signal was solid and well modulated, so hope to hear more of you when you are not so busy with your other interests, Bert

EASTERN ZONE

It has been a very quiet month for the Eastern Zone. The Fox Hunt was held on 8th June at Yarram instead of the last Sunday in May. Jack 3AJK has been operating portable up and down the New South Wales coast. Cliff 3AIT is now also active on 2 mx as well as the h.f. bands.

SOUTH WESTERN ZONE

Well chaps I am sorry to say there does not seem to be very much news this month as I have not heard much on the hook-ups although they seem to be very well patronised. I think the only thing of importance is our congratulations to the SATL Geelong Radio Club on their fine effort at the Exhibition held recently in Geelong. Glad to hear that 3AWZ has at last broken his long silence by coming on the hook-up after about a month or so's hard work with those students.

MOOEABBIN AND DISTRICT RADIO CLUB

At the May meeting of the Club, a talk was given by the Secretary, Laurie 3CN, on "Radioactive Isotopes, what and why?" The speaker dealt with the history of the atomic

theory, the discovery of isotopes and the use of radio-active isotopes in industry and research.

The Club is approaching a temporary crisis in its affairs, as the small building we have used since foundation is to be demolished in the near future, to allow for extension of the Council Chambers. It is not yet known for certain when this deloruous event will take place, and we do not know how we will fare for accommodation in the future. One of our members has kindly offered the use of his garage as a temporary measure to tide us over until permanent arrangements can be made. Members will be notified in the monthly circular when any change of location occurs. Meanwhile, we shall carry on until the building collapses around our ears.

Congratulations to our President, Stan 3ZE, on the recent happy occasion of the wedding of his daughter. Let's hope to hear some sub-harmonic radiations from 3ZE some time in the future!

GEELONG AMATEUR RADIO CLUB

Activity is very prominent in our area again and we have attended many interesting functions. Ted 3AEH opened his shack for inspection and we were privileged to see in operation all home constructed gear. The highlight of the evening was a t.v. 17 inch receiver and cabinet made by Ted himself. It reproduced a perfect image of professional quality.

As well, Bill 3AWZ entertained a good crowd at his shack to watch v.h.f. gear in action. Several stations were contacted. Some 27 bottles sat down to supper to conclude an interesting evening.

The members of the Club maintained a four-day stall at the Y.M.C.A. Exhibition in a 7-acre wheat silo. Most bands were worked. 3ALP and helpers operated on 80, 40, 20 mx, whilst 3ZAV maintained skeds on 2 mx. The enquiries and interest of sightseers was beyond expectations. The President, Jim 3ABT, is to be congratulated for the amount of time he put into the effort.

The gear exhibited was of a high standard. It was well labelled and there were many working pieces of apparatus. Some of these were, grid dip osc., oscilloscopes, receivers (both fixed and mobile), audio osc. Vic Clarke entered his car to show d.f. equipment and radio controlled boats were shown by Laurie

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."

Costor. The result of this Exhibition has meant the addition of 12 new members and the regular class in A.O.C.P. will commence again soon.

Recently Arch 3BW worked 14 Japanese stations on 8 mx and has been all smiles since. Congrats., Arch.

The local Cancer Appeal was quickly helped by our members. Four mobile cars assisted the local b.c. station in receiving money from suburbs of Geelong. It was good practice for mobile gear and once more showed how Amateur gear can work under a variety of conditions. Those assisting were 3APK, 3XH, 3AWZ, and 3BU operated tirelessly as base station. The cars raised £500 collectively.

QUEENSLAND

The Council meeting held on 9th May was fully attended with John 4FP in the chair. Minutes of the previous meeting were read and confirmed. It was noted that there have been a number of inquiries concerning correspondence courses for the A.O.C.P. and these have been referred to Stan 4SA, the Divisional Class Manager.

Jim 4OB presented the Treasurer's report for the past month and present indications reveal the possibility of a record year financially. Jim said that for the beginning of the new financial year, he had 68 city and 78 country Hams on his books, and over 100 further subscriptions were expected. Remember, by now if you haven't paid your subscription, your copies of "A.R." and "QTC" will be discontinued.

Jim also stated that it was imperative to assess the complete value of the Institute's assets and a meeting of the trustees should be convened as soon as possible.

Arthur, as Federal Councillor, reported having received a motion submitted by VK2 in support of the publishing of the Call Book with asterisks denoting financial members of the Wireless Institute in Australia. The matter was fully investigated and Frank 4ZM moved the motion that we whole heartedly support this idea. Bruce 4ZBD seconded the motion. Approval for any alteration in the published list of call signs must have the consent of the Postmaster General's Department. Arthur also presented correspondence from Max Hull, the Federal President, concerning a list of recommendations in the organisation of the I.T.U. campaign. Council felt that the need for support, not only from Institute members, but Hams generally, could not be stressed enough. An earnest evaluation of the hobby of Amateur Radio will show just how important the request for financial support really is! Please send your donations immediately!

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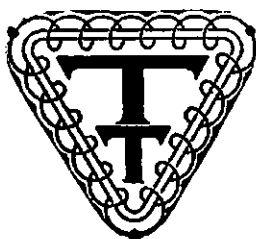
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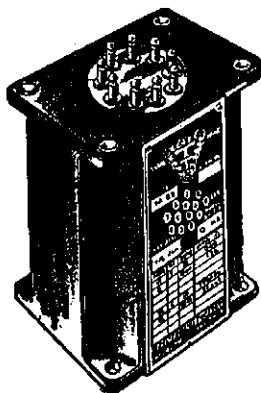
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Jack 4JF has a list of non-members who have cards at the Bureau. The list will be published in "QTC" so, as further information is circulated, members are asked to spread the word. The non-member can secure his card by joining the Institute and availing himself of all its amenities, or by sending adequate return postage to the Bureau.

As new members join the Institute, their names and call signs will henceforth be published in "QTC".

Council sent out the reminder that Hams with mobile gear, going to Palm Beach for the two days, must apply for permits from the Radio Branch of the P.M.G. Incidentally, the Convention is to be insured against rain.

Jim 4OB gave notice of a motion. He requests that: (1) Students or Associates under the age of 16 be given a reduction in the annual subscription; (2) An amount of money be set aside for the presentation of a trophy to, in the opinion of the instructors, the most improved student in the W.I.A. class.

Before the meeting closed, Jim reminded councillors to request members not to send stamps in payment for anything, nor to add exchange to cheques. A high rate of exchange is levied on the cashing of stamps.

The general meeting was held at State Service rooms and a good roll-up heard a very interesting tape about life on Macquarie Island. The Secretary read out an appeal by the R.S.S.A.I.L.A. for our support in supplying a radio display at the Lota-Manly Hobbies Exhibition next September. Amateurs were asked to keep this in mind.

Bruce 4ZBD, as Chairman of the Convention Committee, gave the meeting final details, all of which have been published in "QTC". The Convention generally has received considerable advertisement in "QTC", over 4WI and fully featured in the local press. We consider that anyone who pleads guilty to not knowing about the Convention is really out of touch with civilisation.

The President called upon Bert 4AO to pass a vote of thanks to the retiring President, Frank 4ZM. Bert very ably thanked Frank for the very excellent work he performed and for his continued interest in furthering the aims of Amateur Radio. Bill 4XO seconded Bert's vote of thanks. Frank, in responding, said that he was sorry to vacate the chair, but he had, during his term of office, made many friends and he wished every success to the President and every future President in guiding the Institute to greater heights. The members showed their appreciation of Frank's work by a good round of applause.

Bruce 4ZBD inquired if any reply had been received from Federal Executive concerning the retention of the 50 Mc. band at the conclusion of the I.G.Y. To date, no reply has been received. Inquiries were also made concerning the rejuvenation of the Contest Committee. It was decided that a new committee be formed at the Palm Beach Convention. Hard on the heels of this request, Bert 4AO submitted that all contests with rules and conditions be published once a year in "A.R." This motion was amended by Alan 4ZAE to the effect that a selected list of contests be initially published, giving regard to local contests and conditions. However, both the motion and the amendment were defeated when put to the vote. The Secretary then announced that the Qld. Division gives an award for working the same station over 100 times.

The social activities of the Institute are being furthered and an interesting roster of film shows and lectures has been drawn up. They are of wide variety and interest and should prove an added incentive to increase general meeting attendances. The next general meeting will be held at the M.L.C. Building at 7.30 p.m., fourth Friday of the month, when an interesting film of considerable duration will be shown.

4WI can now be heard on Sunday mornings on three bands and inquiries can be directed through Bert on 7146 Kc., Frank 14342 Kc. and Bruce 50172 Kc. after news broadcasts.

The last 2 mx Tx Hunt was conducted on the last Friday in May, when Jack 4JO hid the tx on the southern side of the Brisbane River, near Cavencross dry dock. Ross 4ZAT located the tx first, closely followed by John 4FP. The roll-up was rather disappointing as only four mobiles competed. However, the supper provided by Mrs. 4JO at the location was up to its usual high standard and everyone appreciated the nice hot cups of tea.

TOWNSVILLE

My sincere thanks to Radio Amateurs everywhere for their kind messages of sympathy in the sad loss of my wife who passed away suddenly, May 4.—4RW.

Apologies to Stan 4SA in leaving you out of call signs in flood emergency, and hope you managed to get out of the red tape entanglement. Today (Sunday, 1st June) 4WI played a tape, recording from the old northern maestro

4BW, who is an inmate of the South Brisbane Auxiliary Hospital to undergo an operation tomorrow, Monday. Good luck Andy. This recording, played on 7 and 14 Mc., resulted in the largest net of 14 Mc. for quite a long time. It goes to show that quite a large number listen but do not participate in the round-table discussion. Andy appeared mike shy at first and soon got into his stride and finished up passing his 73 to all the northern boys; even told the yarn about the beautiful rx that is out of date and located at Bundaberg.

Callers on the net came from as far away as Darwin, Port Moresby, Rabaul, Thursday Island and even New Zealand. Call in again boys. It is sure good to hear you all.

Hal 4DO came in on the net last week, gave a signal report, then the skip took him out. Norm 8NI reports working down as far as Inverell (VK2 land) on 50 Mc. and asks VK4 and others to look for him 7-9 a.m. each Sunday morning.

Bob 4TK sends along the following doings on 7 Mc., his favorite band: The morning 7 Mc. hook-up has not been the same since Andy 4BW was forced to leave due to ill health. He is now an inmate in the hospital in Brisbane. Mrs. Cooper is down to keep him in trim and see he does not play up. Bob 4TK is carrying out duties of M.C. pending Andy's return. We all wish him a speedy recovery.

Basil 4ZW has done yeoman service in getting the Cairns and district Hams and S.w.'s together at a meeting and explaining the possibility of a delegate from the W.I.A. going to the Geneva Conference. He has raised some funds, too; many coming across with one db. for this purpose. Several subscribers were not Hams, so this should inspire the dyed-in-the-wool Ham to follow suit and fight to protect his hobby. Good luck Basil.

Harry 4ZP has had a visit from his brother, but this has not stopped his early morning joining in the hook-up. He is only four QSOs short of 1600 with 4BW and was unable to make it before Andy went to hospital. Don 4PW not heard in the morning but from time to time on the afternoon session. Took a tape recording of a couple of his contacts on a recent evening and gave the boys a play back.

John 4DK busy as a serviceman, overhauling and modifying gear used elsewhere in the district. John asks for advice and then tells how it should be done! Hi John, good work. We all learn that way. Alex 4MA not heard a lot but promises to come on regularly if work permits. Bert 4BP in the same boat. Claude 4UX not heard from since he arrived in Townsville en route for home to earn a few chips to pay for the broken piano. His portable rig did fine work during the vacation. Vern 4LK still getting settled down in the new QTH. Is a regular listener to JA land on 50 Mc. while the going is good. Just finished a spot of batching and votes Mum's cooking is better.

SOUTH AUSTRALIA

There are several ways to get to know this world of ours; one is to travel around and see it; another to work plenty of DX and hear about it; and a third way is to witness travel movies of scenes taken by a more fortunate traveller.

That is exactly what we did at our last meeting when Shep. 5DC gave us a full programme of films he took whilst on a trip via ZL to U.S.A. and Canada and return. Some excellent photography and most interesting "scenes" provided an enjoyable evening to a full house of membership with nine visitors.

QSL distribution and formal business nearly took a back seat, but in spite of the late hour they were dealt with, the two main items being a vote against placing any mark against W.I.A. Members Calls in the new Call Book—figured that would have too many problems in keeping up-to-date on membership, etc.—and the other was to further remind all of the need to be mindful of the obligation to assist by donation, the fund to finance I.T.U. delegate.

There have been some enquiries regarding the address and phone number of our new Secretary, John Haseldine, 5JC, same being 1 Ormonde Avenue, Cheltenham, with phone M 7851.

Last Sunday (1st June) we in VK5 were treated to a fairly successful attempt at jamming the session by two carriers of great strength (unmodulated) settling on and wabbling across 7146 Kc. Surprising the number of loops that have come out of hiding, so if nothing else it will be interesting work to d.f. the offenders.

President Brian 5CA undertook the session for the four weeks Gordon was tied up on the music seat, and reminds all who listen, that if they want to come on and give a report, but have no modulator, to use c.w.

All the noise we have been talking about for months seems to have taken a holiday for on the last few Sundays every 7 meg. signal has boomed in with most of the boys in cheerful mood resulting from more signal than noise. Quite a treat after the poor conditions prevailing up to the rain, so it is not only primary producers who watch the sky these days.

Of course chaps like Tubby 5NO and Bob 5RI don't know what we mean by this and for some the lapse has been temporary, in fact Les 5AX has a plate of mushrooms or a cold 807 ready for anyone who can locate the gremlin who annoys him, or for anyone who can fix a rx to pull a signal out of a mess of noise that no limiter seems to quieten down for him.

Lance 5XL has joined in the Northern Net again, welcome fellow, Bob 5RI always obliges with a good signal and takes part in "tests" like one recently when Ron 5AB again hooked up his d.b. rig. Very good too Ron, many db. up on the a.m. signal and really has some talk power.

The new rig from 5WC, which is that of 5FY, is doing a good job now. All bugs seem to be removed and as far as the signal is concerned as heard here is as good as ever came from that QTH in spite of lower power and no rhombic. The shack up there is in course of removal to the new site and much blood, sweat and tears being spent in the effort. A recent contact with that gang sounded like what a QSO would sound like from an M.C.C. dressing room. That is allowing for a few Irish types to be cricketers.

Fred 5MA pops up more regularly these days and a newcomer to the band is Col 5XY, be in it more often chaps, we like hearing from you. Oh yes, Doc 5MD also graced 7 megs. recently, forsaking his beloved 21 megs. just long enough to do that. Ask him some time how one Council member suggested he should raise some capital for a project he was contemplating.

David 5AW, using a Gelsono to parallel 807s with a "harmonic" type filter on feeders, has managed to kill all harmonics, some of which bothered him on 20 at first, so there is one way of doing it. Such filters have been described in "A.R.," and also Ham Tips.

Doug. 5DW now has some more power and joins in the fray more often, whilst Carl 5SS has added to his shack (no not a kw. final), but two lounge chairs for no other reason than to provide comfort for visitors!

Bram 5AB has his equipment ready, probably going by now, for s.s.b. First class gear too, so we presume he will be after DXCC on s.s.b. now to just break the monotony.

There seems quite an influx of s.s.b. or d.s.b. these days as more get bitten, listening on 20, 15 and 10 mx. Quite a number are to be heard from other VK areas so presume VK5 will be in it too. The way Ron 5AP started is a good way to obtain experience.

Laurie 5XN has really been going to town on the DX lately, and in spite of using the DE of his G4ZU only, he has managed to work the following on 10: ZD4, ZD2, F8S, HK, KI, WI, G, VSI, VJ, VP1, VF2, VQ5, VQ5 and ZS with a few others he couldn't call to mind. Judging by some of the DX heard calling VK5 it is apparent this State has had its share of the openings on 10 mx.

Dave 5BF heard on both 80 and 40 mx (not at once, Dave, different times) with very good sigs. Not much from Wal 5DF these days, he must be busy with atomic reactors or the like, although Keith 5KH mentions Wal to be in good spirits, or was when he (Keith) was in Port Lincoln recently.

That scally wag of the mountains, Chas 5ON, heard on recently with a whale of a signal. You haven't shifted lately Chas?

The portables heard this month include Wick 5WM, Tom 5TL, Ken 5KC, Les 5AX, with an attempt whilst with Les to work John 5KX whilst on the move but didn't make it.

Austin 5WO has continued to add to his circle of overseas friends, for it seems every time any DX works from this QTH the inevitable remark of the station so worked is "oh you must know Austin, worked with him many times." Some day hope to work someone who doesn't know Austin and I'll pick-a-back him into the QSO.

Claude 5CH still plugs away on 40. Col 5CJ recently made a quick three-day visit around Melbourne (hope you were not corrupted, Col). The only time he gave to Ham Radio was to buy a dozen or so disc ceramic condensers. Draf those harmonics.

Stewart 5MS still carrying on with his rebuilding programme and is very happy the way things are shaping.

Leo 5ZAG was successful in the horse test for a full licence and is anxiously awaiting his new call sign. Tom 5TW has had other interests of late with little time for Radio. A visit from cupid culminated in the marriage of one of his pretty daughters.

Spare time will come again Tom, so keep the rig dusted in the meantime.

We conclude on a sad note this month, elsewhere in this issue you will read of the very sudden death of one of VK5 most known W.I.A. members, Dougall Whitburn, 5BY. His cheery disposition, untiring efforts for the Division generally, and his ready acceptance and filling of executive posts in the Institute over many years, combined with his continual active DX work made him perhaps our most famous member. Our deepest sympathy goes to his sorrowing widow and those who share her bereavement.

WESTERN AUSTRALIA

The May meeting of this Division was fairly well attended. The highlight of the night was a lecture by Mr. D. McLernon on "Ultrasonic Machining." Mr. McLernon brought and demonstrated an ultrasonic drill used for drilling square (or any other odd shaped) holes in glass. For those unable to attend who may be interested, the machine consisted of an audio sig. gen. feeding an audio tone (about 36 kc. in this case) into an audio amp.—EL34s in class AB, about 66 watts output being obtained. This audio power was fed to a transducer, the "drill" being a brass rod which expands and contracts in sympathy with the audio tone. A drilling compound spread over the surface of the glass does the actual cutting. Tolerance is in the order of 0.0004 inch. The demonstration was particularly interesting because the equipment was developed and built in W.A. by Mr. McLernon.

The Council has met the representatives of the W.A. Short Wave Group to complete the final arrangements re admitting the Group to the W.I.A. as a member club. It is hoped that everything will be finalised and numbers issued by the time this is printed.

Another matter being dealt with which should be finalised by the time these notes are printed is the conferring of life membership on Skipper VK6WS. Skipper has been an active member of this Division for more years than most of us can remember. He has remained an active Amateur until last year, when, at the age of 68, he was forced to give it up due to blindness. We send Skipper our congratulations on his life membership; and our very best wishes for the future.

At the last meeting a letter was read from the Advisory Committee asking that Amateurs in this Division be requested to ensure that they observe Regs. 91, 130 and 138, as some breaches had been noted. If you don't know what these Regs. state, we advise you to look them up in your handbook.

Wally 6AG has been appointed to handle the new feature "The Other Man's Station," soon to appear in this magazine. Any country members who wish to be included please send photos and details to Wally.

During his recent visit to VK6, Doc 5MD is believed to have asked how 6RU managed to maintain such active participation by VK6 in the R.D. Contest. If only you knew, Doc! It is believed that Jim is passing around the buffalo-hide whips and rolling out the big guns ready for this year's effort. The larger number of active stations in this State this year should ensure an even better effort than last year.

Six meters has received a shot in the arm from the DX which has been worked over the last six months. There are now over 20 stations active on this band in VK6. Among those heard are 6CL (a real v.h.f. enthusiast these days, with beams 70 feet high!), 6MG, 6ZAA, 6BO, 6GB, 6IG, 6CC, 6BE, 6ZAH, 6ZBU, 6ZAV, 6ZBG and several others.

The lower bands are also much used these days, particularly 40 mx. Mobile operation has been very popular on this band and 6KJ, 6WD and 6CL may often be heard operating from moving cars on Sunday afternoons. New licensees heard on 40 are 6MA, 6WD, 6CA, 6GW and 6GJ. 6WL has been heard working into the Eastern States. 6HC and 6TR are often heard also.

Francis' (6WD) tractor has been really earning its living lately. While he has been waiting for rain, the tractor has been turning the alternator which keeps Francis' rig on the air. I believe, however, that Francis has obtained a new diesel engine, which should be run in by the time this goes to press. Francis is very pleased at having worked a JA station on 40 metres at 1415 the other Sunday. This is certainly unusual these days.

Ron 6KW and Roll 6RH (ex-3ARH) are heard frequently, working the DX which has been coming through very consistently on 10 mx. Roll is an experienced hand at taming 6148 these days.

The s.b. fraternity is slowly growing in VK6. It now includes 6VK, 6AV, 6MK, 6RU and 6NF. It is believed that two or three other stations are hoping to go into produc-

tion soon. Better chase the moths out of the b.f.o.s. fellers, and whatever you do never tell a sideband man that "there's something wrong with your modulation O.M. I can't even copy your call sign" (heard on 40 one Sunday afternoon).

Had the pleasure of spending a couple of week-ends with Cyril 6CN at his QTH in Kellerrin. Cyril has just finished erecting a very nice piece of work in a tower which may be swung over to ground level to enable adjustments to be made to beams. Cyril hopes to be active on 15, 10 and 2 mx soon. Unfortunately his employment takes up more than its share of his time at present.

We hear that Bob Glover, "the bloke from Waroona," has been successful in passing his A.O.L.C.P. This was good news to his many friends. Bob would have it known that he only sat for the exam twice, and that in 1923 he had not even given it a thought!

One of our television men has departed for employment in one of the other States, Warren 6WJ. He expects to be away for about two years. Best of luck over there, Warren.

Think that's about the lot this time chaps, but may I, in closing, thank Jack 6EJ for carrying on during the last two years. Jack did a good job under extreme difficulties, both of time (he is carrying on two farming properties) and remoteness, since he rarely meets other Amateurs, and all his information had to be gleaned from the air.

OBITUARY

FRED TREDREA, VK6FT

It is with deep regret that VK6 reports the death on June 6 of VK6FT, Fred Tredrea. His interest in Radio extended many years prior to 1934, when he joined the staff of 6AM as Chief Operator. During the war years he was a Lieutenant in an electrical section, which did much research on tropicalisation.

The Department of Works and Housing saw him on electrical installation problems, after which he was appointed Engineer in Charge of the Drawing Office of the Signal and Telecommunication Branch of the W.A. Government Railways, the position he held at the time of his death.

He was, for many years, a Councillor of VK6 Division, and occupied several positions, the last being that of President from 1964 to 1966. The affairs of the Institute were a little turbulent on some occasions, but the wise counsel steered us into smoother waters.

VK6 has much to thank him for, and his passing is a great loss. All members extend to his wife and family their sincere condolences.

TASMANIA

NORTH WESTERN ZONE

After listening around the 40 mx band one Sunday morning recently I came to the conclusion that our corner of the State is about the most active about the place. Particularly after Col 7LZ spoke about the condition of the Northern Zone. There's one thing about a private home Col, it's usually warmer and more friendly than a hall and we've met in homes from Latrobe to Wynyard. Although I must confess that we have grown so much now that our last meeting was held in the Devonport Fire Brigade recreation room, and very successful it was too, 27 being present, including a member from another State.

A welcome is extended to a new member, Harold Hancock, now 7MZ. Let's hear you on as soon as you settle in Harold. Same goes for Peter 7FF. That's two we've got this month.

Most of the business for the evening was disposed of with despatch, including contributions to the I.T.U. A resolution was passed for £5/5/0 donation from the zone funds also.

Prior to the meeting the inevitable loads of dust covered worthless junk arrived and was stacked in untidy heaps on the floor, presumably to be sold at exorbitant prices. However, after the meeting it was observed that as Ted 7EJ conducted the auction, the number of smiles and happy faces increased, the members concerned had obtained valuable, useful pieces of workable equipment at giveaway prices.

Associate Ken Brown has purchased Roy 7RN's old receiver. Roy having built a homebrew receiver around a Q plus unit. Our President, Sid 7SF, on one of his frequent trips to Melbourne, came back with the news that 1155 Receivers and 22 sets were available. Ray Schulze has seen, fit to acquire a 1155 and I have most of a 22 set. All I have

to do now is find out how it works and I'll be right. It was noted that associate John Marshall acquired some aluminium chassis at the auction; converters, John? Roy 7RN has borrowed Athol Manning's Bendix freq. meter, so some accurate loggings should be available from Roy's rig soon. Judging by the local paper, associate Ken Hancock has had headlines about his golfing prowess. With adequate drive, Ken has full input to the final and a range of about 400 yards.

PAPUA-NEW GUINEA

There has been great activity on 50 megacycles in this neck of the woods. 9BW, 9NT, and 9XK have been working Japan and New Zealand regularly and on 1st June 9BW and 9NT worked 2ZJN on 50 megs. round about 9 a.m. Frank 9FN received an s.w.l. card from Sweden (SM3C21) reporting that he had been copying his signals every night at 6.30 A.S.T. on 7, yes I said 7 megacycles. Signal report was R3-4 S7.

Bob 9BS has been very active of late and has worked 76 countries including 19 States of America during the last month. This is a colossal effort because Bob is stationed with A.P.C. in the bush and is only using a long wire as an antenna. He works about 25 watts fixed portable, and puts out a very strong signal.

Bob 9PO is a newcomer to the territory. We welcome you Bob and wish you and your XYL all the best during your sojourn with us. Bob has procured a BC342 rx and is busily building a power supply for it and from what the birds tell me, Peter has got on to a tx, it needs some modification but this should not stop him from being on the air in the near future.

Doug 9SB has fallen for the Geloso and he is now well on the way to finishing his table-top model. This will be another starter on Sunday mornings. Doug's rig will have an input of about 35 watts. It was good to hear Ian 9VM come up on the Sunday hook-up the other week. I hope we will hear you on regularly now Ian. The more we have the better will be our QSOs.

The increased activity of this Division is a good sign but I must remind members that your obligation to the W.I.A. does not cease when you come on the air. It is also necessary for you to take an active part in the working of this Division by attending the meetings and it will only be then that we will progress.

Des Francis, ex-3ZBF, has now put X in front of YL. Congratulations Des, and this Division wishes you and Kath all the best for your future life.

Do not forget that the general meeting is now held on the last Wednesday of the month at 8 p.m. with the same QTH.

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 6th 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: Three Multi-Tap Modulation Transformers, 400, 200 and 40 watts. One 135mm. Telephoto Lens for 35mm. Camera. One 5kva. 240v. Alternator. W. T. Campbell, P.O. Box 57, Murwillumbah, N.S.W.

SELL: Johnson "Matchbox" Antenna Tuner. New condition (see "QST" or "CQ"). J. K. Herd, Box 73, Wangaratta, Vic.

SELL: Racks—standard P.M.G. 10' 6" light weight, C. S. Rann, 2 Georgiana St., Sandringham, Vic. (XW 6328).

WANTED: Modulation Transformer, Remote Control Box, Plugs and Cables, Instruction or Calibration Book for the Collins' ART13. Price any or all, or hire books. S. Glyde, Bowraville, N.S.W.

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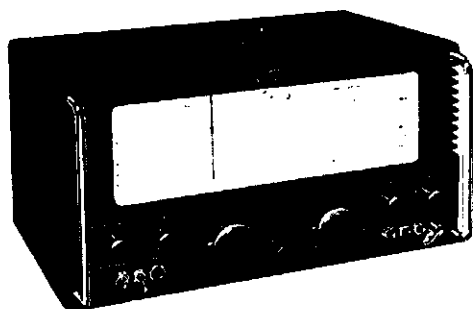
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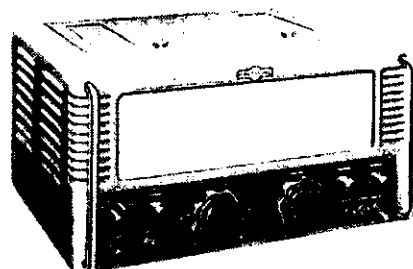
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AUGUST, 1958



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No. 128

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EDITORIAL



JUSTIFICATION

We often hear it said in official circles: "The Amateurs don't use the frequency space they have allocated to them, so why should they grizzle if they lose some of it." Taking a very shallow look at this sort of remark might lead one to think that they have something there. But to us that's just rubbish, for there is much more to it than the apparent lack of use of bands because a monitoring station situated in or near a capital city can "count on one hand" the stations operating in a given band.

Take for instance the International DX bands—20, 15 and 10 metres; unless the monitoring facilities provided for elaborate cross checks on logs, we venture to say it would be impossible to say how many stations in the Commonwealth were operating at the same time. But there is plenty of evidence that they are if one listens to the overseas stations calling VK stations, the VK stations not being audible from 5 to 500 or more miles away depending upon orientation and back-to-front ratios of antenna systems. The Amateurs are using the bands alright and they will therefore be justified in expecting to maintain the bands they have now after the next I.T.U. Conference. Australia is not the only country who thinks so and is prepared to put up a fight to hold on to the little its Amateurs have. Listen to what an eminent U.K. magazine said of recent date:

"Proceeding from the basic assumption that the ether is free for all to use subject to reasonable safeguards reached by mutual agreement—a principle which needs constantly re-emphasising—we should now look at the conditions under which Amateurs are at present operating. Briefly, on virtually all bands except ten metres, they are 'working in the cracks'. That is to say, our rightful allocations are being trespassed upon by illegal commercial stations, to say nothing of noises emanating apparently from idling jammer transmitters. Though these encroachments have been increasing steadily and the whole situation gets progressively worse, it is nevertheless being met in the sense that more and more Amateurs are com-

ing on the air and a great deal of DX is being worked, world-wide, on both c.w. and phone.

"What this means is that Amateurs are quite capable of working under shared-band conditions, if they must. But it also implies that a shared-band means sharing—in other words, commercials have no grounds for complaint if they are being interfered with by Amateurs . . .

" . . . in the same way that Amateurs as a body, the most experienced, capable and progressive communicators in the world—have long since ceased to expect their own frequencies to be clear of interference by other Amateur stations, so the commercial use of the spectrum as a whole must be worked out, geographically and in time, to allow one channel to serve as many interests and services as possible.

"The present level of Amateur activity, with the high state of development of the art of Amateur Radio, has become its own justification for a proper share of the ether. This is not a matter of 'privilege' or even a 'right' (in the moral sense), but simply a requirement by virtue of sheer weight of numbers! Moreover, since Radio Amateurs are primarily concerned with and interested in Communication, they must have frequency areas available which are capable of carrying their DX traffic—that is to say, any suggestion that Amateurs can be compensated for h.f. bands lost by further allocations in the deserts of the u.h.f. or s.h.f. is completely unacceptable."

These pertinent remarks are only indicative of many being made in every country in the world. Unfortunately for the Amateur, the commercial people who want a whole channel to themselves or shared with some other country on an equitable basis geographically and in time, care little for the fact that the already narrow frequency limits of the Amateur bands are shared by thousands.

It seems certain that the Americas will retain their h.f. bands, U.K. apparently expects opposition, New Zealand, Hong Kong and other smaller Region III. countries expect to retain what they have at present. Which leaves Australia in the position—if reduction of the Amateur bands should be proposed—of sharing such frequencies with the Amateurs of other countries but not with its own Amateurs.

FEDERAL EXECUTIVE.

Overtone Crystal Oscillators*

BY R. M. WINCH,† VK2OA

OVERTONE crystal oscillators are crystal controlled oscillators operating on a frequency which is a multiple of the fundamental frequency of the crystal. They find their greatest use in providing the injection voltage of converters for the bands above 21 Mc. In converters operating on these bands it is not practicable to obtain the injection voltage direct from a crystal oscillator, consequently it is necessary to use frequency multipliers after the oscillator. However, it is almost impossible to eliminate the unwanted harmonics from the oscillator. These unwanted harmonics cause spurious beats and signals, so it is desirable to have the generated frequency as high as possible to reduce the number of spurious signals. Overtone oscillators are also used to some extent for transmitters, but they offer very little advantage over the normal fundamental frequency oscillators.

We are all aware of the way a quartz crystal is used as a shunt resonant circuit to control the frequency of a valve oscillator. The electrical equivalent of the crystal is shown in Fig. 1 in which C_1 represents the capacity between the electrodes when the crystal is not vibrating, and L , C and R represent the mass, compliance and frictional loss of the crystal when vibrating. The crystal exhibits shunt resonance at a frequency corresponding to L and C plus C_1 . At this frequency the crystal has a very high impedance (with a very high Q) and is used in place of the LC circuit in an oscillator. However, the crystal also exhibits a series resonance at a frequency corresponding to L and C . This frequency is slightly lower than the shunt resonant frequency and at this frequency the crystal has a low impedance. At series resonance the crystal may be used to control an oscillator by placing it in series with the feedback loop. At the series resonant frequency the feedback will have a path of low impedance, but at other frequencies the path will have a high impedance and there will be very little feedback.

Quartz crystals also exhibit both shunt and series resonance at frequencies corresponding to odd multiples of the fundamental frequency. The reason why only odd harmonics may be used can be seen if the physical vibration of the crystal is visualised. With a shear type of vibration, the top surface of the crystal is moving, say, from left to right, while the bottom surface is moving from right to left. If we suppose a move from left to right to represent a positive voltage, and a move from right to left to represent a negative voltage, then we can

see that a shear vibration of the crystal will generate a difference of potential between faces.

Now let's think of the crystal being composed of two layers. The top surface of the upper layer is moving from left to right and generating a positive voltage. The middle of the crystal, which is the bottom surface of the upper layer and the top surface of the lower layer, is moving from right to left, and generating a negative voltage, and the bottom surface of the lower layer is moving from left to right, generating a positive voltage. Consequently, there is no difference in potential between the top and bottom surfaces of the crystal. However, with a third layer there is a further reversal of voltage with a consequent difference of potential between the top and bottom surfaces.

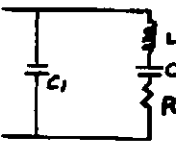


Fig. 1.

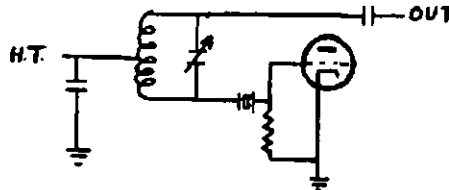


Fig. 2.

From this it will be seen that a crystal exhibits a difference of potential between top and bottom faces, only when its mode of oscillation corresponds to an odd number of layers, i.e. at odd harmonics. This harmonic activity is influenced by the method of grinding and also the method of mounting the crystal.

Overseas, crystals specially prepared for harmonic operation are now in common use, and may be used in practically all the circuits which are used for fundamental operation. However, most of the crystals available to the Amateurs of this country will show sufficient activity on the third harmonic to be used in suitable circuits. Typical circuits are shown in Figs. 2 and 3. An examination of these circuits will show that Fig. 2 is a Hartley, and Fig. 3 is a plate tuned inductive feedback oscillator, and that in each case the crystal is in series with the feedback path to the grid, i.e. operating at its series resonant frequency.

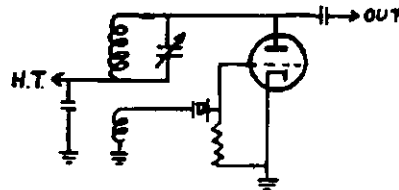


Fig. 3.

In both circuits the L and C combination is tuned to the desired frequency (three times the marked crystal frequency) and the feedback is adjusted so that there is just sufficient feedback to maintain stable oscillations.

If there is insufficient feedback, the oscillator will not start, and if there is too much feedback, sufficient energy will reach the grid, via the shunt capacity of the crystal, to maintain oscillations at a frequency determined by the LC circuit, and the oscillator will not be crystal controlled.

The amount of feedback required is a function of the gain of the valve (Eg, 1a) and the series impedance of the crystal. A crystal with good harmonic activity will have a lower series impedance and thus require less feedback than one with low harmonic activity. When the feedback is correctly adjusted, the oscillator will behave in the same manner as the normal fundamental oscillator.

As the LC circuit is tuned to a higher frequency, oscillations will commence, then gradually become weaker, and eventually stop. As with a fundamental oscillator the tuned circuit should be tuned just short of the point where maximum output is obtained, so as to obtain reliable starting and frequency stability. In Fig. 2 the feedback is increased by moving the tap nearer the plate end of the coil, and in Fig. 3 by increasing the size of the coupling coil or increasing its coupling to the plate coil. A good starting point in Fig. 2 is where the tap is approximately one-third of the way up the coil, and in Fig. 3 where the grid coil has one-third to one-half the number of turns of the plate coil.

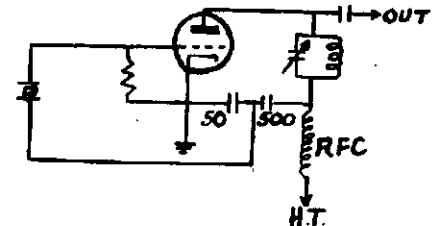


Fig. 4.

A convenient method of construction for the coils on Fig. 3 is to wind the plate coil on a former. Wire it into the circuit and, using the g.d.o., make sure it resonates at the desired frequency. Then, over the plate coil wind a layer of cello tape, sticky side out; wind the grid coil onto the tape with just sufficient tension to hold it in place, remembering that if the coils are wound in the same direction, the plate and grid connect to opposite ends. The whole grid coil can be slid up and down the plate coil to vary the coupling, being finally cemented into place when the correct adjustment is found. The plate coil should be proportioned so that the required frequency is attained with approximately 50-60 pF. of tuning capacitor in use.

Another circuit which is becoming popular is the so-called Robert Dollar circuit, using capacitive feedback. This is shown in Fig. 4. The values of the feedback capacitors should be suitable for all crystals in the 6-9 Mc. range in

(Continued on Page 10)

* Reprinted from W.I.A. N.S.W. Division's "Bulletin".
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AMATEUR TELEVISION

PART SIX

BY E. E. CORNELIUS,* VK6EC/T

AS Amateurs, we cannot take the liberties with the picture signals we transmit that we often take with our sound transmissions. Restricted bandwidth and speech compression can add to intelligibility if not taken to extremes, while fairly gross distortion can be tolerated.

In t.v. this is not the case, and while the picture information itself can be far from ideal, and yet present a reasonable picture, the sync. signals transmitted will have to be reasonably close to standard. A t.v. receiver is a fairly precise instrument, extracting from the transmitted signal video and sync. information on a time-sharing basis. From the sync., it extracts line and frame information differentiated on a pulse width basis. Sound and picture are separated later in the receiver by frequency discrimination and f.m./a.m. separation.

These requirements call for rather complex circuits in the receiver and any defects in the transmitted signals can show up as sound on vision and vice versa, poor synchronism on line or frame, or tearing of the picture on extreme blacks or whites.

Because of these considerations it is essential that the transmitted signals be supervised far more thoroughly than for a sound transmission. In sound broadcasting, a high quality monitor loudspeaker and v.u. meter are to be found at main points between microphone and transmitter. In t.v., even Amateur t.v., something to fulfil a parallel function is essential, and a suitable unit will now be discussed.

THE MASTER MONITOR

This monitor is supplied with picture signals from a circuit point as near the transmitting antenna as possible. It combines a high quality picture monitor, with a calibrated video waveform monitor. The picture monitor provides overall supervision of the transmitted picture quality. The video waveform monitor supervises the following:

1. Black level and set-up.
2. Line or frame "tilt", indicating horizontal or vertical shading.
3. Hum in the picture.
4. Modulation depth, or video level.
5. Video as to sync. ratio, which should be 100:40.
6. Black peaks in the sync. area, or white peaks which can cause over-modulation and intercarrier "buzz".
7. "Grass"-or noise on sync. or blanking; deformed sync. or blanking pulses.
8. A rough indication of porch, sync., and blanking pulse widths.

In the unit to be described, an important auxiliary function, known as the "pulse cross" display, is provided and will be discussed later.

A block schematic of the unit is shown in Fig. 27.

A sample of video, from camera, c.c.u., mixer or diode monitoring the carrier, at standard level of 1.4 volts p.p., is fed to the monitor. The picture is displayed on a 12 inch monitor tube, a VCR140. Two 5BP1 c.r. tubes form a dual c.r.o., displaying the video waveform at half line and half field (frame) rates. Simultaneous display of these two is an advantage, but not essential. The c.r.o. tubes have calibrated and illuminated graticules, as described for the c.c.u. A refinement is a calibrating circuit, run from line pulses, which will feed an accurate 1 volt p.p. signal to these tubes, enabling the gain to be adjusted to register with the graticule at any time. The monitor is arranged as a bridging device, with parallel connected co-axial input and output jacks to enable it to be looped in series with a circuit, or it can terminate a line with a switched 75 ohm termination.

nals are delayed about a half-line and half-frame respectively.

The half-line delay causes the line time base to trigger in the centre of the picture, bringing the line blanking and sync. area as a black bar down the screen centre. Similarly the delayed frame sync. pulses causes frame sync. and blanking to appear across the centre of the screen. These two bars form a cross, hence the name of the technique. See Fig. 28.

By increasing the screen brilliance, the picture information in the four corners goes toward full white and is ignored. The broad blanking bars come up to mid grey, with the sync. showing as black, within the blanking area. At the same time as the delays are switched in, the frame time base is heavily overdriven, greatly expanding the vertical deflection, and most of the picture goes off screen top and bottom. The all important vertical sync. and

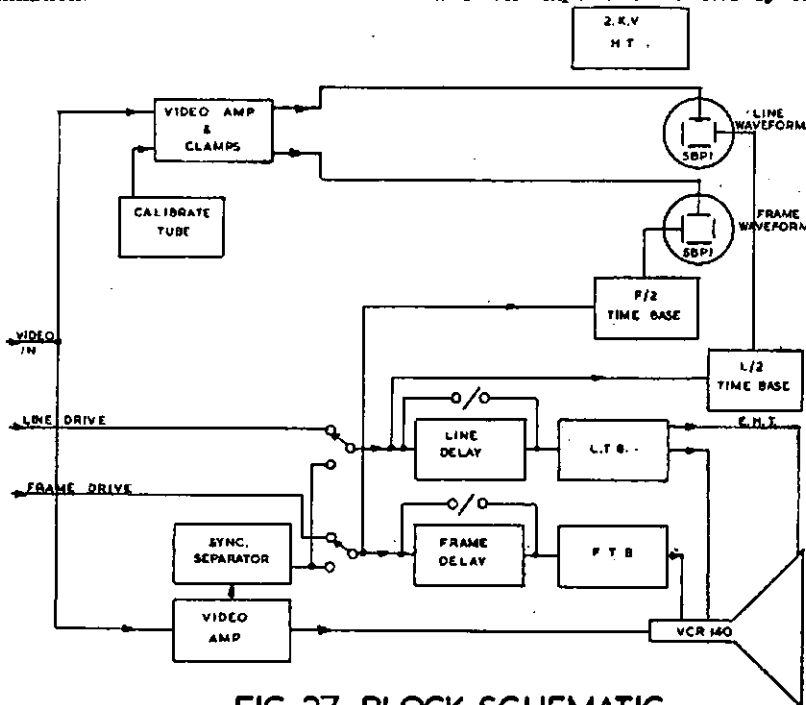


FIG. 27-BLOCK SCHEMATIC

Do not minimise the importance of accurate terminations at video frequencies. A mismatch caused by a 100 ohm termination on a 75 ohm line 15 feet long can be seen as ringing overshoots on the picture.

Pulse Cross Display

This facility enables a quick and easy check on the operation of the sync. generator. The monitor time bases are fed normally with driving signals from the sync. generator, and blanking and sync. are normally off screen, at top, bottom and both sides. For "pulse cross" the picture information is fed to the 12" monitor tube in the normal way, but the line and frame sync. sig-

blanking area is now occupying a sizeable part of the screen centre, with the lines opened out, so that each is easily visible and individual lines and sync. pulses can be easily counted.

Referring again to Fig. 28, the vertical bar, delineating horizontal blanking and sync., shows a narrow grey bar at the left, the front porch, a wider black bar, which is horizontal sync., and a wide grey bar, the back porch. By superimposing a grating of vertical bars, from a grating (grid or cross-hatch) generator, these bars, whose spacing in time is known, can be used for accurate pulse width measurement.

I use a grating generator with 1/3 microsecond bars at 3.2 usec. intervals.

*187 Wood Street, Inglewood, Western Aus.

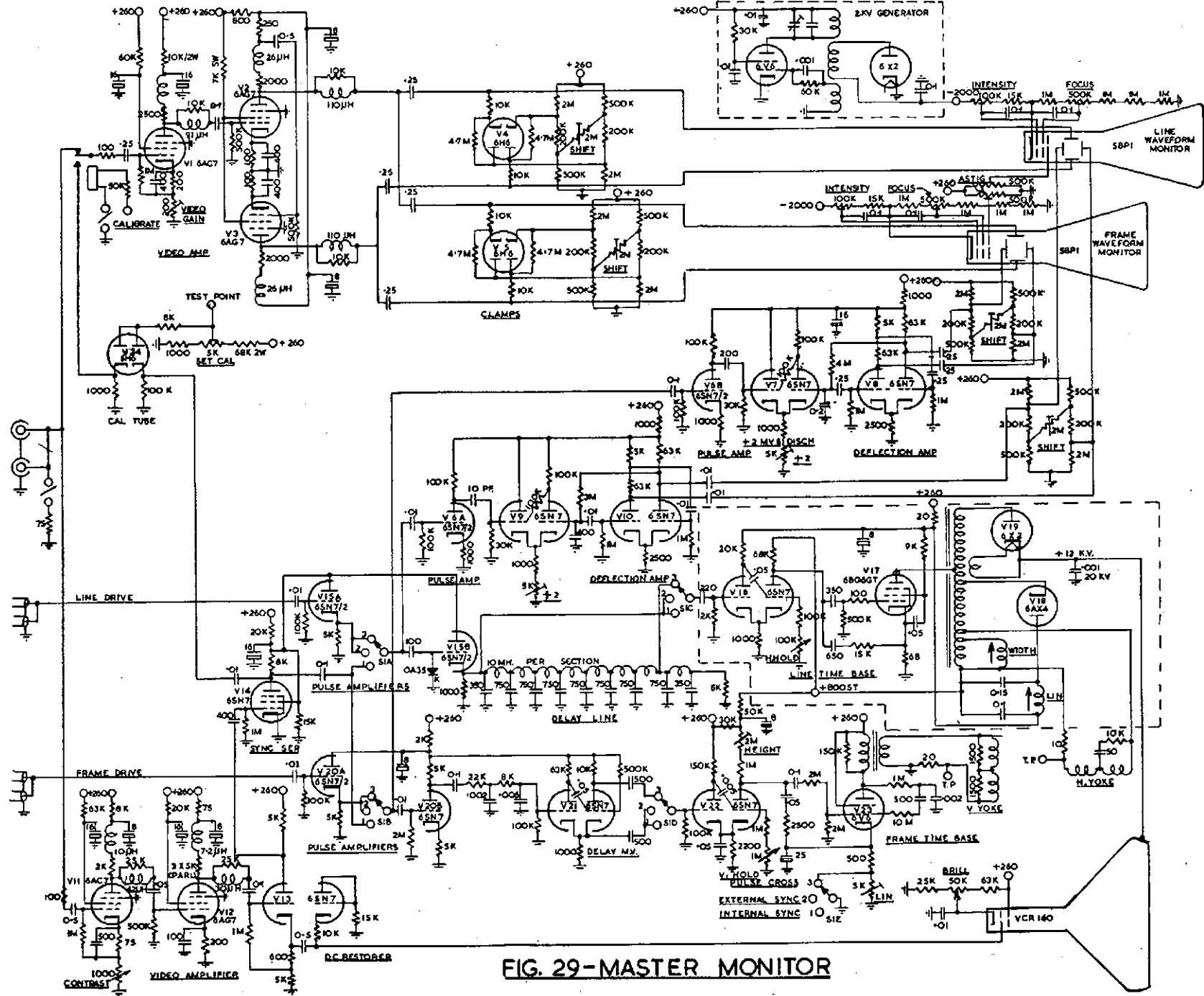


FIG. 29-MASTER MONITOR

Using engineer's dividers, it is easy to measure the width of the front porch, sync. and blanking widths, etc., with the superimposed 3.2 usec. bars as a measure of time. The sync. generator high frequency pulse circuits can then be adjusted for correct pulse widths.

Similarly the horizontal bar of the cross shows the vertical blanking interval. Referring to Fig. 28, the equalising pulses can be seen (black) above and below the vertical sync. blocks. The line structure is sufficiently open to count the number of equalising pulses, vertical sync. blocks, and the number of lines lost in vertical blanking.

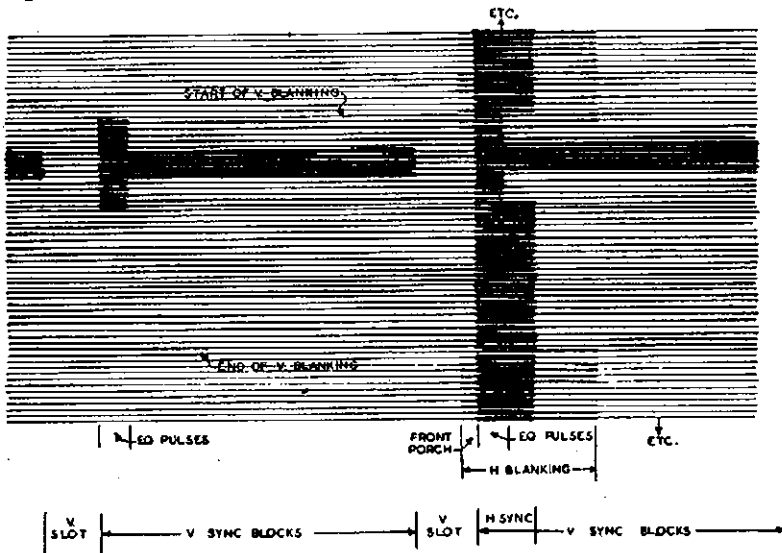


FIG. 28—PULSE CROSS DISPLAY

As both interlaced fields are displayed together, a total of 10 pre-equalising, 10 vertical sync. blocks, and 10 post-equalising pulses should be visible, half in line with horizontal sync., and half displaced by half a line. Also as both fields are displayed, there should be between 36 and 44 blanked lines in the vertical blanking period.

The Waveform Monitor

This consists of two c.r.t. displays with common video feed for vertical deflection, but differing time bases, in order that one shall run at half line rate, and show two lines (128 usec.), and the other at half-field (frame rate), and show two fields (40 millisees.).

The video to the c.r.t. plates is clamped at sync. pulse tips, to permit register of the black level with the graticules. The response of the video amplifier is standard R.T.M.A. roll off, down 3 db. at 2 Mc. For optimum focus, balanced shift, and astigmatism controls are provided for both tubes.

A calibration tube, fed with line pulses, delivers pulses of precisely 1 volt p./p. to the video amplifier, via a relay when required, for calibration against the graticules. A test point is provided and when the d.c. voltage at this point is 10 volts measured on a v.t.v.m., an accurate 1 volt p./p. is present at the video amplifier input.

Picture Monitor

The VCR140 tube used has magnetic deflection and focussing. It has a double phosphor similar to the P7, and requires the same treatment as the 5FP7, a blue filter. A tube this size should also have a safety glass in front of it, and a dark blue Perspex is available, $\frac{1}{4}$ " in thickness, which will serve both purposes.

The video amplifier feeds the picture tube grid via a cathode follower, to reduce capacitive shunting of the 6AG7 to a minimum, and retain bandwidth. The other half of the 6SN7 is used as a d.c. restorer, but a germanium diode like the OA61 would be suitable. The

cathode from the sync. separator, which causes this tube to conduct heavily, bringing the anodes to earth potential, which cuts off the other half tube. A negative pulse then appears at the second cathode, of value preset to 1 volt p./p., determined by the anode d.c. potential. A relay is used for switching its output, because of the difficulty of mounting the switch close to the switching point, while having front panel control.

The waveform monitor time bases receive negative pulses from the sync. separator, or driving pulses as selected, the amplifiers V6A and V6B serving also to prevent half frequency kick back from the divide-by-two multivibrators, from causing erratic interlace in the picture monitor time bases. Each of these divide-by-two multivibrators (V7, V9) delivers a sawtooth to its respective deflection amplifier (V8, V10) for each horizontal display. Balanced shift controls again are used on the deflection tube plates.

Due to the proximity of the two electrostatically deflected cathode ray tubes to the magnetic deflection components of the picture monitor, some magnetic cross-talk may occur. Double concentric shields of 24 gauge g.i. around each 5BP1, and a sheet of 16 gauge b.i. between the upper picture monitor chassis, and the lower waveform monitor, reduces it out of sight. Magnetic fields from nearby power transformers will, however, cause trouble. For this reason, among others, the power supply is a separate unit and normally placed 2 or 3 feet below the monitor.

These two c.r. tubes require 2 kv. e.h.t., which is generated by a standard r.f. e.h.t. supply, using a 6V6 as oscillator, standard c.r.o. type oscillator coil, such as the "Aegis" M23, with a 6X2 as rectifier. This last is used as it is small enough to mount inside a 3" diameter shield can in which the coil is placed. The whole of the e.h.t. generator must be shielded, as the oscillator operates at about 1 Mc., at about 4 watts output, and must not radiate into the video circuits nearby. Simple shielding, the coil can, and a metal 6V6 leaves nothing detectable.

The picture monitor receives the same 1.4 volt p./p. video input to a two-stage video amplifier (V11, V12). The bandwidth of the 6AC7/6AG7/6SN7/2/VCR140 grid circuit is flat to 6 Mc. This wide bandwidth is an advantage, as the picture tube is big enough to use for fault finding, and will resolve 6 Mc. with ease. The otherwise unused anode of the 6SN7 cathode follower V13A feeds a 6SH7 sync. separator V14.

The separated sync. output from this tube is then available for the time bases, via the switch S1, which enables internal or external sync. to be used, and also switches in the pulse cross delays. V15B drives the delay line and the undelayed input to the line, or its delayed output, is used to trigger the picture tube line time base V16, V17, V18, V19.

The delay line is made similarly to that described for the sync. generator, but the 10 mH. pies consist of 800 turns each of 39 B. & S. silk-enamelled wire, single wave wound on a $\frac{1}{4}$ " former, 3/16" wide, at $\frac{1}{8}$ " centres. These need not be wave wound, you could

cathode follower also provides a convenient independent feed to the sync. separator.

The separated sync. can be used to synchronise the time bases, or they can be switched direct to the vertical and horizontal driving pulses, which are looped into and out of the unit. A third position of this switch brings in the pulse cross delays, a delay line for line deflection, and a multivibrator for frame. The deflection circuits shown are fairly orthodox, with rather more care taken to preserve vertical linearity.

The Circuit

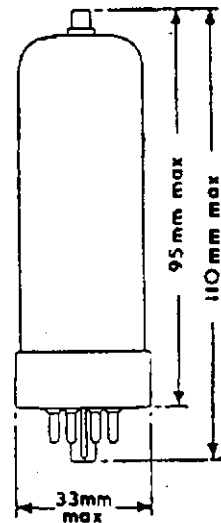
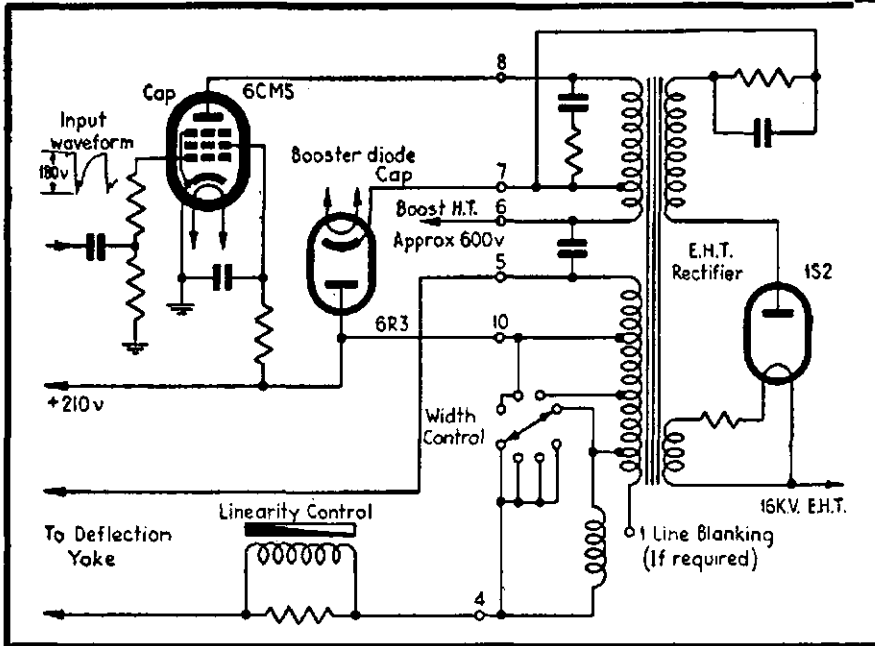
As most features in this unit have been covered for similar purposes in the units described earlier, the circuit (Fig. 29) should not need detailed description.

V1, V2, V3 are a video amplifier of appropriate bandwidth with gain sufficient to lift the 1.4 volt p./p. input to a level adequate to give 2" undistorted deflection on the 5BP1's at 2 kv. The 6AG7's are fairly fully driven, and some cathode peaking (400 pF.) is needed to maintain bandwidth, with the anode loads needed for adequate deflection. Individual 6H6 clamps (V4 and V5) clamp at the sync. tips at the c.r.t. plates, with balanced shift potentials acting through them.

The calibrate tube V24 receives negative high amplitude line pulses on one

Mullard TELEVISION VALVES

6CM5 LINE OUTPUT PENTODE



6CM5 CHARACTERISTICS

Heater ratings

6.3V at 1.2A

TYPICAL OPERATING CONDITIONS 90° DEFLECTION

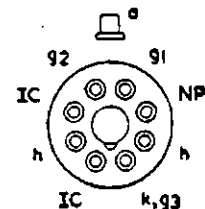
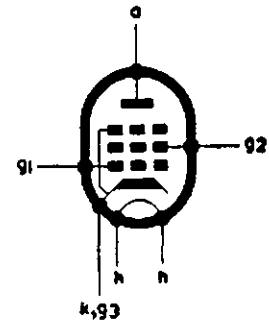
Anode Voltage Supply (alternative Voltages)	200V	225V
Anode Voltage Boost	460V	472V (Approx.)
Total D.C. Supply	660V	690V (Approx.)
Screen Grid Voltage	200V	225V
Grid Input Voltage (pk to pk)	145V	145V
Anode Current (D.C.)	110mA	85mA
Screen Current (D.C.)	30mA	28mA

The 6CM5 is a television line output pentode having anode and screen dissipation ratings of 10 watts and 6 watts respectively. Peak anode voltage ratings of 7.0 kV positive and 3.0 kV negative together with a peak anode current rating of 350 mA ensure its suitability for 90° deflection systems with EHT voltages of the order of 18 kV. The reserve margins available ensure long service life. Additional data is available to design engineers on request.



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Octal Base

M61X

try $\frac{3}{8}$ " deep by $\frac{3}{16}$ " wide slots on a $1\frac{1}{4}$ " former, and scramble wound. The cutoff frequency of this line is about 110 Kc., so the delayed line pulses taken from it will be fairly distorted, but quite satisfactory for triggering the time base.

Frame delay is accomplished in V21, which delivers an output pulse of about 10 msec. duration, negative at cathode, positive at anode of V21B, leading edge coincident with the incoming trigger. Differentiating from the cathode gives an undelayed negative trigger for normal operation, and from anode, a delayed negative trigger for "pulse cross" operation.

The frame time bases V22, V23 are in a reasonably orthodox circuit with feedback linearity components from grid to anode of V23. On "pulse cross", the cathode linearity potentiometer is short-circuited, giving vertical sweep expansion. The poor vertical linearity under these conditions is not important.

Construction

Layout is again conditioned by the tubes used, and the space they occupy. My waveform monitor has the two 5BP1 tubes side by side with the edgelist grativule in front of the pair. Between the two are the two time-base hold controls (+ 2), Set Cal. and Video Gain controls, with the calibrate switch mounted centrally. These five are covered by a removable panel. The pairs of focus and intensity controls are panel controls, the whole waveform unit being $14\frac{1}{2}$ " wide and $5\frac{1}{2}$ " high.

All tubes are mounted horizontally on a vertical chassis near the rear, level with the c.r.t. sockets. This lower chassis has a 16 gauge mild steel upper plate for shielding and this supports the upper unit, the picture monitor.

The grativule is a 5" strip of $\frac{1}{8}$ " perspex, almost full width. The grativule divisions and designations are engraved on rear with a sharp steel point, the figures being done with a scriber through a "Uno" pen stencil. Shrouded lamp enclosures, as fitted to radio receiver dials, enclose each end of the perspex and provide edge lighting.

The picture monitor tube takes up most of the upper panel space but leaves room for the six controls—Contrast, V. Hold, H. Hold, Brill., Focus, and the Int./Ext./Pulse Cross Switch S1. These are all operated by extension shafts, and are mounted on another vertical chassis near the picture tube socket, and cut away for the tube neck. This chassis mounts the video, sync. separator and delay circuits.

The picture tube time bases are in separate boxes, line at left, frame at right, in the space alongside the yoke and focus assembly. The 2 kv. e.h.t. generator for the 5BP1's is mounted in the frame time base compartment.

The waveform and picture monitor units may be separated and are interconnected by plugs and sockets. Removable vented side doors allow access to the preset Shift, Height, Width and Linearity controls, at the sides of the time base units, and also on the lower deck, the Shift and Astigmatism controls for the waveform monitors.

The overall dimensions are set by the tubes used and, as the VCR140 is very long, about 24", the unit is rather large, $14\frac{1}{2}$ " wide, $18\frac{1}{2}$ " high and $26\frac{1}{2}$ " deep.

For those using octal based tubes, I suggest that Carr Fastener moulded octal sockets be used for this work, as these have four earth lugs on each mounting clip, which are invaluable, not only for component termination, but as clips for holding filament and other non-signal wiring.

Simplifications

The waveform monitor section can be halved, using only one c.r. tube, time base and video clamp, with switching for line/frame selection. The calibration circuit can be omitted completely. By omitting the pulse cross display, and always running the monitor from driving pulses (this is standard practice), the sync. separator V14, and also V15B, V20B and V21, can be omitted without impairing the performance otherwise.

Power Supply

This is series regulated, delivering 260 volts at 350 mA. No negative supply is needed. For the waveform monitor c.r. tubes, a separate well insulated filament supply will be needed, as the cathodes are near -2,000 volts to earth. The same winding will serve for both tubes. The VCR140 needs a 4-volt 1 amp. winding, and the rest may be run from a 0.3-0-6.3 volt system, to keep heater current losses to a minimum, as over 14 amps. is needed at 6.3 volts. The circuit is shown in Fig. 30.

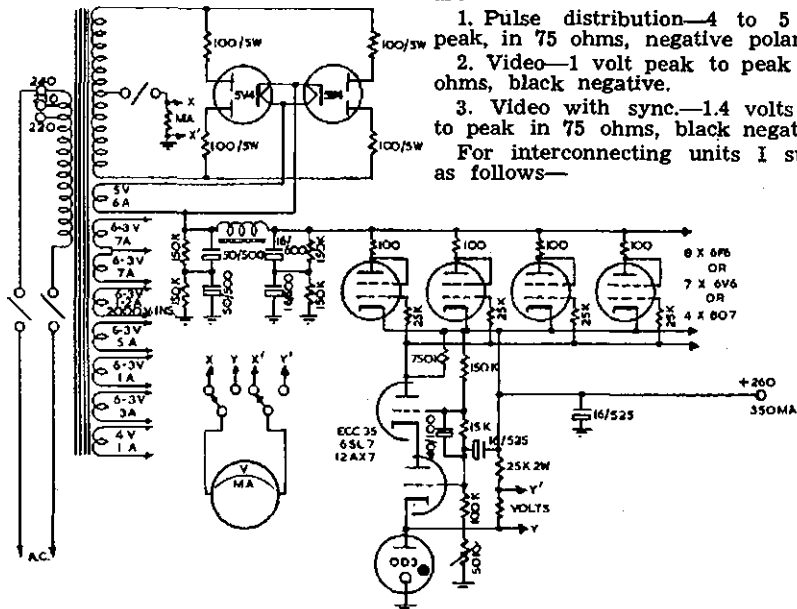


FIG. 30 — POWER SUPPLY

For those who would make their own, the choke and transformer data is below.

Filter Choke—10 Henries at 400 mA.

Core stack $1\frac{1}{2}$ " x $2\frac{3}{8}$ " = 3.55 square inches.

Where volume of core = about 82 cu. ins., wind with 2,160 turns of 25 or 26 gauge B. & S. Air gap, 0.04".

Transformer—440 va. input.

Core stack 2" x $2\frac{1}{2}$ " = 5 square inches.

Primary, 19 amps., at 1.46 t.p.v.
 220 volts—322 turns
 230 volts—336 turns } 19 B. & S.
 240 volts—351 turns

Secondaries at 1.58 t.p.v.:

- (1) 400-0-400 = 632-0-632 turns 24 or 25 B. & S. d.t.e.
- (2) 6.3-0-6.3 at 7 amps. = 10-0-10 turns 16 B. & S. (main fls.).
- (3) 6.3 at 1.2 amps. 2,000 volts ins., 10 turns 22 B. & S. (5BP1's).
- (4) 6.3 at 5 amps., 10 turns 16 B. & S. (regulators).
- (5) 6.3 at 1 amp., 10 turns 22 B. & S. (regulator amp.).
- (6) 6.3 at 3 amps., 10 turns 19 B. & S. (spare).
- (7) 4 volts at 1 amp., 6 turns 22 B. & S. (VCR140).
- (8) 5 volts at 6 amps., 8 turns 16 B. & S. (5V4's).

This completes a description of the camera chain proper, and at this point it seems relevant to discuss standards for Amateur Television.

STANDARDS

For complete flexibility of interconnection of equipment, both within your own chain, or with equipment belonging to others, standards of polarity, amplitude, impedance and connectors is advisable. Many of the standards have been formulated and adopted by professional television, and can be used by us with profit. These are—

1. Pulse distribution—4 to 5 volts peak, in 75 ohms, negative polarity.
 2. Video—1 volt peak to peak in 75 ohms, black negative.
 3. Video with sync.—1.4 volts peak to peak in 75 ohms, black negative.
- For interconnecting units I suggest as follows—

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For those who would make their own, the choke and transformer data is below.

For those who would make their own, the choke and transformer data is below.

Filter Choke—10 Henries at 400 mA.

Core stack $1\frac{1}{2}$ " x $2\frac{3}{8}$ " = 3.55 square inches.

Where volume of core = about 82 cu. ins., wind with 2,160 turns of 25 or 26 gauge B. & S. Air gap, 0.04".

Transformer—440 va. input.

Core stack 2" x $2\frac{1}{2}$ " = 5 square inches.

(Continued on Page 14)

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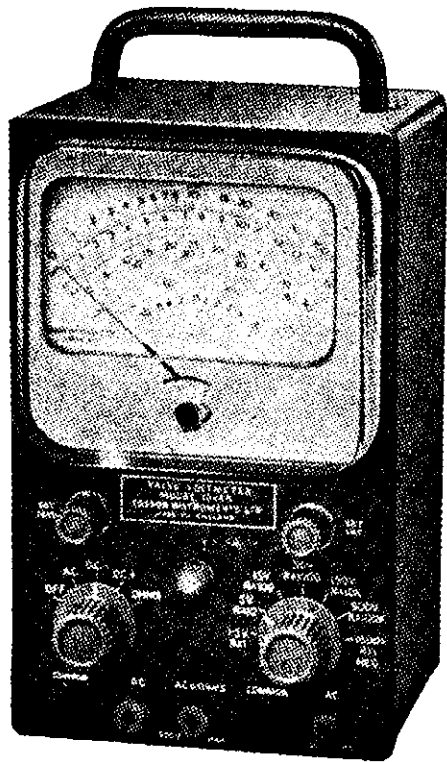
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Flicker or shrinkage of the Television picture often indicates a low line voltage, leading to complaints of unsatisfactory reception, or to difficulty in adjusting the receiver controls. This condition can be reproduced with an A & R Voltage Adjuster, thus indicating the lowest possible mains voltage for good reception. The mains taps on the Receiver can sometimes be adjusted to suit, provided the voltage is consistently low.

There are many other applications for the A & R Voltage Adjuster, such as, correction of input voltage to Amateur Transmitting and Receiving Equipment, Tape Recorders, Hi-Fi Audio Equipment, etc., provided that load imposed is within capacity of adjuster. The auto model is quite suitable for these applications.

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Servicemen will find the double wound model an invaluable aid when servicing transformerless T.V. Receivers. The Receiver under test can be safely isolated from the mains supply, thus affording maximum safety and a safeguard against possible damage to valuable test equipment. A separate earth terminal is provided for earthing the receiver chassis to the adjuster if desired.

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The C.H.L. Modulation System

An entirely different approach to Constant High Level Modulation of Pentodes and Tetrodes, particularly suitable for v.h.f.'s

BY D. C. HABERECHE,* VK2RS

INTRODUCTION

In an effort to improve the effectiveness of modulation on the v.h.f. bands where one very often has to strain his ears to read phone either under difficult conditions or over great distance, the writer has experimented with many different systems. The two most effective types are, firstly, very heavy plate and screen modulation (around 200% modulated), or secondly, the system about to be described.

Very heavy plate modulation is very effective, however the requirements are fairly great, both from the difficulty in obtaining the heavy duty components necessary and of course, which to many of us is more important, the cost is particularly demanding, whereas the C.H.L. system's requirements are quite modest by comparison, any normal modulator capable of delivering 30 watts or so of power will be quite adequate. The actual results of this system are at the very least equal to high level plate modulation (around 200% modulated) and in many instances are considerably better.

This system does not claim to produce broadcast quality, in fact when working to full effect, the distortion percentage is comparatively high, however the readability is still maintained. To some extent the quality of the signal at the received end depends on the a.v.c. action of the receiver. It is better to operate without a.v.c. for this purpose.

ADVANTAGES

The advantages are many, perhaps the greater of these is the simplicity throughout, comparatively the components are few and less costly, adjustment of operation is simple and quite easily effected without the need of expensive testing equipment.

One other advantage of equal importance is the fact that considerably more output can be derived from a final tube or tubes than the manufacturer's ratings state. This, of course, is due to the fact that we can run higher plate voltage and plate current on voice peaks because the final is completely voice controlled and therefore only passes current when modulated. As a matter of interest it is possible to run an 832 with 750 volts anode and an average anode current as accorded by the meter of 60 mA. The peak anode current will reach around 100 mA., which if it were allowed to remain at a constant 100 mA. would definitely ruin the valve. However, as this is only reached on voice peaks, no damage will result.

It will be seen from this that it is desirable to avoid wherever possible any form of continuous modulation, such as tone or a sustained whistle, not forgetting that illusive fellow called feedback.

It is interesting to note that when a sustained note of short duration is applied, there will be a trailing off of output from the time the note starts until the condition of a normal output is reached and will remain constant at this only if the p.a. is not operating under increased ratings. If the ratings are grossly exceeded, as was the case with the 832 described earlier, damage will then result to the tube.

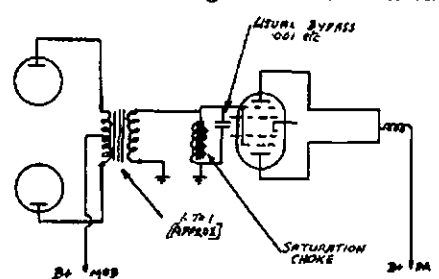
Other advantages are:

One of the few arrangements where it is possible to record greater power output than input as measured by plate current meter.

Simplifies the mobile or portable modulator problem, and conserves battery drain both in the p.a. and the modulator.

Non-critical in adjustment, tune as for a.m.

Has the advantage of carrier control.



C H L MODULATOR

To control power output, simply use the gain control on the modulator. Thereby it is possible to reduce the input for that cross-town QSO and help alleviate the QRM position (in the cities).

M.c.w. can readily be used to advantage. Keying can then be done in an audio oscillator, thus preventing key clicks and high voltage or heavy current keyed circuits. (If you can introduce a controlled amount of audio or r.f. feedback, this can be put to good use for m.c.w.)

There is always a safety measure with C.H.L. Irrespective of grid drive, the plate will not draw current until modulated.

Power supply requirements are modest, provided a husky output capacitance is used in conjunction with a normal pi-section filter it is possible to draw up to 50% greater power than

is possible with a.m. Regulation should of course be fairly good, hence the reason for the husky filter condensers. A suggested value of capacitance for input "C" 16 μ F., for output "C" 24 μ F.

These are, I feel, most of the advantages. The main disadvantage is the fact that initial tuning up is made difficult unless a double pole switch can be arranged to bring in d.c. voltage to the screen for tuning up purposes.

OPERATION AND ADJUSTMENTS

Looking at the circuit you will find that there is no d.c. screen voltage whatsoever, the screen voltage is purely audio voltage; or in other words, an a.c. voltage varying at audio frequencies. This average voltage level as measured with an a.c. voltmeter is adjusted under normal speech to a value of 75% of the normal d.c. screen voltage; increasing the developed voltage above this point will only cause excessive screen dissipation without increasing the output.

The method of adjustment is perhaps a little unusual. First, check the output of your modulator; make sure that it is capable of delivering about 20 to 25 watts, assuming a 100 watt final, or proportionately less for lower inputs. Then connect the modulator to your final, check the developed screen voltage at various settings of the gain control. If the choice of the saturation choke is correct, it will be possible to maintain the correct average screen voltage over a range of audio settings from about 10 watts to 25 watts, dropping off as the audio level is decreased below 10 watts.

Should the screen voltage continue to rise as the audio level is increased, the saturation choke should be substituted for another. Actually the writer has used a wide variety of chokes, including power transformers, old audio chokes, audio transformers and speaker transformers with equal success, so you will not find it difficult to achieve the desired results. Do not attempt to operate the final without this choke as the developed screen voltage will be much higher than necessary, even with a small amount of audio.

It can be seen from this that not only do we provide the necessary screen voltage to set the final in operation, but in addition to this we supply audio power which provides a pulse to the screen, is amplified by the valve and fly-wheel action of the final so that a developed pulse in the plate of somewhat greater proportion appears in the tank circuit.

It should be mentioned here that unlike normal screen modulation, the

* 605 Abercorn Street, South Albury, N.S.W.

aerial coupling is adjusted loosely, as too much coupling will tend to reflect a damping load. This, of course, will tend to restrict the peak plate power developed, thereby impairing the effectiveness of the system.

The best point of operation on the valve curve is as for a plate and screen modulated final. However, considerably less grid drive can be used without effect. There appears to be very little difference in the output and quality, even if the drive is reduced to half of manufacturer's ratings. This is also quite a considerable advantage in cases where difficulty is experienced in getting the required drive, such as in portable and mobile equipment.

One other point to consider is the final tank circuit itself. Here it is desirable to obtain the greatest practical "Q", for 2 metres and higher a pair of Lecher lines is suggested. It is also desirable to have a near flat feedline as far as standing waves are concerned, this, however, is not imperative.

This system has been used to equal effect with a number of final valves, such as 832, 832A, 829, single and parallel 807s and 5763.

In conclusion, a word of warning. It is not desirable to use C.H.L. on the lower frequencies with very heavy modulation, although I have not known the system to cause sideband splatter, it does develop an extension of bandwidth particularly if the receiver used incorporates a.v.c.; this sideband extension possesses some rather unusual characteristics not unlike double-sideband. It does not follow that this system is of no use on the lower frequencies, in

fact when operated correctly without excessive modulation, the quality can equal that of any of the better known forms of screen modulation, as has been evident from the tests conducted on 80 metres with a modified AT5.

The writer would be pleased to hear from anyone who may use the C.H.L. method or anyone who may have read or heard of the use of this method in days gone by. So far as I have been able to ascertain there has been no known use of this system and I am particularly interested to know whether it has been used either as described here or in any other form.

One final point not mentioned beforehand is the suggestion that a small amount of volume compression in the modulator can be quite a help in maintaining a constantly high level of output.

OVERTONE CRYSTAL OSC.

(Continued from Page 2)

general use. As in the other circuits, the LC circuit should resonate at three times the crystal frequency. This circuit behaves in a slightly different fashion to the other two circuits. When just switched on, it should commence oscillating at the fundamental frequency of the crystal with a strong third harmonic output. When the LC circuit is tuned to the correct frequency, oscillations at the fundamental frequency should cease, and only oscillations at the harmonic should be maintained.

In all circuits, the actual frequency of oscillation will not be an exact

R.D. CONTEST

R.D. Contest time is around again. Make a note on your calendar to keep the 16th and 17th August free so that you can participate in this popular Contest.

As some confusion apparently exists on the use of c.w. and phone, it is suggested that you again peruse the rules published on page 11 of the June issue of "A.R." and especially the comments on the rules on page 24 of the same issue under the heading of Federal Contest Committee.

multiple of the frequency marked on the crystal, but will be a multiple of a frequency 5 to 10 Kc. lower than the marked frequency. This is due to the fact that series resonance is being used, and to some extent, also to the mode of oscillation of the crystal.

Some idea of the possible harmonic activity of a crystal may be gained by joining a small coupling coil to the pins of the crystal holder, and then dipping it with the g.d.o. tuned to the harmonic frequency. A good dip indicates good activity, and vice-versa.

Crystals with good activity may be used on the fifth harmonic with the same circuits and adjustment procedure. However, operation at the fifth harmonic is more critical than operation at the third. Special circuits have been devised for operation at the higher harmonics, some of them achieving a high order of multiplication. A good article on this subject appears in "QST" for April, 1951.

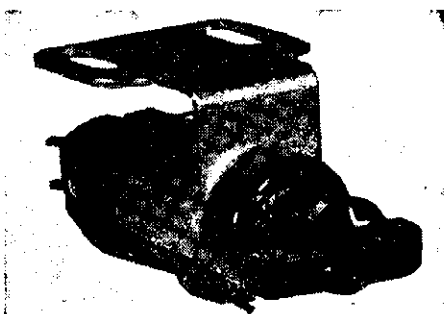
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288 Mc. Crystal Controlled Converter

BY J. L. OCCOLOWITZ,* VK3ZAI

TO make best use of stabilised signals on the 288 Mc. band a narrow band receiver is necessary. The superregenerative receiver which is so often used on this band is far too broad for crystal controlled signals which may only occupy a bandwidth of 6 Kc., although it finds use in copying unstabilised signals which may be 500 Kc. or more wide.

The converter described below should be used with a broadband i.f. if it is desired to copy unstabilised signals, although some unstabilised signals have been copied with difficulty using a BC348 as the i.f. receiver.

TUBES

Triodes are necessary to obtain suitable ratios at this frequency. Some tubes which can be used in grounded grid service are 6Q4, 6AM4, 6AJ4, 417A and 6J4. However, these tubes are either not readily available or are fairly expensive.

The value of twin triodes used in cascode circuits at 144 Mc. is rather doubtful at this frequency and no reports have been received as to their suitability.

In order to compromise between expense and performance, a neutralised push-pull 6J6 amplifier was chosen and a push-push 6J6 mixer used. If desired, signals may be fed straight into the mixer with some loss in performance, though on stabilised signals even this gives better performance than a superregenerative receiver.

CONSTRUCTION

The converter was constructed on a 10" x 6" x 2½" aluminium chassis. The tubes for the crystal multiplier chain are mounted above the chassis, whilst the r.f. amplifier and mixer tubes are mounted 4" apart, upside down, with the pins of the sockets projecting above the chassis. In this way all of the multiplier chain wiring lies below the chassis and all of the amplifier and mixer wiring, except for the output coil, lies above the chassis.

The oscillator injection line was mounted on small ceramic feed-through insulators obtained from an old compass receiver coil box. A shield 2½" x 1½" is soldered across the r.f. amplifier socket, isolating pins 1 and 2 from the others, and is earthed to the socket mounting bolts. Two holes ¼" apart are drilled just above the socket spigot to pass one side of each of the neutralising twin leads. The ends of the lines are bent inwards to make contact with the socket pins and are tilted downwards so that the lines lie outside of the plane of the chassis.

As a starting point the antenna coupling loop should be coupled tightly to the amplifier input line. The amplifier and mixer lines spaced about 5/16" one above the other, and the oscillator injection line placed between the mixer line.

SPURIOUS SIGNALS

Since this converter has been constructed some bother has been found with spurious beats from unwanted frequencies in the frequency multiplier chain. As an improvement, it is suggested that the whole of the frequency multiplier chain, including the crystal, be shielded and all power leads be brought through the shield via r.f. chokes and ceramic feed-through condensers. The injection frequency should be link coupled through a co-axial connector through the shield.

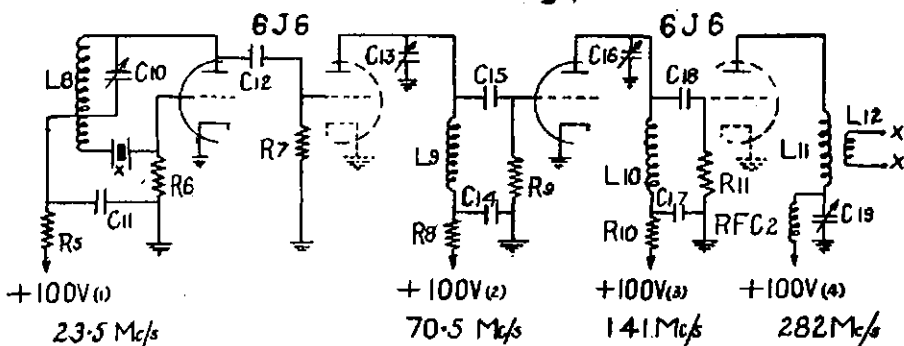
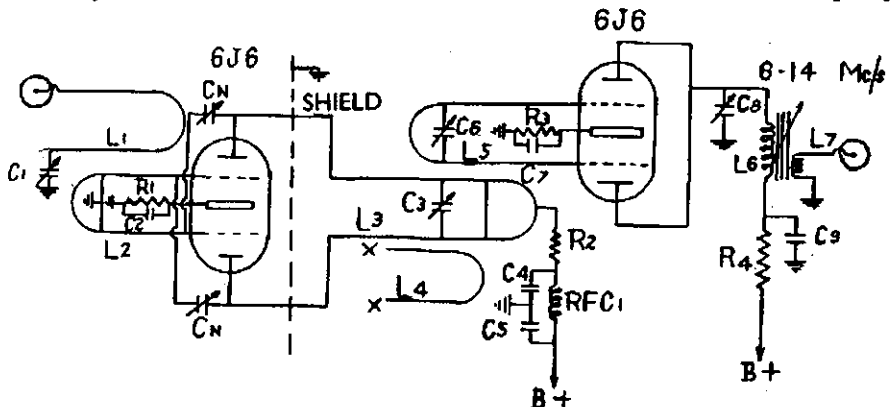
Similar treatment to this on a 50 Mc. crystal locked converter completely eliminated spurious response due to mixing with Channel 2 video signals.

ADJUSTMENTS

A grid dip oscillator/absorption wave meter makes adjustment of the multiplier chain simple and is also useful as a signal source on 288 Mc. for the initial adjustments.

After wiring and checking, apply filament volts and connect h.t. to point 1 through a 0-50 mA. meter. Tuning C10 should produce two dips corresponding to the 3rd and 5th overtone of the crystal. The 3rd overtone oscillation should occur with the condenser more than half in mesh. Check the frequency with a wavemeter and if possible the stability on a receiver. With h.t. on points 1 and 2, tune C13, for maximum r.f. on 70.5 Mc. Similarly with h.t. on points 1, 2 and 3, tune C10 for maximum r.f. on 141 Mc. The doubler stage to 282 Mc. should be tuned for maximum r.f. with h.t. on points 1 to 4.

Remove h.t. from the multiplier stages and apply to the r.f. stage only, lift the end of the r.f. amplifier input line from earth and temporarily bypass this point to earth with a 1,000 pF. disc ceramic condenser and connect a micro-ammeter from the bypassed point to earth. The neutralising twin lead used should have a capacity



- C1, C3, C6—30 pF. concentric air trimmers.
- C2, C4, C5, C7, C8, C11, C14, C17—1,000 pF. disc ceramic.
- C8—30 pF. trimmer.
- C10—50 pF. trimmer.
- C12—47 pF. ceramic.
- C13, C16—1½ to 8 pF. ceramic tubular t.v. trimmers.
- C15, C18—25 pF. ceramic.
- C19—approx. 5 pF. trimmer.
- R1, R3—150 ohms composition (non-inductive) ½ watt.
- R2—220 ohms, ½ watt.
- R4, R5, R8, R10—1,000 ohms, ½ watt.
- R6—10K ohms, ½ watt.
- R7—100K ohms, ½ watt.
- R9, R11—47K ohms, ½ watt.
- R1, R3—See Table.

- L6—No. 28 B. & S. enamel wire, 83 turns on ½ inch slug-tuned former.
- L7—10 turns No. 28 B. & S. wound over cold end of L8.
- L8—12 turns 18 B. & S. enamel, 5/8 inch dia., 1½ inch long, tapped 3½ turns from xtal end.
- L9—9 turns 5/16 inch dia., 5/8 inch long, No. 22 B. & S. enamel.
- L10—3 turns 3/8 inch dia., 3/4 inch long, No. 22 B. & S. enamel.
- L11—4½ turns 5/16 inch dia., ½ inch long, No. 22 B. & S. enamel.
- L12—1 turn insulating link in L11.
- X—Xtal 28.5 Mc. on 3rd overtone.
- Cn—Lengths of close-spaced twin lead, approx. 1.8 pF.
- RFC1, RFC2—I.F.F. type r.f. chokes.

* 128 Gaffney Street, Coburg, N.13, Vic.

DOUBLE CONVERSION PLUS

BY "SCOTCH"

Here is a scheme which will bear thinking about since it will achieve the simplest means for double conversion that I have been able to discover so far, in fact one might even go so far as to misquote that this is a case of "man's mind is greater than his pocket!"

By the choice of a first i.f. of 12 Mc.-16 Mc., and an 8.8 Mc. crystal frequency, it has been possible to achieve

a design that even Charles I. would have recognised as a money spinner.

Even the v.h.f. enthusiasts who seem to be able to build up converters for every band may be interested to see that 56-60 Mc. and 144-148 Mc. can be covered with the one crystal anyhow.

It is put forward as a scheme; you can work out the details of how to put it into practice. VK5GL gave me the idea for 56 and 144 Mc. and ground me the crystal. Thanks Clem.

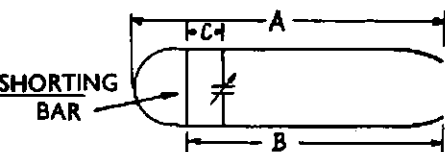
of about 3 pF. per section before pruning. Initially there will be fairly high current indicated on the ammeter due to oscillation in the amplifier. Carefully prune each lead by equal amounts until the grid current is nearly zero and make the final adjustment by splitting the twin lead partially and splaying or twisting tightly until the current is zero.

With neutralisation of the amplifier completed, apply h.t. to all stages and connect an antenna. Tune the r.f. stages for maximum noise and peak the i.f. output coil. It may be necessary at this stage to re-check neutralisation, tuning the i.f. receiver over the band should reveal no signals whose b.f.o. note can be changed by bringing a finger near the r.f. amplifier.

The choice of i.f. frequency for this converter was dictated by the availability of a 23500 Kc. 3rd overtone crystal which had been used in other gear. The use of a higher i.f. should produce a more uniform response from the i.f. stage.

TABLE

L1, L2, L3 and L5 are made from No. 14 tinned copper wire, spaced $\frac{3}{8}$ " centre to centre. L4 No. 18 enamel $\frac{1}{2}$ " centre to centre, 1" long.



Approximate Line Dimensions

Line	A	B	C
L1	2 $\frac{1}{8}$ "	—	—
L2	2 $\frac{1}{8}$ "	1 $\frac{1}{8}$ "	—
L3	3 $\frac{1}{8}$ "	2 $\frac{1}{8}$ "	3/16"
L4	2 $\frac{1}{8}$ "	—	3/8"
L5	2 $\frac{1}{8}$ "	—	—

* From end of line.

The position of shorting bars and trimmers may have to be altered during initial tuning.

Band	Crystal Oscillator Multiplier	Converter-Receiver Tuning Range	Comment
80 Metres	× 1 8.8 Mc.	3.50 Mc. — 3.80 Mc. 12.30 Mc. — 12.60 Mc.	Addition frequency.
40 "	× 1 8.8 Mc.	7.00 Mc. — 7.15 Mc. 15.80 Mc. — 15.95 Mc.	Addition frequency.
20 "	× 3 26.4 Mc.	14.00 Mc. — 14.35 Mc. 12.40 Mc. — 12.05 Mc.	In the i.f. range: extra second channel rejection by using converter.
15 "	× 1 8.8 Mc.	21.00 Mc. — 21.45 Mc. 12.20 Mc. — 12.65 Mc.	To be preferred: forward reading on the dial.
15 "	× 4 35.2 Mc.	21.00 Mc. — 21.45 Mc. 14.20 Mc. — 13.75 Mc.	Difference frequency. (not recommended)
10 "	× 5 44.0 Mc.	28.00 Mc. — 30.00 Mc. 16.00 Mc. — 14.00 Mc.	Difference frequency.
5 "	× 5 44.0 Mc.	56.00 Mc. — 60.00 Mc. 12.00 Mc. — 16.00 Mc.	Difference frequency.
2 "	× 15 132.0 Mc.	144.00 Mc. — 148.00 Mc. 12.00 Mc. — 16.00 Mc.	

Note that 80, 40, 20, and 15 metres can be covered from the fundamental of the crystal. Two tubes can therefore provide the output from the crystal oscillator section.

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- ★ Should you have the materials for that certain project, but do not have the time or are so placed that you are unable to complete the job, drop us a line and we will be pleased to assist.
- ★ Should you also have any equipment you would care to sell or exchange, please write giving all the necessary details including the price. An effort will then be made to include your item or items in the following month's advertisement.

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Published by Wireless Institute of Aust.
THE 1958 EDITION CONTAINS:

- An up-to-the-minute listing of Station Call Signs and Addresses of Licensees of Transmitting Stations located in the Commonwealth of Australia and Territories, and W.I.A. Listeners' No's.
- Over one thousand additions, alterations and deletions since the last edition, making more than four thousand amendments since the 1954 issue.
- DX Countries, Prefixes and their Zones.

HINTS AND KINKS

AN ALL-BAND R.F. CHOKE

Wind on 1" insulating rod or glass tube 7"-8" long, 4" close wound 22 B. & S. enamelled wire, leave 1/4" space, then ten turns and 1/4" space, then six turns and 1/4" space, then 5 turns, and choke is complete.

—W. H. Hannam, VK2AXH.

A CHEAP SCRIBER WITH RENEWABLE TIPS

Old type, hardened steel gramophone needles are still readily available and these provide us with all the tips one will need throughout one's lifetime. Take a piece of brass rod, 3/16" welding rod is ideal, and drill a 1/16" hole

in one end. A lathe is helpful for this but not absolutely necessary. The gramo. needle is then soldered into the end of the rod. When the point becomes blunted, it is only necessary to solder in another needle.

—S. T. Clark, VK3ASC.

BC221 AS A CARRIER INJECTION GENERATOR FOR S.S.B.

Although already appreciated by many Amateurs, newcomers to the ranks of s.s.b. operation may not realise that a surplus BC221 Frequency Meter makes an excellent signal frequency carrier generator for reception of single-side-band suppressed-carrier phone signals.

Frequency stability and adequate band spread, essential requirements of an s.s.b. injection generator, are already built into the various models of the BC221. Output amplitude control over a wide range, another requisite of a good generator, can be provided for by replacing R38 (in Model 221-N) with a 500K potentiometer.

—M. R. King, KP4RC ("QST," Mar. '58)

TUNING RODS FOR I.F. TRANSFORMERS

Through the kindness of Denis ZL2ATO I was presented with a number of 1/4" Polystyrene rods with 1/16" hole through them and 16" long. These are used in the dairying industry. I cut them in half and drilled a 5/32" hole at one end and 1/4" hole at the other end, both 1/4" deep. I then used a jeweller's saw across the holes and sawed down to just below 5/32" and 1/4" holes, then I cut strips of tin out of a fruit can about 3/16" wide, bend one end (about 1/16") at right angles, slip into the slot and bend the other end, forming the letter Z, and cut off as close to rod as possible. Cement in place and repeat similarly at the other end. This leaves the knife edge of the tin about 1/16" below the level of the poly. rod and this made an ideal screw driver for i.f. tuning as the driver cannot slip off like an ordinary screwdriver.

—W. H. Hannam, VK2AXH.

AUDIO FREQUENCY TEST SIGNAL WITHOUT AN AUDIO OSCILLATOR

If an audio generator is not available when next needed, or should the one on hand deliver inadequate or badly distorted output, try the system used here at W2ZZG.

A good sine wave, as indicated by an oscilloscope, is obtained by feeding the v.f.o. signal into a communications receiver operated with the b.f.o. turned on. Audio output for test purposes is taken from the last stage of the receiver, and the amplitude of the signal is regulated by the audio gain control. Signal frequency is varied by regulating the b.f.o. control.

Naturally, the stability of the v.f.o. and the receiver play an important part in determining the stability of the audio test signal. Furthermore, coupling between the v.f.o. and receiver should be tight enough to mask out any noise that leaks into the front end of the receiver, but not so tight as to overload its r.f. amplifier. By experimenting with the input coupling, and by keeping the r.f. gain down in the interest of linearity, it is usually possible to end up with an audio output

signal that looks quite good on the face of a 'scope.

Although the equipment used here is not calibrated in terms of audio frequency, the frequency of the test signal can be intelligently estimated. In any event, the signal obtained is a lot more favourable for many jobs than is the frequently interrupted WWV signal used by some as a source of audio.

—A. H. Fedley, W2ZZG ("QST," Mar. '56)

FLUX FOR NICHROME AND NICKEL

The only flux which will solder nichrome or nickel is the following:

Aniline 51 c.c. Orthophosphoric Acid 34 c.c. Ethylene Glycol 40 c.c.

Grind Aniline and Orthophosphoric Acid together, add Ethylene Glycol. It should form a thin paste. If too stiff add more, Ethylene Glycol until the right consistency is obtained. Use ordinary solder then wash off joint with methylated spirits as this flux is slightly corrosive.

—W. H. Hannam, VK2AXH.

TO MAKE RODS FOR CHOKES, ETC., WITH PERSPEX STRIPS

Place strips of perspex, the width and number to make up the necessary thickness, then put in a chloroform bath for ten minutes, seeing that a cover is placed over bath to prevent evaporation. Then press together and allow to dry, and you will have a clear bar of perspex which can then be turned to any diameter required.

—W. H. Hannam, VK2AXH.

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
15 CLAREMONT CRES.,
CANTERBURY, E.7,
VICTORIA

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. lies	Call	Cer. Cnt- No. lies
VK3WL	14 211	VK3BZ	3 176
VK6MK	43 308	VK6KW	4 168
VK6RU	2 207	VK3EE	10 168
VK3ATN	26 204	VK0DB	31 181
VK4FJ	21 202	VK4WF	16 160
VK4HR	12 192	VK4RW	23 157

New Members

VK5KN	42 126	VK2AHH	41 120
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Amendments

VK4DO	20 128	VK7LZ	36 111
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C.W.

Call	Cer. Cnt- No. lies	Call	Cer. Cnt- No. lies
VK3KB	10 235	VK3XU	48 213
VK4FJ	29 234	VK3YL	39 203
VK3CX	26 230	VK5BY	45 202
VK3FH	15 228	VK6RU	18 194
VK3BZ	6 222	VK2EO	2 191
VK4HB	8 218	VK5RX	23 176

New Members

VK2AHH	82 107
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Amendments

VK7LZ	17 162	VK3RJ	42 138
VK4DO	20 159	VK6KW	40 109

OPEN

Call	Cer. Cnt- No. lies	Call	Cer. Cnt- No. lies
VK2ACX	6 280	VK3XU	61 221
VK4FJ	32 238	VK6MK	74 212
VK6RU	8 235	VK3JE	12 210
VK4HR	7 233	VK3ATN	69 210
VK3BZ	4 231	VK3HG	3 201
VK3WL	45 225	VK7LZ	23 201

New Members

VK2AHH	73 151	VK3HL	75 117
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Amendments

VK6KW	13 188	VK4DO	15 132
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HANS F. RUCKERT, VK2AOU

MY interest in electronics goes back to 1924 when I first heard a radio transmitter, but I did not start earlier than 1930 to build my first short wave receiver when we had science lessons at high school. Later in 1934 the teacher left it to me to lecture a few physics periods on radio. The physics honour paper for the leaving examination had the following title: "The problems of short wave communications receivers." It contained 80 pages of text, typed, and circuits. Here the double conversion superhet was described, 15 years before it became popular.

In 1936 the German short wave listener examination was passed (half a lis examination) and the DE3562 number received. Later, during my university time in Berlin, I was technical adviser for district C and gave many lectures on receiver design. I also worked often at the lab. of the hq. of the D.A.S.D.

During the last 20 years about 80 technical papers have been written for eight radio magazines, but mainly for the "DL-QTC" and "Amateur Radio." The first paper reported on short and long path receiving tests made during VK-ZL Contests, 1936 to 1938.

Achievements obtained include:
 4th Prize Receiving Contest, 1947, 2,000 Amateur Stations logged.
 1954 D.A.R.C. Honour Badge with VK-2AOU call, for 20 years of service to Amateur Radio.
 W.B.E. (c.w.), W.A.E. and R.C.C. (after long t.v.i. discussions with Phil Rand).
 1955 1st Prize W.A.E.D.C. for VK2 20 Metre Phone.
 1956 1st Prize VK-ZL Contest for VK 20 Metre Phone.
 1957 1st Prize VK-ZL Contest for VK2 10, 15 and 20 Metre Phone.
 1956 VK Prize for "A.R." contributions.
 1958 "Adams Trophy", VK2.

(7) Two universal regulated power supplies for tests.

(8) V.h.f. field strength indicating receiver, mainly for t.v. channels.

(9) Universal measuring apparatus "Farvimeter": a.f. and r.f. signal generator, log v.t.v.m., V., mA., Ohm, C and L meter with many ranges.

(10) Two multi meters.
 Components are sorted out in groups, so no time is wasted when looking for bits and pieces, and placed in labelled cartons or boxes.

QSO index card system, 2,500 QSOs made, 65% QSL efficiency. Most of the time is spent with experiments.

Aerials: A triband beam, own design, for 10, 15 and 20 metres, 44 feet high, a 140 ft. Zepp for 80 and 40 metres.

Member: W.I.A., D.A.R.C. and the A.R.R.L.

Profession: Research engineer, mainly electronic ceramics like capacitor dielectrics, etc. Amateur Radio has always been my main source of electronic experience.

Other Hobbies: Classical music (records), photography.

Australian citizen since June 1957. XYL is quite positive towards my activity. Daughter Sigrid had 2GB Quiz Kid experience (4th year high school). Son (6th class) is technically minded.

AMATEUR TELEVISION

(Continued from Page 7)

2. **Video Signals.**—Pye type co-axial sockets for all inputs and outputs, cords to be 1/2" co-axials with two Pye type plugs. A number of these will be needed, so a reasonably cheap plug/socket is required. They are available in quantity ex disposals.

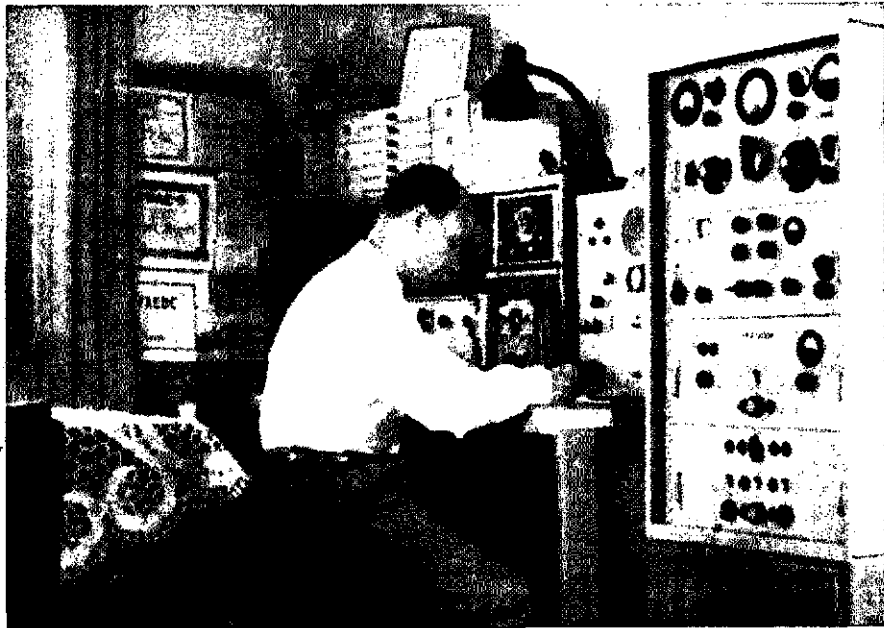
3. **Radio Frequency (carrier freq.)**—Amphenol u.h.f. type connectors, and 75 or 50 ohm cables as desired.

4. **Power.**—Always on octal plugs and sockets, to avoid misconnection with sync. B+ to be 260 volts in all instances.

5. **Mains.**—Male and female inlet and outlet to be provided on each power supply, to enable interconnection of several units. Outlets to be standard 3-pin.

Comments please, as if we can standardise connectors, exhibitions and demonstrations become comparatively easy.

Before discussing the transmitter proper, I will outline next month methods and equipment for lining up and testing the units described so far. This will ensure that the picture radiated is as good as the equipment will give.



The station is in the dining room. There is no surplus gear or a junk box. The photograph shows (from right to left):

(1) 100w. transmitter, 10 to 80 metres, bandswitching and shielded, 6 to 9 stages, plate and screen modulated final with clipper filter and monitoring c.r.o.

(2) 19-valve Amateur-band receiver, 5 r.f. tuned circuits, 7 on the 1st i.f. of 5.3 Mc. and 9 on the 2nd i.f. of 352 Kc. plus two crystal filters in series; six bands: 80 to 6 metres.

(3) BC221 and, underneath, e.c.o. frequency meter.

(4) 9-valve superhet receiver, 3.4 to 54 Mc., xtal filter.

(5) G.d.o., 1.4 to 210 Mc.

(6) Absorption frequency meters: 150 Kc. to 60 Mc., 16 to 255 Mc.

My 12-valve short wave receiver was exhibited at the great Radio Fair in Berlin, 1939. Even so, I could not get a transmitter licence, the number of which was limited to 500, until 1949 when 700 licensees were issued in March, partly due to the influence of W and G occupation authorities.

The first DL1EZ was immediately on the air hunting DX. 110 countries were worked and 92 confirmed (phone) when we decided to follow the invitation to go to VK2 in June 1951, after some important VK2-DL QSOs. One year later I was back on the air as VK2AOU. Among the now 113 countries worked (phone) and 90 confirmed are many old friends contacted before from the other side of the globe.

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

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Bowls Frocks, Tennis Frocks,
for the retail trade.

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D. MILBURN & CO.
238 Flinders Lane, Melbourne



Calling All Hams...

Because of its small sturdy construction, high efficiency and high power sensitivity, the Radiotron 6146 VHF Beam Power Valve is ideal for use in both mobile and fixed equipment. Similarly, its suitability for both class licences makes it the perfect valve for use in transmitters and audio amplifiers.



**50 W. PLATE-MODULATED
CLASS C POWER AMPLIFIER**

TYPICAL OPERATING CONDITIONS

Intermittent Commercial and Amateur Service.

A-F Power Amplifier and Modulator, Class AB2

Values are for two valves

Plate: 750 V. at 240 mA (Max. signal).

Screen: 165 V. at 20 mA (Max. signal).

Power Output: 130 W. at 10% total distortion.

Drive: 0.4 W., 108 V. Peak A-F grid to grid.

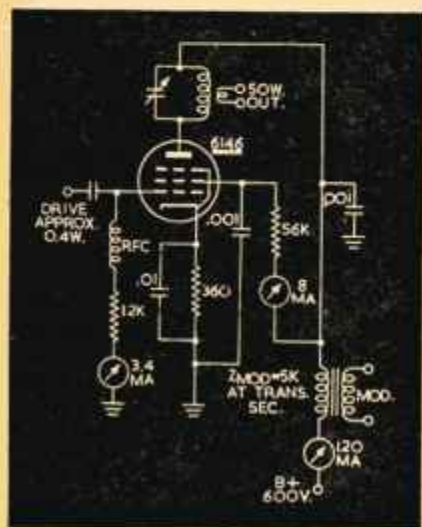
Plate-modulated R-F Power Amplifier, Class C

Plate: 600 V. at 112 mA.

Screen: 150 V. at 8 mA.

Power Output: 52 W.

Drive: 0.4 W., 107 V. Peak R-F grid Voltage.



AMALGAMATED WIRELESS VALVE CO. PTY. LTD. 47 YORK ST., SYDNEY

BOOK REVIEW

"HOW TELEVISION WORKS"

An Illustrated Non-Mathematical Account of its Principles
By W. A. Holm

This is the title of the book which tells you all you need to know, without higher mathematics being necessary for you to obtain a thorough understanding of a very fascinating subject. This is a book we have enjoyed reading; it can be recommended to all interested in Television, and who isn't these days. It is a book that could be thoroughly enjoyed by the YL, but if she will not read it, do not be discouraged OM, it will make you an "expert" in her eyes.—VK3ASC.

Our copy from Philips, Eindhoven. Local stocks should be available when you read this at £2/2/0 per copy with postage an extra 2/-.

W.I.C.E.N. NOTES

A letter received from the Director of Civil Defence for N.S.W. expresses his appreciation of the efforts of officers and members of the Institute in organising and maintaining efficient and reliable emergency communications. The Director also outlined action initiated by his own organisation to facilitate the more effective working of W.I.C.E.N.

We have thanked the Director, on your behalf, for both the message of appreciation and steps taken to help us to help the Community as a whole.

Actions such as related above are proof that the value of the service rendered by the Amateur in times of emergency is readily recognised by those who have had experience of the quality of his work.

Authorisation Cards are now in the hands of the printer and will be issued as lists come to hand from Divisional Co-ordinators. Great care has been taken to select material which will withstand the most rigorous conditions, in order to ensure that the log section will become something to be proud of with the passage of time and the succession of entries therein.

VK9 reports the enrolment of twelve members during its initial drive.

Unfortunately it is not possible to publish frequency table yet as some Divisional Co-ordinators have not sent in the figures for their States.

An article appearing in July "A.R." sets out the N.A.T.O. Code, hence there is no need for us to reprint it at this stage. The author of the article referred to may not be enamoured of the Code; however it is important for W.I.C.E.N. operators to bear three points in mind.

- Firstly, the lack of a common code during World War II. proved very costly in Allied lives, due to the misunderstandings which occurred.
- Secondly, the Code takes into consideration the speech characteristics of the large number of Countries involved.
- Thirdly, properly used the Code will become a good habit—a habit that will stand the test in good stead in times of emergency. For under these circumstances who knows who will be working whom?

If you have not already done so, forward your request to your Divisional Co-ordinator now for registration as W.I.C.E.N. operator.

All applications must be forwarded through Divisional Co-ordinators to Federal Co-ordinator. After registration authorisation cards will be sent to you via your Divisional Co-ordinator who will see that the necessary signatures are obtained.

The Numbering System will follow the pattern employed for S.w.I. Groups, that is, Divisional prefix followed by individual number in four-figure group.

SUPPORT THE ADVERTISERS WHO
SUSTAIN "AMATEUR RADIO."

TWO NEW "GELOSO" VFO'S AVAILABLE SOON

MODEL 4/103:

144 to 148 megacycles, using two 6CL6s as oscillator-multipliers, one 12AT7 as multiplier and 5763 amplifier; sufficient drive for 832 or 2E26 amplifier stage. The 4/103 v.f.o. provides netting facilities with switching to crystal operation for established communication.

Price not known yet but is expected to be at the well known attractive price of all other Gelo-so products.

MODEL 4/104

New six-band v.f.o. including the 11 mx band. Covers 80, 40, 20, 15, 11 and 10 mx. Uses 6CL6 osc. driving 5763 amp.; sufficient drive for 807 or 6146 p.a. stage.

MODEL 4/102

The 4/102 has now superceded the 4/101. The 4/102 is a five-band v.f.o. covering 80, 40, 20, 15 and 10 mx using 6L6 amp. providing sufficient drive for higher powered push-pull, push-push and single-ended finals.

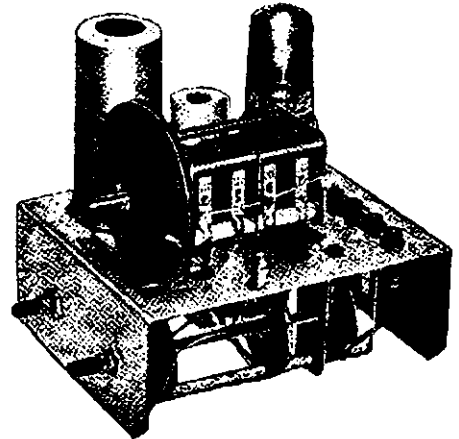
TRANSMITTER EQUIPMENT

Gelo-so Signal Shifters, complete with calibrated dial and handsome grey finished perspex escutcheon £10/4/9

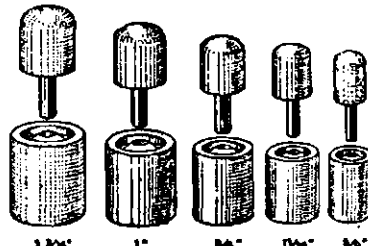
Gelo-so Pi-Coupler 31/6

Special Cabinet designed to house Gelo-so Signal Shifter. Louvered ends screened for t.v.i., lift-up lid, complete with chassis and front panel, hammertone grey finish. Dimensions: 17" wide, 10" high, 10" deep. Will fit between standard relay rack upright members. Can be supplied with 18" panel if required to be screwed to standard relay rack.

Price £6



"WILLIS" CHASSIS PUNCHES



3/8"	21/-	1-3/16"	35/-
1/2"	22/6	1-1/4"	42/6
5/8"	22/6	1-3/8"	47/6
11/16"	23/6	1-1/2"	47/6
3/4"	24/6	1-3/4"	57/6
1"	31/6	2"	62/6
1-1/8"	33/6		

Any special size requirements made to order.

Q-MAX SCREW-TYPE CHASSIS CUTTERS

5/8"	26/7	1-3/8"	38/6
3/4"	26/7	1-1/2"	38/6
7/8"	29/4	1-3/4"	42/-
1"	34/10	2-3/32"	68/9
1-1/8"	34/10	2-1/2"	81/7
1-1/4"	34/10	1" Square	52/8

One key supplied with each cutter.
Spare keys 1/8 each.

GELOSO PI-COUPERS 31/6
WILLIS PI-COUPLER CHOKES, 150 watts, heavy duty tx type as recommended in A.R.R.L. Handbook; constructed on high quality ceramic former; operates all bands up to 30 Mc.; insulated for 3,000v. 25/- each.

With Typical Precision Engineering and Calibration Accuracy comes the

GRUNDIG GRID DIP OSCILLATOR

Model 701

- Continuous frequency coverage from 1.7 Mc. to 250 Mc.
- Operates on 110/230v. a.c., 40 to 60 cycle mains.

Price: £33/15/0 (Includ. Sales Tax)

PI-COUPLER FOR HIGHER POWER

Compact, bandswitched, high power pi-coupler inductor for co-ax output.

Rated for a max. 1,200v. d.c. at 800 mA. input. Higher voltages on c.w. and s.s.b.

For max. efficiency the 10-metre coil is made of 1/8 in. silver-plated strip, 15 and 20-metre coils of 1/8 in. silver-plated wire, and the 40 and 80-metre coils of 12 B. & S. tinned-copper wire.

Input capacity 250 pF. max., output capacity 1,500 pF. max. A single pole five-position switch is provided which can be used for switching in parallel capacities when required.

Recommended input capacitor: Eddystone Type 817. Recommended output capacitor: Standard miniature 3-gang BC condenser which is suitable in this position up to 1 kw.

Price: £4/17/6 nett

Please include Freight and Exchange with Orders.

WILLIAM WILLIS & CO. PTY. LTD.

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I.T.U. FUND DONATIONS

ADHERENCE TO COPY DATE

Once again correspondents to this magazine are reminded that copy must be in the Editor's hands at 191 Queen Street, Melbourne, by the 8th of the month preceding publication.

Recently, publication has been delayed through copy arriving late. In future the magazine is going to press on the due date and it is problematical whether copy arriving after the 8th of the month will appear.

3AXW: L. Burrows, VK3DB; H. Williamson, VK3GW; P. Sebire, VK3MX; T. Rodda, VK3ATR; J. Thomason, VK3AZK; A. Maguire, VK3IO; J. Gardner, VK3NA; H. Duggan, VK3XI; K. Semmler, VK3ATS; K. Cakelbread, VK3DW; W. Harrison, VK3QD; M. Quick, VK3RQ; K. Cosgriff, VK3WM; J. Wales, VK3ZBK; L. Ellason, VK3ALE; J. Martin, VK3AV; M. Rieper, VK3DT; P. Barnes, VK3GH; R. Wootley, VK3IC; L. Rickards, VK3JH; H. Dobbyn, VK3MF; N. Robb, VK3ZAR; J. Howden, VK3ZCH; M. Osborne, VK3ZCZ; G. Small, VK3AWU; W. Annison, VK3AWE; K. Love, VK3AWU; C. Anderson, VK3XV; W. Tremewen, VK3ZCI.

A. Miers, VK4AD; N. Wilson, VK4NP; H. Hobler, VK4DO; H. Sprenger, VK4ES; J. Ross, VK4JO; J. Rintoul, VK4JR; D. Presland, VK4PW; H. Perkins, VK4XH; J. Bickford, VK4ZAZ; J. Kane, VK4ZZ; R. Greenwood, VK4NG; R. Gordon, VK4RI; C. Weller, VK4CZ; A. McGregor, VK4KX; N. Mills, VK4NM; A. Caswell, VK4CB; L. Waterworth, VK4CL; O. Ahnfeldt, VK4OV; R. Stacey, VK4RS; R. Glassop, VK4BG; V. Brown, VK4BJ; M. Lindsay, VK4HD; R. Britton, VK4MF; F. Edwards, VK4ZAJ; K. Long, VK4ZAM; H. Peters, VK4ZP; H. Greber, VK4CY; W. Berry, VK4WB; E. Nissen, VK4XN; M. Swaby, VK4DA; L. Merchin, VK4MG; J. Currie, VK4LC; H. Cox, VK4OX; C. West, VK4TR.

C. Bishop, VK5CY; N. Wallage, VK5GW; J. Carruthers, VK5HC; C. Judd, VK5HQ; H. Watson, VK5HW; L. Deane, VK5LD; G. Luxon, VK5RX; L. Finn, VK5SP; A. Hewitt, VK5KK; A. Hollebon, VK5BZQ; B. Wall, VK5ZCX; A. Brown, VK5ZL; F. Wilkinson, VK5ZO; I. Wall, VK5IW; C. Baseby, VK5BZ; J. Gazard, VK5J; D. Dawson, VK5KD; P. Davoren, VK5KM; E. Barber, VK5MD; R. Hooper, VK5NL; H. Osman, VK5OZ; T. Laidler, VK5TL; A. Peppercorn, VK5TP; J. Ward, VK5WJ; L. Catford, VK5XL; C. Mann, VK5DF; F. Keddie, VK5KZ; R. Wreford, VK5RW; J. Rosevear, VK5KE; E. Jantich, VK5LE; W. Bayly, VK5WM; E. Davy, VK5EF; T. Lally, VK5ST; B. Jellett, VK5AB; H. Young, VK5EJ; J. Moffatt, VK5MG; W/O L. Baker, VK5OB/OC; R. Larsson, VK5RL; G. Bowen, VK5XU; N. Martin, VK5ZAV; G. Taylor, VK5ZBT; J. Lewis, VK5LJ; A. Tuck, VK5BT; M. Dow, VK5KF; G. Gray, VK5KP; W. John, VK5WH; E. Whittington, VK5ZAQ; A. Mollneux, VK5AV; C. Ferguson, VK5CJ; J. Coulter, VK5JD; L. Latta, VK5RA.

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B. Alexander, VK3ADV; W. Hempel, VK3AHO; R. McNabb, VK3AIM; R. Gibb, VK3AQQ; E. Cook, VK3EC; D. Britt, VK3HT; J. Swainger, VK3IF; W. Daniel, VK3NK; D. Miller, VK3FO; W. Dennis, VK3XE; A. Bridge, VK3AEB; E. Pont, VK3AGP; G. Bills-Thompson, VK3AFN; J. Kelleher, VK3AIG; C. Turner, VK3AQ; T. Naughton, VK3ATN; A. Woolnough, VK3BW; L. Lockhart, VK3LE; A. Elliott, VK3ZAE; J. Kelleher, VK3ZAJ; L. Ellis-Thompson, VK3ZCB; A. Finch, VK3AEO; M. Esam, VK3AGE; F. Anear, VK3AGF; E. Gliddings, VK3ANQ; A. Boast, VK3AX; G. Horrocks, VK3AYS; F. Hanham, VK3BJ; H. Chis, VK3HC; H. Roberts, VK3HR; J. Anderson, VK3JA; W. Carlyle, VK3JP; J. Isaac, VK3PL; B. McCubbin, VK3SO; M. Rodger, VK3UJ; E. Kelly, VK3ZAK; P. Bennie, VK3ZDP; K. Alcock, ex-VK2AOA; J. Barber, VK3ABT; C. Burrows, VK3AXD; C. Reed, VK3IX; M. Muller, VK3LU; K. Scott, VK3SS; C. Baker, VK3VP; T. Walsh, VK3ZI; C. Trall, VK3AIT; W. Brownbill, VK3BU; W. Bennett, VK3EJ; K. Magee, VK3KM; G. Morrison, VK3TH; G. Sutherland, VK3ZAA; C. Davey, VK3ZDA; H. Lelliott, VK3ZG; A. Phillips, VK3AAP; J. Bail, VK3ABA; I. Leclis, VK3AIL; H. Brown, VK3NN; D. Calwell, VK3NP; E. Caddy, VK3AEC; J. Ballinger, VK3NK; V. Wyatt, VK-

Despite the fact that the appeal for funds to send a delegate to Geneva in 1959 to represent the Australian Amateurs is only a little over a month old, almost one-half of the necessary finance has been raised. This is an excellent start, but like most appeals after the initial burst of contributions, the interest lags and donations begin to fall off. The same may be expected in our case, unless every Amateur makes the necessary effort. Ask your Amateur friend if he has subscribed when next in QSO with him—press him with the importance of raising the money so that his individual views may be properly presented at the appropriate time. Divisions are also urged to publicise the Fund in their weekly broadcasts so that as many as possible subscribe to this worthy and most important appeal.

Several questions have been asked in connection with the Fund—a common one being, "What will happen to the money raised if the full amount is not subscribed?" I think there is every indication that the amount will be raised, but taking the most pessimistic outlook (which should really not be even contemplated at this stage) we can say that the matter will be put to the Federal Council of the Institute who will ensure that the money raised is used in the best interests of EVERY licenced Amateur. We feel sure that every licensee is well aware of the issues that are at stake and will not let the cause down.

Another question raised is who is likely to represent the Australian Amateur at Geneva. The necessary qualifications for such a representative are comprehensive and Federal Executive have already enumerated them, but it is putting the cart before the horse to select or even discuss individuals at this time until we are sure the funds are available. Suffice it to say that several offers have been received, all of which will be thoroughly considered before making a final decision.

In the meantime keep sending your donations to the:

Federal Secretary,
Box 2611W, G.P.O.,
Melbourne, C.I. Vic.

The following is a list of contributions to the 11th July, 1958:—

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W.I.A. Tasmanian Division, VK7WI.

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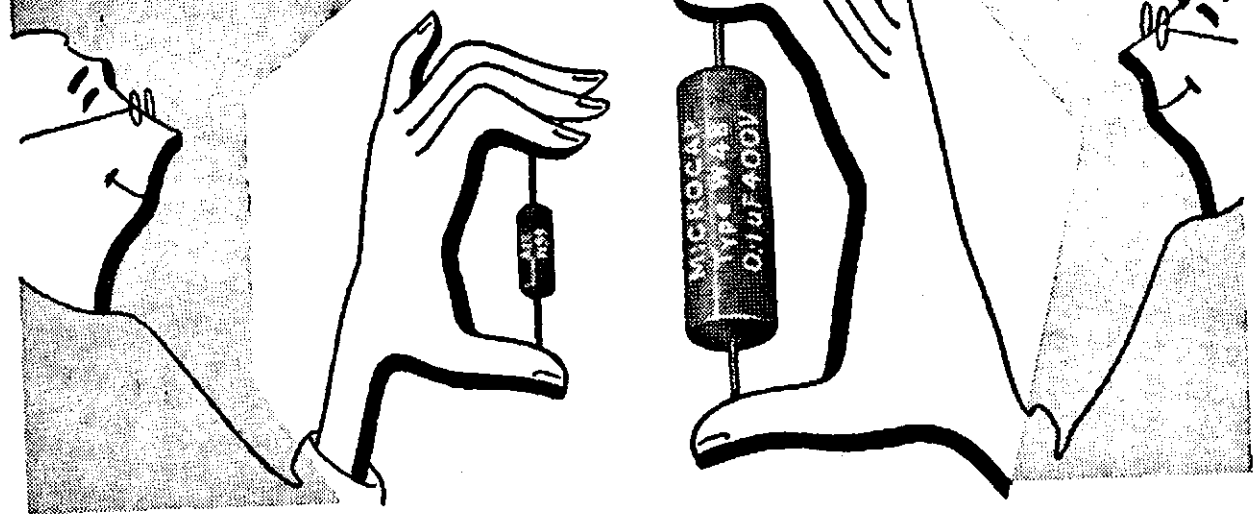
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NEW REGULATIONS

Editor "A.R.," Dear Sir,
I have just perused the recently issued "Handbook for Operators of Amateur Wireless Stations," Feb. 1958, and am interested to note differences between this and the latest previous issue in my possession, that of January 1946.

The former regulations stated that "An experimental station licensee may transmit and receive in plain language messages" etc. The new edition states (para. 66): "An amateur station licensee may transmit and receive, in English, plain language messages" etc. This appears to imply that only the English language may be used. On the other hand, there is no prohibition of the use of any other language. It would be of interest to know whether it is no longer permitted to use languages other than English.

If this is the case, what is the position which would arise in the event of a similar regulation applied to the Amateurs of another country with an official language other than English? Would not this effectively prevent Amateur communication between that country and Australia even though such communication were officially permissible?

Another alteration worthy of note is that whereas formerly transmissions of unrecorded music for the purpose of tests only, were allowed for short periods, we are now not permitted to transmit OR RECEIVE music (except single audio tones for tests of short duration), or other form of entertainment. No longer will anyone be able to compete with "Piccolo Pete" or other nuisances on 7 Mc.!

The new phonetic alphabet has been canonised, together with a clear indication of official pronunciations. A glance at the phonetics shows that these are almost all words which are common to and similarly pronounced in most Western European languages. This should be of comfort to your lamenting correspondent, Mr. Norman Burton (July 1958). I, for one, will now be glad to become "THUH-REE CHAR-lee no-VEM-ber."

—Laurie Walters, VK3CN.

(F.E. is discussing the matter of English language regulations and necessary action will be taken.—Ed.)

I.T.U. FUND

Editor "A.R.," Dear Sir,
I quote ad. in June "A.R.": "By donating £1 you can insure against loss of your favourite band". This descent to the methods of commercial salesmanship in an effort to obtain finance by misrepresentation, could cause us to lose the very thing we are paying to retain. Surely there is not one among us naive enough to believe that the £1 only will safeguard our interests at the next I.T.U. Do you really believe that we will keep fully all the frequencies now allotted?

There will be one awkward question asked of our delegate at I.T.U., viz.: "Why are the VKs not fully using the bands?" and no amount of word man-

ipulation is going to provide a convincing answer. The short-lived bursts of activity at week-ends is nowhere good enough. I am constantly asked by DX "Where are VKs?" Europeans, etc., are hungry for QSOs with us.

We will only get out of Amateur Radio what we put into it—and the Ham who never puts a sig. on the air, or the prefix-chaser, who scavenges the band to pick the eyes out of the DX, with an occasional three-minute QSO does the game a dis-service. The £1 for I.T.U. is useless unless the boys will work the bands, provide activity. Fellows who think more of Ham Radio than they do of their personal achievements. The great number of awards and certificates now available tend to make it all an intensely competitive affair. Fair enough, but without a broader base of co-operation to sustain it. Amateur Radio is in for an inglorious demise.

Ours is a case of populate or perish, and up to now we have shown that we do not fully need the bands we now have allotted.

Those OTs who swung the dial across the empty spaces of the v.h.f. spectrum 10-20 years ago and who are still active, must ask themselves how much will be left to us in 10 years time.

The sharing of a band can be little better than direct loss. Try working DX now on 7 Mc. and you will see what I mean. I.T.U. is not much more than 12 months away and £1s alone will not protect us.

—Al Shawsmith, VK4SS.

EXPLANATION

Editor "A.R.," Dear Sir,
An item in the New South Wales notes in the July issue of "Amateur Radio" is not correctly reported, and as a result has caused some confusion.

The article refers to a Notice of Motion of mine which was before the N.S.W. Division. Whilst in some remote way it may refer to R.D. Contests, it is not relevant as the rules for this Contest usually cover the question.

The Motion, which was passed unanimously at the June meeting, was: "The rules for any transmitting award granted by the Wireless Institute of Australia clearly state that to obtain credit for that award, two-way communication must be established on one and the same frequency band, i.e. cross-band contacts are not eligible."

I hope this clears up any doubts which may have arisen in the minds of members.

—F. T. Hine, VK2QL.

RURAL FIRE BRIGADES

The Publications Committee acknowledges with thanks a letter from Mr. A. J. McDonald, of Gooram, Vic. Mr. McDonald expresses appreciation of country folk for the work of experienced men who devote the skill employed in their Amateur Radio hobby activities to the important community service of volunteer fire fighting communications in rural areas.

The Committee agrees with Mr. McDonald that his list is far from complete and is confident that the large number of men who add their technical help without thought of gain or favour will continue to do so to strengthen comradeship and efficiency in a valuable service.—Editor.

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DX

Frank T. Hine, VK2QL
30 Abbotsford Road,
Homebush, N.S.W.

Planning and advising every one possible of our plans for the DXpedition to Lord Howe Island has not enabled me to watch the bands to any great extent as far as general conditions have been concerned during the last month, but general opinion has indicated that the bands have been in the doldrums as far as VK has been concerned.

From a VK point of view, the m.u.f. does not appear, should normal predictions exist, to favor Lord Howe and VK contacts on 14 Mc. and above. It has been amazing how the information we started from Sydney has been dispersed to DXers round the world, due to the co-operation of unselfish DX men, who passed it to countries which have not been regularly audible in Sydney. ZAIR and myself say thanks to all who co-operated.

An indication of how bands can come to life was shown during the week-end of the A.R.R.L. Field Day, when the bands were jammed with signals, especially 7 and 3.5 Mc.

The extent to which some of the DX gang will go in an attempt to ensure a contact with a DXpedition station has been shown by the letters, etc., which ZAIR has been receiving. These amount to nothing much more than an attempted bribe, as the writers have requested some special consideration and have enclosed dollars to help with the consideration. However, they have received their letters back complete without comment by ZAIR.

Further to my comment last month on the break up of the countries in the Caribbean area, it is confirmed that the Cayman Islands and Jamaica are now one and the same country. Credit for the new countries may be obtained provided they were not previously credited under the former Leeward and Windward group. If you had previously submitted a QSL for a station located in the Windward group which was on St. Kitts Island and was used for your Leeward credit, you will now have a credit for St. Kitts only. The same applies to the Windward group. Further, if you had both Jamaica and the Caymans as separate countries, they now count as only one. This, by the way, is for A.R.R.L. DXCC. I have no knowledge of how the W.I.A. Awards Manager is going to act on the changes made.

The calls used from Greece, Crete and Rhodes are re-issued very soon again after they are handed in, so a station you contact one month could be an entirely new issue the next. SV0WN is at present active on Crete and SV0VE currently active from Rhodes. (W4KVKX).

NEWS AND NOTES

I had some interesting letters from DX stations this month, to wit, G4YQ, OY7ML and OH2YV. Some general interest information from each is:

G4YQ has regular contact with OY7ML and if you have trouble getting a card from Martin, George may be able to help you. He expects to meet ZD3G personally before you read these notes. OY7ML, in a very good attempt at English, is waiting a new printing of cards as he sez he is always "running dry" of them, but complains that he has not received many promised QSLs from DX stations and especially requests VK6NF to QSL their 28 Mc. contact, VK7UW, VK0AB and VK0TC not to forget him. A lot of VK2 QSLs are outstanding, so if you need one from Martin he may be waiting for yours, so try another. He comments on seeing the supply ship on VK0AS QSL as he has a friend who is a crew member of the ship. OH2YV, who was OH2YV/O, is getting his own back on those whom he worked under his home call but did not QSL him, by withholding the Aland Is. QSL until he receives one for the home QSO. He sez he has a lot of "frozen" cards waiting. In March this year he married OH2FB.

VS90, after only about two days' operation from the Sultanate of Oman, was forced to close down by the authorities. VS9AP has closed down and returned to the U.K.

QSLs from VS1BB/VS9 have been distributed and all should have them by now.

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

KC4AF QSLs for all VK contacts have been despatched by W6JIN. If you sent I.R.C.s. they will reach you accordingly, otherwise through Bureaux.

VB5A, at time of writing is convalescing in Sydney after having broken his leg during cable repair operations (SAOM).

ZD1FG is active on c.w. and phone, but at time of writing his b.i.o. has given out, but guess that will have been overcome by now.

Does anybody know why UA1KAE uses an oblique stroke followed by varying numbers? In the activities list you will see a few different ones.

The news that the A.R.R.L. has disallowed ALL contacts made with ZL1ABZ on the Kermadec Is. is causing no surprise to those who heard some of these "contacts" and apparently observers in the States were so concerned as to take the action they did. The unfortunate part is that quite a number of the contacts were complete and in order, but it does not take much imagination to realise the almost impossible task to sort them out especially with some of the things that go on, that they had no alternative. There is no doubt that ZL1ABZ was heard in the States on 3.5 Mc. but some countries he was reported to have been heard on 3.5 Mc. were just not possible under Ionospheric Predictions at the time.

ZCSAL has QRT and returning to VK2. Bureaux please note.

ACTIVITIES

3.5 Mc.: No definite DX reports but ZAGH reports hearing many W stations over a few hours during the F.D. week-end.

7 Mc.: ZAMB: Y06KBA, WUZYG. Bod de Balfour: JA1ABA, W. BERS195: GSEBV, JA9LA, KH6G, W0BK1/KG6, SPs, UA1KMC, VQ4FK. WIA-L3638: LU4WG (0805z).

14 Mc. C.w.: ZAGB: KC4USB*, KG4AW*, PZ1AR, VU2AJ*, FFA9J*, HL9KR, ZD7SA, UDGKAC, ZD1FG. ZAMB: 4K4CK*, 4K4VA*, EAB7F*, OA4VN, ZJ0HA, VS9AP, ZL5AC, UQ2AN, F8RJ, KR9W, KR8UA. 30W: PZ2MG*, GM2HLQ*, GM3MDX*, UA0JJ*, UL7JA*, VP6CR, PZ1AR, YJ1DL. 2QL: VP9AK*, OR4VN*, ZD7SA*, EABDF*, HK4DP*, CT2AI*, FB8ZZ*, VP7BT*, VS9AP, ZD1FG. 2ZR: YO2CD*, JT1AA*, EAS9W*, I1KN*, FB8XX*, GD3UB*, UBSFG*, UA1KAE/4*, and 8S Europeans. 4D0: VE*, W*, ON4*, G*, P*, I*, XW8AI, CT2AL, VO1DJ, CX1AK, ZJ0HA, LB00E, HS1C, SP8FZ, HB9HZ, UA0GF, UA0JF, FB8ZZ, SWT: JT1AA*, OH*, OZ*, U18AD, U05PK*, VQ2AS*, KH8*, VPSBL*, UA1KAE/7*, UA1KAE/8*, KA*, UR2UB*, YO*, UA3*, OK*, ST2AR*, 7LZ: BE*, VP9AK/P*, CT2AI*, VE8*, T*, SM*, BERS195: DL0, DU1RT, FB8ZZ, GC3AAE, HB, HS1C, J11AA (2100z), ZJ0HA, KC4USA, KB6BJ, K46EVK, KW8CE, KZ3BE, LU3EK, MP46CK, OA4FM, PY2AKS, SV0WF, VE8, VK0TC, VP2LB, VPSBL, VP6CR, VP0L/P, XE1MB, ZCSAL, ZK1AK, 4K4WF, 3AT7Y, WIA-L3639: JA, UA0, VR2DG, G, XE3BL, I, VP8AK/P, HE, PA, DU7SV, KZ3BE, SV0WP, LA, OK, WIA-L3632: BV1US, DU7SV, FK8AT, GC3AAE, FB8ZZ, I, KL7, KM5EV, KC8ZD, KV4AA, OH, OA4BW, PY3DB, SL5AX, UF2AT, VSHU, VP5BL, YU4YX, XE1MB, ZC4WW, ZK1AK.

16 Mc. Phone: ZAGH: CT3AN, UA1KAE/2*, UA0KQB*, CT2AI*, GJ1JM*, SV0WN*, EL5A, ZD1FG. ZAMB: ZS5DE*, HK4DP*, ZL5AE, SAOM: FKS4U*, G*, I*, OA4GW, OZ*, VE*, VR2DA*, VR2DC*, XE1FT*, XE2MS*, XE2TM*, W*, 4D0: VE*, W*, VK9AD*, KL7*, XE2KW*, HK7LX*, FK8AS*, VR4JB*, HK5EL, OA4GW, HL9KS, VE8. Bod de Balfour: G, I, DL, ZASJE, F, CT1PK, CT3AN, CN8MM, SA1TX, SV0WB (0315z), 4STYL, VU2BK, VR1C, VR4JE, F08AC, TG9AH, XE2KW, XE2DO, KZ5US, VP2DL, HR3HH, HR3DL, EL3A, HK7KL, PY1APE, LUSAJ, ZL5AE, WIA-L2001: FKS4S, VK0KT, VE1DR, VE2WW, XE2KW, XE2MF, XE2TM, VE8ON, VK0AT, F08AD, PY2CK, WIA-L2022: EA8CD, F08AD, HK7LX, HK0KF, VR2DA, VK0TC, VK0KC, VR4JB. Ian Thomas, who uses a 4-tube regen. rx and heard ZL, VR2DA, KL7FAC, VR2BJ, VESTS and most W call districts.

21 Mc. C.w.: 2QL: VP5IVM/P*, KB6BJ*, VK0TC*, VPTNE*, 2ZR: DLO8H/P*, UA4IF*, UA9CR* and Europeans. 7LZ: KB6BJ*, KH8*, KL7*, PA*, VS1*, VP6LT*, DL*, JA*, 4K4GZ*.

21 Mc. Phone: ZAMB: OA4AI*, VR2AZ, WIA-L2022: CN2BK, FYCT, G3JRT, HS1E, KX3CH, VS1GL, VS2DW. Bod de Balfour: G, DL4XS, F08H, IIVCF, SV0WT, 4STYL, VS2DQ, VS1GE, HL0KT, BV1US, ZD1EO, ZS6UR, ZS2DO, ZS5QH, ZEGJJ, PY1APE, HC1FC, VP6EM.

28 Mc. C.w. and Phone: 4XL: ZS5DU*, ZS1DC, ZE2JK*, KZ5HT*, KZ5KR*, PJ2CN*, YN1MA*, W*, KH8*, 7LZ: VK0AT*, WIA-L2022: FK8AS, KX6CE, VR3A, VS1HX, W. Bod de Balfour: KL7AHS, KL7AGT, KP4GA, LU9J, ZS6BW, ZS4MU, JA9BE, HR3LW, YN1HF, VP1EH, 4STYL.

QSLs RECEIVED

Some good QSLs have been coming through this month and ZAGH received VQ3CF, PJ3CE, KZ1AB, HL2AM, ZB2I, FW8AA, LZ1K5Z, CT2AI, FB8XZ, KH2CI, UA9NB, EA8BM, F40A, OZ1ER, ZC1P, VS1BB/VS9, ZAME, CE4AD, LU4GM, SP7HX, VS9AC. 30W: JT1AA, 5A-2TY, MP4BBE, HL2AM. 2QL: OY7ML, VS1BB/VS9, OH2YV/O, EA6AM, FJ2AE, HL2AM, ZJ0HA, JA3AA (3.5 Mc.), HB2CL, VQ4KPB, 7LZ: VS1BB/VS9, KH8AG, ZS1BV, WK6F, LA3MC, BERS195: OZ2XK/O, SV0WF, UC2AD, UJ8KAA, UL7HB, UN1AE, UO5PK, VOZNA, ZETJR, ZM6AS, 4K4IL, Rod de Balfour: VE-3AHU/SU, ZCSAC, PY1AQT, GC8FQ.

QTH OF INTEREST

OR4VN—QSL via ON4 Bureau.
VS9AF—QSL via R.S.G.B.
HS1C—Box 1038, Bangkok (4D0).
VOZNA—Jack Willis, Aeradio, Dept. of Transport, Goose Bay, Labrador (BERS195).
ZD7SA—Bob Freese, Napoleon St., Jamestown (W4KVKX).
ZD7SB—Peter Billing, C/o. P.O., Jamestown (W4KVKX).
ZD3G—13 Tedder Ave., Wayfields, near Chatham, Kent (W4KVKX).
HNDBA—F. D. Fuqua, Daura Refinery, Box 278, Baghdad (W4KVKX).

To enable me a little more time to prepare these notes and cope with the many interruptions, I find I must advance the dead line a couple of days so would you please let me have your material no later than the 25th of each month in future.

And so my thanks this month go to ZAGH who has now reached the total of 100c. worked, ZAMB who still is chasing zone 35 and unaware that he was on top of FB8AC a couple of times. 20W waiting on QSLs from two zones to complete W.A.Z. ZZE did not find 21 Mc. so much to his liking. SAOM, like others, found the bands a little flat. 4D0 comments on the number of VE8s he noticed during the month. 4XJ who can usually find something to QSO on 28 Mc. 6WT we welcome to the column. Keep it up David and have VK6 on the page each month. Bod de Balfour for his list and the QSP of 7LZ doings. WIA-L2001 who is seeking to mould the s.w.'s. of VK2 into an efficient group. WIA-L2022, who really is settling down to all band listening with his new converter. BERS195, hope all OK again now Eric. WIA-L3039 who finds listening at Orbst much better than in Box Hill, SRJ note, and finally Ian Thomas whom we wish good hunting with his regen. That winds it up for now and hope you all make the grade with the DXpeditions expected to be going during July.

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SEVENTH ANNUAL

CONVENTION

SATURDAY and SUNDAY,
4th and 5th OCTOBER, 1958



PROGRAMME

Saturday, 7.30 p.m., Oct. 4:
Dinner at University of Technology, Newcastle.
Guest Speaker: Mr. John Moyle (Editor Radio & T.V.).

Sunday, Oct. 5,
at Blackalls Park:
9.30-10.30 a.m.—144 Mc. Hidden Tx Hunt.
11.0-11.30 a.m.—W.I.A. Broadcast.
11.30 a.m.—Disposals Sale.
12.30-1.30 p.m.—Lunch.
1.30-2.30 p.m.—7 Mc. Scramble.
3.0 p.m.—Blindfold Tx Hunt.
4-5 p.m.—All-Band Scramble.
5 p.m.—Prize-giving and Farewells.

- Races and Competitions will be conducted for the XYLS, YLs, and Jnr. Ops. on Sunday.
- Prize for Best Fish caught.
- Boiling Water available free.

VHF

Frank P. O'Dwyer, VK3OF
190 Thomas Street,
Hampton, Vic.

50 MEGACYCLES

Cold nights, minimum DX. The testing period has arrived for 50 Mc. enthusiasts. Each evening finds regular sessions on the band in all Divisions with activity on the increase. Each Division reports the advent of new call signs and the standard of enthusiasm indicates that there will be plenty of QRM on the band when DX begins to appear regularly again. Bugs in new equipment are being ironed out, whilst quite a lot of thought, design and hard work has gone into the planning, building and erection of bigger, better and higher beams. All appear to be intending to make a major effort to work whatever DX is offering before the end of the year in case the opportunity is not there after December 31.

The admiration of the boys on 50 Mc. goes out to F.E. for the enthusiasm they are showing, attempting to be represented at the forthcoming I.T.U. Conference. They are sparing neither effort nor energy in fighting for the retention of all our allotted frequencies which the commercial interests are after, particularly the d.c. segments occupied by the fully licensed Amateur and commonly classed "DX bands". The pertinent question, and the one uppermost in the minds of the 50 Mc. group, is: "Is F.E. putting as much effort and enthusiasm into its approaches to the P.M.G. for the retention of 50 Mc. after December 31 this year?" (Yes.—Ed.)

Make sure that as an individual you carry words of your interest in and activity on 50 Mc. to both your Divisional Council and Federal Councillor and plague them to carry the fight for the keeping of 50 Mc. to F.E. And back it up with your log entry for the I.G.Y., you cannot expect F.E. to be active on your behalf if you let them down in answer to their request to you.

Has your V.h.f. Group yet discussed the Ross Hull Contest rules so that recommendations can be made to the Contest Committee for either the retention of the present rules or their alteration?

The DX picture is poor this month, producing only a couple of openings as listed under the Divisional notes, VK4/5 and VK6/JA. Of particular interest is the JA/ZS5 contact mentioned in the VK5 notes. World-wide conditions have shown a general deterioration, but they are expected to pick up again over the next couple of months. Newcomers to the band who lack experience and the chance of picking an Interstate opening would find it an aid to monitor the 28 Mc. phone band. If you hear stations in the Division next door, call in that direction on 50 Mc. The same applies to short skip on 14 Mc., though here it applies to country stations in your own Division. Many a quick and short opening has been caught by these methods. If you have time to tarry, listen to the anguish of the 50 Mc. man caught in a contact on 28 Mc. when short skip develops and he cannot get out of the QSO in which he is a partner.

NEW SOUTH WALES

Hi chaps, well the cold weather has really been with us, but the v.h.f. activities have still kept rolling. Looking back over June we had a full month, starting with the v.h.f. meeting that was well attended to hear Bob 20A's lecture on v.h.f. converters. Bob pointed out some of the nasty pitfalls you can run into and gave a very detailed discussion on suitable precautions, which included, Bob's preferred shielding arrangement with d.c. leads brought to the top of the chassis through feed-through by-passes, tube and receiver shielding, etc. Very interesting, Bob, and we hope more members will be spurred on to building better converters. Now while on the subject of converters, the V.h.f. Committee is very anxious to take such steps as necessary to assist country members in constructing v.h.f. equipment. It is proposed to hold a v.h.f. week-end in Sydney and will provide for the construction by each attending of a 2 mx converter, whilst a pre-fabricated beam will also be available. Excluding xtal, cost should not exceed 7 db. for the kit. Arrangements will be made for metropolitan members with g.d.o.'s to align converters. Every member attending should

return with a low cost efficient converter he has constructed, together with a beam. Those interested are invited to write to the Secretary, V.h.f. Group, Box 1734, G.P.O., Sydney, as soon as possible.

Another event of June was the all-day treasure hunt with 20A planting the treasures. Although cold, the trip was most enjoyable and Bob's well planned route took us through Monangle and home via the back road over Razorback. Bob's cryptic clues were keen and the treasures just slightly libelous. 2PM-2ER were first with 2ANF-2ABZ-2AWZ, 2ZAV, 2ZCF, 2HL and John Lek following up in that order. How about coming along on one of these events as soon as you've that 2 mx mobile going?

Wednesday night, June 25, saw another fox hunt with 20A as fox (say, somebody ought to strike a medal for that guy!). We all found him anyway, holed up near an orchard at Baulkham Hills. Your Chairman, Jim 2PM, was first in, followed by Phill 2ZBB, John 2ZAV, 2AWZ-2ZQA (Dave and Leo) and 2ANF-2ABZ (John and Bill). John 2ZJF, a visitor from Crookwell, and who was with Jim, gave us the low down on his gear and we were interested in his 32 element array. Some interesting skeds are being tied up with him.

Very popular was the scramble held on Sunday evening, June 8, with honours of top score going to 2MZ and 2ZCF, 18 contacts each, 2AWZ and 2RX took 2nd and 3rd places.

Lost during the month was the prominent call of 2ZAL, however Alan is now 2RX. Active stations on 2 mx are somewhat too numerous to list, but we are glad to hear Adrian 2HE and Lin 2AZN paralyzing our rx's again. 2AVL has been heard around and 2ZCH has gone QRO, p.m. and a.m., etc. Vic 2VL was heard portable in Sydney whilst on a visit from his new QTH at Orange. 2AFP, 2ZAA and 2DR are active in the West and we believe Northern activity is starting to hustle. 2ER's Sunday evening frequency checks are most useful and we thank Phil for his efforts. The 2 mx receiving gear at Dural is functioning and by the time this reaches you the big tx should be on the air. Well space has run out, so we will pick up the pieces with you again next month.—2AWZ.

VICTORIA

V.h.f. Meeting.—The June v.h.f. meeting and the v.h.f. night at the July general meeting were well attended. At the June meeting Reg 3SF gave a description of his 50 Mc. s.s.b. tx. Reg is using a half-lattice xtal filter on 380 Kc. to obtain his s.s.b. signal and uses a number of stages to heterodyne to 50 Mc. where he is using a 6146 linear amplifier. After Reg's talk the discussion centred on ways and means of retaining the 6 mx band and it was decided to approach other V.h.f. Groups and Divisional Councils about the matter.

On the following Sunday, Jock 3ZDG gave a talk on 3WI outlining the reasons why channel 1 would be unsuitable for t.v. He showed that 6 mx is open to Interstate and International QRM and that the 5 mx band, which would be a buffer between channels 1 and 2, would be only tenable with difficulty because of t.v.i. problems.

There was quite a good display of v.h.f. equipment at the July general meeting and country members attending included 3ZCW, 3TL, 3ZDD and 3ZGN from Laverton. Each v.h.f. operator bringing equipment gave a short lecture, details of which appear under Vic. Divisional notes.

6 Metres.—No 6 mx DX has been worked in VK3 for June and QSOs have been limited to local rag-chewing. At the moment, most operators are busily listening and the VK3 gang hope to soon QSO again with VK4 during the next sporadic E openings.

2 Metres.—The Ballarat Group's Friday evening 2 mx contest has got away to a good start and 2 mx operators can be assured of at least five contacts with Ballarat during the evening. Ballarat stations regularly on deck include VKs 3PO, 3ZBJ, 3ZCF, 3ZBS and 3ZER. Two metre activity has declined since the re-opening of 6 mx, but during the lull in activity on 6, some stations have returned to 2. Stations regularly heard on 2 mx include 3ZEF, 3BQ, 3ZCN, 3ZFF, 3ZBP, 3ZDI, and the Ballarat Group.

1 Metre.—Quite a few stations are building stabilised equipment for this band, some of which is already in operation. Ray 3ZAE is using a QQE03/12 tripler driving a QQE03/12 final and has already had contacts using the modulated tripler. Jock 3ZDG has a modified 522 using an 82A tripler. For those wishing to use the 82A as a tripler, he recommends the use of filament chokes, a 100K ohm screen resistor and a 300K ohm grid leak. Reg 3SF is working on a QQE06/40 final for 288 as well as a xtal locked converter, and David 3ZAT

also hopes to use a QQE06/40 final driven by a QQE03/12 tripler. Mac 3QO already has a QQE06/40 final on 1 mx. Some stations have managed to obtain 6BC4 grounded grid amplifier tubes and some 1 mx grounded grid pre-amplifiers should soon be on the way. These tubes will work at 900 Mc. and should be useful for 576 Mc.—3ZAI.

QUEENSLAND

DX. Can't recall what the stuff is now. In the words of 4 Nancy George, 50 Mc. is as dead as yesterday's mutton. VK5 was heard in Brisbane the afternoon of June 25, but no contacts. VK5 was worked by 4NG and 4ZAZ on the afternoon of July 6. Band was checked in Brisbane and out at 4HD's, but nothing heard though very short skip on 28 Mc. was noticed.

Bob 4NG was in Brisbane on July 7, 8 and 9. He earbashed 4HD from 4WD's one night and paid a visit to 4JO. Topic, 50 Mc. DX. New stations active in and about Brisbane: John 4ZBJ, Lionel 4DR, and Gordon 4ZBI will soon be heard. Stations with QSLs confirmed for JA A.J.D. 50 Mc. now include 4ZGL, 4HD, 4ZAZ and 4JO. Quite a few only need one or two to complete their collection of QSL cards for A.J.D. Brisbane stations are active nightly and at week-ends looking for DX.—4WD.

SOUTH AUSTRALIA

The main activity this month seems to be on 144 and 288 Mc. with the most important news being the consistent working between George 5GB and Hughie 5BC on 144 Mc. This of late has resulted in regular 8 p.m. contacts between both stations with some cross-band 6 to 2 mx. The other night George wondered why he couldn't poke a 6 mx signal into Hughie's location and discovered the next day that his tx was connected to a dummy load! Never mind, George, at least your 2 mx signal was the strongest at Hughie's.

John 5ZBA is very conspicuous by his absence, both on 2 and 6 mx. Oh! how they fall, how they fall. Never mind, John, it happens to most of us some day. John is still active on 288 Mc. using his mod. osc. from portable locations. Whether he has worked portable to mobile with Brian 5ZGT is not confirmed, for 5ZGT's gear is one pushbike complete with generator, battery and the necessary for 1½w. input. Where do you fix the 16 el. beam, Brian?

Paid the South East gang a visit the other week and had a nice little chat with Claude 5CH. It seems that 144 Mc. is still the most active band down that way with David 5AW active on 50 Mc. as well. Claude tells me that he has a 40 ft. tower coming up. Claude's gear sure opens the eyes of us v.h.f. hounds, running an 82B, his power between 80 and 100w.; you need that power down there to get through the QRM from over the border. Also had a nice little talk with Col. 5CJ who told me that Leo 5ZAG has his two-letter call, congrats. old man, please remember the v.h.f. bands, Leo. Hope to visit you next time I'm down that way.

The JAs are still doing it, for Ron 5NL tells of a contact he had with a ZS5 on 10 mx who was walking on air, having just worked several JA districts on 50 Mc.; incidentally, the same ZS is looking for VK contacts. Bob 4NG broke through on 50 Mc. on July 6 and told Ron 5MK that he worked three JAs on June 23.

Curl 5ZBL is building a rig of all rigs, one of those 50 to 144 Mc. jobs you put on the table in the lounge room, place your feet on the mantelpiece and talk to the boys in comfort. What will happen to your loading Curl when your XYL uses your folded dipole for drying the clothes on, in front of the fire?

Well fellows, this is the end of this month's news. I hope to improve on it in future and eventually get to the high standard that Comps has set for the VK5 v.h.f. notes.—5ZAW.

WESTERN AUSTRALIA

Apart from one break through on June 1 when 6ZAV worked four JAs in the 30 minute opening, DX has been very low. Local activity is on the increase, Frank 6FW making an appearance, had Frank 6FL with him, who believe it or not is getting the 50 Mc. bug. Ian 6IG also made an appearance working a few of the locals. Bob 6RW heard testing with a dummy load. Tom 6TH working cross-band 80 mx pending a xtal for the tx. Ian 6CL working through to Perth regularly with 6ZAV and others. So much for 50 Mc. P.S.—Russ 6ZBX got his piece of paper at last and working all the locals.

The 144 Mc. Fox Hunt on June 21: Tom 6ZAF was the fox and this one literally went to ground in more ways than one.

The meeting on the 24th was quite a successful one despite the small attendance, due no doubt to the miserable and cold night.—6ZAV.

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EVENINGS AND SATURDAYS

S W L

Ian J. Hunt, WIA-L3007
211 St. George Road,
Northcote, N.16, Vic.

Once again we bring to all our readers the latest news on the s.w.l. front. We hope you enjoy reading these notes, and if you do, why not drop a line adding your contribution to the notes? Details of your activities could well be of great interest to other readers.

Card of the Month Contest.—This month the winner of the contest is Robert Tacey, of Newport, Vic., with a QSL card from Achille, FK8AS. Robert, who holds the S.w.l. Number of WIA-L3051, is one of the younger members of the VK3 Group. Achille enclosed a photo of his station and a very interesting note with his card. Here are some of the details he provided. He is a 24-year-old weather forecaster and also has charge of the weather station communications which include 3 transmitters, 7 receivers and 2 radio teletypes. His own rig consists of a DX100 transmitter, SX28 receiver, whilst the antennae are W8JK beams. The photo is that of the first rig used by FK8AS and depicts a xtal controlled 45w. transmitter and a Super Pro and Hallcrafters S40 receiver. With this rig Achille had 2,032 contacts with 93 countries in just one year of operation.

S.w.l. of the Month.—So as to help more of you s.w.l.'s to get to know one another, I have re-introduced this feature. I can only keep it going, however, if you write and tell me a little about yourself and your interests in general.

Featured in this month's issue as S.w.l. of the Month is Don Grantley, WIA-L2022. Don is 31 years of age and when just a little boy in short pants went to the local State School at St. Albans, Vic., where he was living on a dairy farm. He later graduated to the Williamstown High School. At 18 years, Don joined the R.A.A.F. as a telegraphist and after training at Point Cook station and Brisbane, moved to VK8, thence to Biak and on to the Philippines. Talking of Biak, Don mentions that a chappy by the name of Norm Dash nearly perforated the orderly officer one night. Don is wondering if he is the same Norm ("Trigger") Dash of the Urunga Convention. Was it you nearly did a naughty thing like that Norm?

Upon receiving his discharge, Don gave away radio operating and joined the P.M.G. Department. He again took up radio as a hobby in 1951, but lost interest again in 1955. In 1956 he was married, which I guess may have had something to do with his loss of interest in radio. Don now has a beautiful baby daughter, Sharon, aged one year. In 1956 he moved to Holbrook, N.S.W., where he is now located and took on the radio again last year. He is now employed as a groom on a sheep station at Holbrook. So you can see Don has so far had a most varied and no doubt interesting career.

His equipment, which was described in last month's notes, includes a No. 19 rx, SCR522 rx, and a 5-valve t.f.f. rx. Don hopes very soon to pass the A.O.C.P. exam and go on the air himself.

VK3 S.W.L. GROUP

At the June meeting of the Group only 11 members were present, probably due to the fact that the cold weather kept many of them at home in the warmth near their receivers. The Group President, Len Poynter, was in the chair. Reports were received from Ted Wickett, Maurice Cox, Len Poynter and Ian Hunt and then general business was conducted in a minimum of time. Arrangements were made for a party of members to visit the station of Len 3LN, a report on which will appear in next month's issue. After this each member took his turn in describing his receiving equipment to the Group and as a result some rather lively discussion took place on the best method of doing this or that. I am sure everyone went home with quite a few new ideas as a result of this evening.

Other news of members include the fact that our President, Len, and Secretary, Ian, recently sat for the A.O.L.C.P. and A.O.C.P. respectively. Yours truly made a fair mess of the telegraphy reception due to having just run up three flights of stairs, but both of us are, at time of writing, eagerly awaiting the result of the theory paper. Dave Jenkin, of Orbost, was recently in Melbourne on a fortnight's holiday and as well as attending the

June meeting visited myself at home and also 3GB, 3XD, and I think 3YS and 3XB. By all accounts he really enjoyed his time in the big smoke away from the daily grind of milking cows and cleaning milking machines, etc. Dave purchased an AR7 receiver to take back to Orbost with him, so he'll no doubt have even bigger lists of DX for Frank 2QL to include in the DX column. Maurice Cox is still playing around with different types of antennae till he finds one to really suit him, and has not yet stopped talking about the most enjoyable time he had when visiting 5MX while recently on holiday in South Australia.

As a result of my recent appeal for back issues of radio magazines, some were kindly given to us by Barry 3JE and Reg 3ZAD. We thank you very much for your kindness chaps and can assure you that they will be passed on to someone who can really do with them. If any others can help us in this way, it will be greatly appreciated.

VK6 S.W.L. GROUP

News now has come to hand of the fact that the Short Wave Group of W.A. has now been recognised as a Member Club of the W.I.A. VK6 Division. We congratulate the Western Australian Division on having taken this step, and trust that the move will result in increased strength of the Division and also provide in the future an influx of new blood into the ranks of licensed Amateurs in that State.

The rules of the VK6 Group include the following points: (1) Each member pays an annual subscription of 27/6. (2) Each member will be entitled to all privileges available to an associate member of the W.I.A. (3) Each member will be issued with an official W.I.A. Listener's Number to be retained by him as long as he is a member of the Group and a financial member of the W.I.A. If he becomes unfinancial, the Number will lapse and cannot be re-issued. (4) A copy of "Amateur Radio" will be posted to each member every month. (5) Members will have full use of the Divisional QSL Bureau. For other details desired by any persons interested, you can contact Eric Hardwick, 28 Strealey Road, Rivervale, Perth. So go to it all you VK6 s.w.l.'s, and let us know all about your activities.

CORRESPONDENCE

A very light mail bag this month brings only two letters. These are namely from Don Grantley and George Baty (3AOM). Don, whose letter I overlooked when first beginning these notes, tells me that his latest completed project consists of a power supply with half a dozen power outlets providing various combinations of 5v., 6.3v., a.c. and 200v. d.c. which allows him to plug converters, etc., direct into the unit with no trouble at all. It seems like a very good idea. He has now begun the construction of a multi-position antenna switching unit. The completion of this unit will allow him to walk about the shack without becoming tangled with leads running in all directions, he states. Stations heard by him recently include XZ, YJ, EAB, YZ, KZS and SV0WF. His country tally stands at 131 at present and still seems to be increasing steadily. Don logged 55 countries on 20 mx during the month of June and says that this is about average for him.

George 3AOM, who, incidentally, is VR3A's OM, has written to me and enclosed a copy of a letter received by him from a Swedish s.w.l., SM3C21. This Swedish listener states that he is 19 years of age and is located in Ornskoldsvik in the northern part of Sweden, not far from the Arctic Circle. His home QTH is well located, being almost on the top of a high mountain. His antenna is a long-wire 107 metres in length, directed to the Pacific. His rx's are a Hallcrafters S20 and SX71 and an RF21 pre-selector which works very well, especially on 40 mx.

During the month of May he logged 12 VK stations on 40 mx phone and received his first VK 40mx phone confirmation from VK2ADV. He has heard on this band VK9FN, VK2AHL, VK2ZL, VK2AIA, VK3OM and VK3FM. He is at present in a contest arranged by the Swedish All-round Radio Club and all QSLs from VK count as 14 points. This listener, whose name is Sven Elfving, is interested in corresponding with an Australian s.w.l., so if you wish to write to him, his address is Solgardsgatan 15, Ornskoldsvik, Sweden. Thanks for passing on the letter George, and hope the old rig keeps getting out well on 20 the way it has been. I can even hear you, so it must be working well indeed.

Well now I must finish these notes off and get back to that Morse practice in readiness for October. I hope they have been of interest to you and that you'll drop me a line between now and the next issue to let me know what YOU are doing. Cheers and good hunting until next month.

PREDICTION CHART, AUG. '58

Mo.	E. AUSTRALIA	W. EUROPE S.E.	Mo.
0	2 4 6 8 10 12 14 16 18 20 22 24		46
45		GMT	28
28			21
21			14
14			7
7			
0	E. AUSTRALIA — W. EUROPE L.E.		46
45	2 4 6 8 10 12 14 16 18 20 22 24		28
28			21
21			14
14			7
7			
0	E. AUSTRALIA — MEDITERRANEAN		46
45	2 4 6 8 10 12 14 16 18 20 22 24		28
28			21
21			14
14			7
7			
0	E. AUSTRALIA — N.W. U.S.A.		46
45	2 4 6 8 10 12 14 16 18 20 22 24		28
28			21
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0	E. AUSTRALIA — N.E. U.S.A. S.E.		46
45	2 4 6 8 10 12 14 16 18 20 22 24		28
28			21
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0	E. AUSTRALIA — N.E. U.S.A. L.E.		46
45	2 4 6 8 10 12 14 16 18 20 22 24		28
28			21
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7			
0	E. AUSTRALIA — CENTRAL AMERICA		46
45	2 4 6 8 10 12 14 16 18 20 22 24		28
28			21
21			14
14			7
7			
0	E. AUSTRALIA — S. AFRICA		46
45	2 4 6 8 10 12 14 16 18 20 22 24		28
28			21
21			14
14			7
7			
0	E. AUSTRALIA — FAR EAST		46
45	2 4 6 8 10 12 14 16 18 20 22 24		28
28			21
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14			7
7			
0	W. AUSTRALIA — W. EUROPE		46
45	2 4 6 8 10 12 14 16 18 20 22 24		28
28			21
21			14
14			7
7			
0	W. AUSTRALIA — N.W. U.S.A.		46
45	2 4 6 8 10 12 14 16 18 20 22 24		28
28			21
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7			
0	W. AUSTRALIA — N.E. U.S.A.		46
45	2 4 6 8 10 12 14 16 18 20 22 24		28
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45	2 4 6 8 10 12 14 16 18 20 22 24		28
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NOTES

FEDERAL

POWER INCREASE

By the time this item appears in print, all Amateurs will have been notified of the increase from 100 to 150 watts input granted by the P.M.G.'s Department. Of course the usual conditions apply in respect to size of power supplies and power amplifiers.

I.T.U. FUND

Federal Executive is gratified with the response made by Amateurs throughout Australia to the I.T.U. appeal.

Whilst the results of the appeal have been satisfactory, we still have a long way to go to meet the required target, and in this respect we again ask those Amateurs who have not responded to give a little more time and thought to the reasons behind the appeal, and to reconsider their decisions.

It is in your interest and for the protection of your hobby that this appeal has been launched, and it is your duty to support it. More on this matter is discussed elsewhere in "A.R."

EXAMINATIONS FOR COMMERCIAL OPERATORS' CERTIFICATES OF PROFICIENCY

In connection with the examination of candidates for Commercial Operators' Certificates of Proficiency, your attention is invited to Appendix 1 of the 1957 edition of the British Post Office manual "Handbook for Wireless Operators" in which, the International Morse Code signals forming the separation numbers, used in the transmission of fractional numbers between the whole number and the fraction and of groups consisting of letters and figures (between the groups of figures and letters) differ from those published in earlier editions of the Handbook.

For purposes of examination either form of the signal in question will be acceptable up to and including the Commercial examination to be held on 9th June, 1959, after which only the new form (which is also the signal of the hyphen or dash sign) shall be acceptable.

SPARE VALVES FOR INDIAN AMATEURS

Federal Executive has received a number of letters from Federal Secretary, Doug. Bowie, VK5DU, since he left in April with Mrs. Bowie on a world tour.

Writing from India Doug. says: "... the Government has restricted imports of valves and as they don't make them here, they are in a real spot."

Now we all have stocks of valves which we will probably never use again, although they may be quite serviceable. Let's use them to

CONTEST CALENDAR

Compiled by W.I.A. Fed. Contest Com.



E.D. CONTEST—

Dates: Saturday, 16th August, 1800 hrs. EAST; Sunday, 17th August, 1750 hrs. EAST.

Opening Ceremony: Remembrance Roll Call Sat., 16th Aug., 1745 hrs. EAST.

Rules: Note Rule 4 and 11 for transmitting, June 1958 "A.R."

VK-ZL DX CONTEST—

Dates: Phone—4th-5th October, 1958. C.w.—11th-12th October, 1958.

Bands: All h.f. bands. (Contest conducted by N.Z.A.R.T.)

"CQ" WORLD-WIDE—

Dates: Phone—Last week-end Oct. '58. C.w.—Last week-end Nov. '58.

NATIONAL FIELD DAY—

Date: Sunday, 25th January, 1959.

keep our Indian colleagues on the air! Send your spare tubes to the Federal President, Max Hull, VK3ZS, 428 Bourke St., Melbourne, C.I., or deliver:

in South Australia to either of the following:
Gordon Bowen, VK5XU, 73 Portrush Rd., Toorak Gardens.
B. W. Austin, VK5CA, 34 Fisher St., Fullarton Estate.
L. F. Brice, VK5OK, 21 Hampton Street, Brooklyn Park.
J. C. Haseldine, VK5JC, 1 Ormond Ave., Cheltenham Gardens;

in Tasmania to Ken Millen, VK7KA, 57a Butler Avenue, Moonah.

Tubes should be in serviceable condition, and if the type number cannot be read, should be labelled. Tubes will be sent to the Amateur Radio Society of India for distribution by that body as it sees fit.

HANDBOOK FOR OPERATORS OF EXPERIMENTAL STATIONS

The revised edition of the above handbook has been released by the P.M.G.'s Department and is now on sale at booksellers or from the Department at a nominal cost of 3/-.

It is considered that every Amateur should have a copy of this publication in the shack for reference, information and education.

OVERSEAS PUBLICATIONS

From time to time F.E. receives copies of publications from foreign Radio Societies in which many items of interest are contained.

An appeal is made to Amateurs who are able to translate such languages as Spanish, Italian, German and Dutch, who would be willing to help out in the translation of such technical items, and items of interest which could be reprinted in "A.R."

FEDERAL QSL BUREAU

The A.R.R.L. advises that the new address of the W/1K1 QSL Bureau is: George L. De Grenier, W1GKK, 109 Gallup Street, North Adams, Mass., U.S.A.

Delayed advice has been received that the station FX1FC was scheduled to be active during the first week of July. The station was conducted by F8FC with operators ON4AU, F8JD and F8RS. They proposed working on all bands 3.5 Mc. through 28 Mc. and on 72 and 144 Mc. They state that after the last expedition to Andorra many DX stations failed to QSL, so they have decided that on this occasion they will only reply to cards actually received. The address for QSLs is via U.B.A., Brussels, Belgium. Those who enclose an I.R.C. and a self-addressed envelope will receive their QSL direct. Others will be sent via Bureau.

From the 10th September to 30th September inclusive, concurrent with the 13th Fair of Cremona, the Radio Club of Cremona section of the A.R.I., a competition will be staged between world stations and Amateurs of Cremona. An award is available styled "Cremona Stradivarius Award". Requirements for the award are: (1) Eight contacts with Amateurs in Italy, (2) Six contacts with Amateurs in Europe, North Africa and the Near East, (3) Two contacts with Amateurs in other countries. Contacts must be on PHONE ONLY on any band and the same station cannot be worked more than once. Additionally there will be two awards of gold medals, one to the Amateur in the most distant country from Italy who qualifies for the above award, and another to the foreign Amateur who contacts the most stations in Cremona. Claims and QSLs confirming contacts must be sent to Radio Club of Cremona, Box 144, Cremona, Italy, before 31st December, 1958. Active stations in Cremona are I1's T.C. BEM, TEZ, BWN, FH, ZAY, TMX, RMO, CIF, AK, BMF, COR, SZH, ZBD, AZN, TAM, and FE.

The R.S.G.B. QSL Bureau will be closed from July 18 to August 12, inclusive. Do not send any correspondence which will arrive there between those dates. In future cards for GI, GM and GW should be sent to the R.S.G.B. QSL Managers in those countries. Their addresses are:

GI—Mr. G. H. Martin, G1SHV, Swallow Lodge, Green Island, County Antrim, Northern Ireland.

GM—Mr. D. Macadie, GM6MD, 154 Kingsacre Road, Glasgow, S4, Scotland.

GW—Mr. J. L. Reid, GWSANU, 28 Walterston Road, Gabalfa, Cardiff, Wales.

The new address of the Bureau for Denmark is: E.D.R. QSL Centre, Box 353, Aalborg, Denmark. The new QSL Manager is Borge Petersen, OZ2NU. Borge replaces OZ4H who retired in July 1957 after 20 years of service as QSL Manager.

SVOWR, Howard Olson, has worked many VK stations this year, but has received very few cards to date. "Ole" was the operator signing WOMCF/C1 and C3 in China and later Formosa during 1946/49, giving hundreds of overseas stations their first contact with Formosa. He would like all outstanding QSLs to be sent him care U.S.A.S.G., A.P.O. 223, New York, N.Y., U.S.A., or via the SV Bureau, Box 564, Athens, Greece.

NEW SOUTH WALES

The June meeting of the Division started on a sad note. Those present were told of the passing of "Jock" McDowell, VK2GM. The meeting observed one minute's silence in memory of Jock.

38 new members comprising 17 full and 21 associate brought the membership to an all-time high of 941 members. Although this total contained some 50 whose subscriptions were still unpaid.

Congratulations were passed to the newly formed S.W.I. Group for their excellent work at Dural. A working bee held by the section had resulted in much outstanding work being completed.

The lecture was given by Alan Hennersey, VK2RX, on modifications to Command receivers and transmitters. Alan demonstrated stripped-down and modified units of this excellent equipment.

The deferred motion by Frank 2QL was carried unanimously. Frank and other members spoke on the subject of cross-band contacts made by stations in contests and explained how ridiculous such practice was.

The A.O.C.P. class manager reported the progress of the class. He mentioned that of the twelve in the past class, seven completed the course. Leon pointed out how elimination of Morse Code had made so much more time available for the technical side. 40 students had enrolled for the next class.

The meeting closed at 10.20 p.m. and members again enjoyed coffee which is proving a popular conclusion to the meeting.

HUNTER BRANCH

Well it's on again—the first post-war Dinner of the Hunter Branch will be held at the University of Technology on October 4 at 7.30 p.m. Judging by the reminiscing of those who attended the previous "do's" their resurrection should be well received, so come along and meet the other chap. Next day will revert to Blackalls Park where a full programme will be provided for all and sundry—full details elsewhere in this issue.

The June meeting was attended by VKs 2CN, 2AQR, 2ZL, 2CS, 2QB, 2XT, 2AKV, 2ANL, 2FP, 2SF, 2ZDL, 2RJ, 2AFA, 2AEE, with associates Sutherland, Stobbs, Nichol, Batley, Grey, Bergmann, Jefferson and Broad. Les 2AOF was absent at Palm Beach Convention and associates Jackson and McLaughlin were en route to the Buccaneer of Burraneer with Bill 2ZL's ARS. The lectures of the Command gear were appreciated by all, as were the circuits provided by Vice-President Stuart 2ZDL. The reversed collar of John 2ANL was noticed at the meeting and as usual Lionel put his foot or something in it welcoming the reverend gentleman. Come again John, the mob could do with a taste of dignity.

Heard Fred 2AEE putting out an excellent signal on 40. City slicker Alf 2CE was piloted into Senile Bay by 2ZL but thought he was lost when he couldn't find Bill's antenna, still he is not on his own there as it is a shrinking violet. Alf and his XYL missed out on the best exhibition of yo-yoling I've seen. The aforesaid article was expertly manipulated by Jim 2AHT who went through all the published tricks plus some of his own. However, 2AQR took umbrage when he had to play billiards against Jim with yo-yos flying past his head while trying to make a shot. 2ZL was last seen practising hard as he thinks he has at last found the "secret weapon" how to beat his rival.

Harry 2AFA still on the receiving end of choice DX cards. Bill 2XT still dreaming of gelsha girls while Lionel 2CS, when he is not trying to put out a signal on 2AWX, is trying to convince the boys and himself that s.s.b.

SILENT KEY

It is with deep regret that we record the passing of—

VK2GM—G. ("Jock") McDowell, 25/6/58.

OBITUARY

GEORGE ("JOCK") McDOWELL, VK2GM

Amateurs all over Australia were shocked to hear of the untimely passing, on 25th June, of George ("Jock") McDowell, VK2GM. Jock held his call since 1931 and was continuously active except for the war period, when he served with the Signals Section of the R.A.A.F.

He excelled at everything he attempted and was equally at home in the modern laboratory or modern workshop. His signal was always outstanding for he demanded the utmost from his equipment and his ability enabled him to obtain it. He was always ready to assist his fellow Hams and many newcomers had their paths made smoother by his timely advice and help.

A minute's silence was observed, when the announcement of his passing was made, both at the monthly meeting and over the VK2GM news broadcast.

His funeral at the Rookwood Crematorium was attended by a large number of friends and colleagues.

To his wife and two children we wish to extend our sympathy and to state without hesitation that Amateur Radio has suffered a great loss with his passing.

lucky enough to fluke an article or two. (Prospects look bright so far.—Ed.) What we really need is someone who has the time and the ability to scout around and write up all this stuff as most of the blokes who are getting the results are usually too busy to write about their doings. Any volunteers? We in Victoria are very lax in this regard as most of the technical articles submitted come from other States. At the moment the situation is very grim and the Technical Editor would welcome any contributions with open arms. Here is an opportunity for VK3 to retrieve some lost ground, so don't be backward in coming forward.

New members admitted at the meeting were: T. J. Fousard and R. G. Loutit Junior Associates; R. F. Lemman, Associate; and the following full members: D. J. Knox (3GK), F. B. Turner (6PT), H. A. Harris (3ZEV), M. B. Anderson (3AMA) and L. N. Tate (3ZGT). As most of the evening was given over to v.h.f. there was very little general business transacted. However, we did hear that power input has been increased from 100 to 150 watts and this, no doubt, will gladden the hearts of most.

Word came through from our Federal Secretary in India that Hams in that locality are desperately short of valves. If you have a surplus of this commodity and would like to donate them to a worthy cause, send them to Max Hull 3ZS who will see that they are forwarded on. No duds please by request, and please ensure that each valve is readily identifiable as to type.

Slow morsters will probably be pleased to hear that ZKF is back on the air with daily broadcasts. Details of these broadcasts are believed to be as follows: Times E.A.S.T. 4.30 to 6.00 p.m. Speeds 5 to 30 w.p.m. Each broadcast is broken up into sessions of a quarter of an hour each. The first session is at 5 w.p.m. which increases by 5 w.p.m. in each successive session. The frequency being used is 6885 Kc. which is very close to the Flying Doctor service so that copy is usually only possible between overs from the latter service.

In response to requests, here is a list of Victorian Division Life Members: R. A. C. Anderson, 3WY; F. P. Court, ex-3TP; J. C. Duncan, 3VZ; A. J. G. Glover, 3AG; W. R. Gronow, 3WG; B. Hardie, ex-3YX; R. W. Higinbotham, 3RN; T. D. Hogan, 3HX; W. F. M. Howden, 3BQ; R. E. Jones, 3RJ; J. G. Marsland, 3NY; J. M. Martin, ex-P.M.G.'s. Dept.; Fred Schnell, W9UZ; H. N. Stevens, 3JO.

There will be an illustrated lecture at the next meeting on "Eyesight and Television" to be given by Mr. Owens, who is associated with Andrew Goddes Pty. Ltd., Optometrists, Melbourne. This is a topical subject and promises to be very informative, so don't miss out. To those of you in the country or in distant suburbs, don't forget that some of the lectures given at the meeting nights are on tape and may be borrowed from Len 3LN. There are four tapes available at the moment I understand. Len has spent a lot of time in obtaining these recordings and we are very grateful for this service which he gives to members.

MIDLANDS ZONE

It is heartening to note that the zone activity has "risen from the grave" and the fortnightly hook-ups have commenced on 80 mx

with quite a good roll up each night in distinct contrast to the nights following the formation of the zone. Regulars on the hook-ups have been 3ACN, 3FY, 3IZ, 3SV, 3APJ, 3DG, and 3ARS, and quite a lot of steam has been let off, despite the cold, or possibly because of it.

At Castlemaine R.S.L. Hall on 8th July, the first meeting for this year was held with the above calls in attendance; also Don Carr. An apology was received from 3FO, who is kept fairly busy earning a crust these days. With a borrowed tape recorder, and a tape of a lecture given by Commander Batterham at Melbourne on the activities of Frogmen during and after the last war, we spent quite an enjoyable evening before the fire. After the tape, and supper provided by the local cafe, Peter 3IZ was appointed President for this year with 3ACN again as Secretary, and 3FY as Correspondent and Treasurer.

3ARS recently put up a respectable piece of timber, which weighs 2 tons, stands 80 ft. high, and took two tow trucks to get it into position. Apparently at one stage when transferring the lift from one tow truck to another, the first tow truck almost became airborne, its certificate of air-worthiness having been revoked, it was compelled to stay on the ground, much to the relief of its operator. Also in construction at 3ARS is a new shack, which is to be doubly screened in the hope of confining harmonics to that place where the harmonics should be confined. All in sundry seemed to be plagued with t.v.l., even though all the necessary precautions are taken, especially on 15 mx. I wonder if anyone else has had any trouble. Could be?

For those interested, before I forget, the zone hook-ups are on the second and fourth Tuesdays of each month at 7.30 on the high end of 80 mx.

EASTERN ZONE

If you want to keep on seeing the Eastern Zone notes appear in the magazine, get the information through to me, as it is impossible to write these notes without information.—W. G. Francis.

WESTERN ZONE

Roy 3CE, of Birliwillock, is busy constructing an W8JK rotary beam, so hope it performs to expectations. Roy. Alan 3AJX, of Horsham, and Herb. 3AJJ, of Lubeck, are building gear to operate on the 2 mx band, so this adds to the already keen interest taken in this band around this area.

Our latest Ham on the air is Vic. Maddern, 3AEQ, of Murtoa. He is transmitting a nice signal on the 40 and 80 mx bands. The rig consists of a Geloso driving an 807 with a pair of 807s as modulators.

QUEENSLAND

Perhaps of prime importance is the recording of another successful convention at Palm Beach, Qld., on June 14-15-16. To date no financial results have been published but indications of a small profit reflect favourably on the administration, catering, etc. For a very excellent job performed we must thank Bruce 4ZBD, Brian 4ZAP and Tom 4ZBH. These boys went to a great deal of trouble in the weeks prior to and during the Convention to

VICTORIA

There was quite a sizeable muster at the July meeting to hear Herb Stevens (3JO), the President of the V.h.f. Group, and his merry men extoll the virtues of v.h.f.

Herb. has been playing around on these bands for many a long day and his utterances are always treated with the respect they deserve. He started off very quietly by giving us an insight into the possibilities of the bands, where they lie and the type of chap who dabbles therein, but he really worked up to his subject when he switched to field days and 50 Mc. DX. It was then that you could see where his interests lie. As Herb. explained, the higher frequencies, with their smaller gear, are particularly suited to portable and mobile work and much of the finer weather can be spent in these pursuits. However, from what I can make of it there always seems to be difficulty in finding enough mountains to go round.

After these few opening remarks, Herb. introduced us to some portable members of the Group and a more enthusiastic band of chaps would be hard to find. As each came forward he brought his gear, described its make-up and operation, answered questions, and then retired in favour of the next contestant. The first to speak were Ray 3ZAE, John 3ZAI and Bob 3AN who work as a team. Ray and John are the tx men and Bob seems to concentrate more on the rx and power supply angle. Following these came 3ZDP (apologies OM for missing your name) with his mobile 144 Mc., Michael 3ZCS of series modulation fame, Jock 3ZDG the 522 king, Ron 3AHJ with his walkie talkie outfit, Bruce 3BF who likes to be alone (he works 376 Mc.), and Keith 3YQ on printed circuit techniques. As can be imagined there was plenty of first-class matter to listen to and hints and kinks galore, so don't be surprised if there is a sudden rush of activity on the bands by the d.c. boys, you v.h.f. chaps. Admittedly you have to change your perspective somewhat in making the change, but what of it, results are good from a minimum of power and 50 Mc. DX is likely to be with us for a year or so yet. All told, it was a very profitable night, thanks to Herb. and his band of willing workers.

It would be more profitable, of course, if all that was expounded could be committed to paper and published in the magazine as these boys have really gone places with their experiments. The knowledge so propounded would be invaluable to others who work on the frequencies and especially to those who were unable to attend the meeting. The Technical Editor was there with a very expectant gleam in his eye so, who knows, we might be

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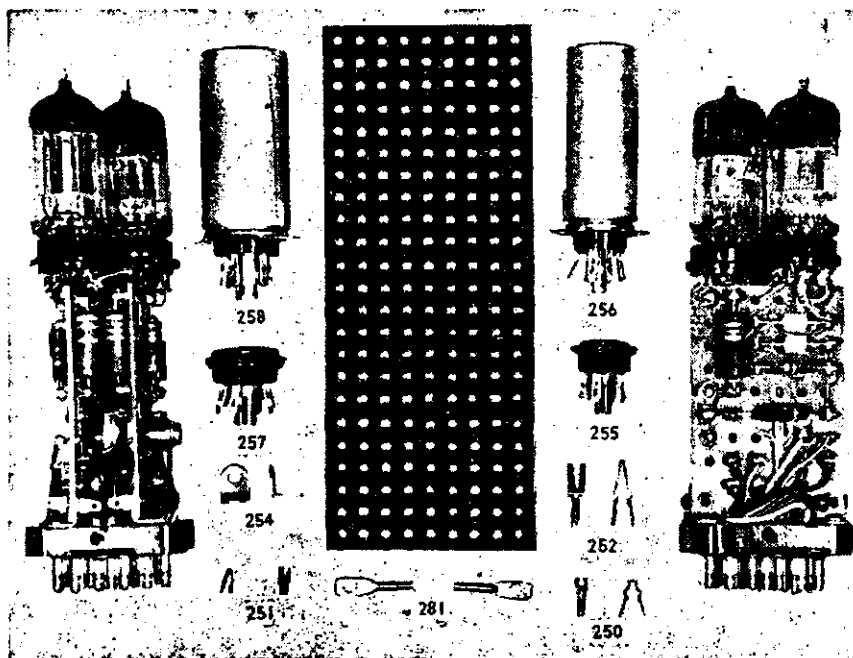
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make the show the best yet. The amount of organising that was done can only be appreciated by those people who have had a similar task themselves. Like most good organisers the boys found themselves in the position of not being able to participate in the various events and believe you me, they missed out on a lot of fun! Once again thank you boys for a splendid effort.

One of the added attractions this year was the excellent meals and efficient catering. Two charming ladies, Mrs. Lane and Mrs. Ferguson, provided an amazing cuisine and so economically that it was astounding! We thank them sincerely and trust that their services are available next Convention.

The total number of registrations was around 78, which, considering the prevailing cold weather, really is a good effort! Members are reminded that the fellows who had the most fun were those who brought gear to the Convention and made use of it in the contests.

We were very pleased with the interest taken in our Convention by the VK2 boys and judging by the roll up, one wondered just whose Convention was it? Perc ZAPQ, VK2 President, flew up and during the course of the weekend's events was able to show VK4 boys just what was going on in VK2. During the W.I.C.E.N. conference I think most of the boys felt that if VK4 was to be in the picture we would really have to put our shoulder to the wheel! Bob ZARG brought W.I.C.E.N. gear along and during lectures very ably demonstrated the effectiveness of the gear. It would appear that VK2 has a very good grip on W.I.C.E.N. problems and the practical way they have solved them is commendable! Thanks for all your trouble Bob, it was appreciated.

It would be difficult to list all the boys who travelled long distances, but the following should show at least the far-reaching organisation of the Convention Committee: Perc ZAPQ (VK2 President, Sydney), Bob ZARG (Palm Beach), Jack ZADT (Inverell), Eddie ZBB (Tweed), Bill ZZY (Murwillumbah), Norm ZRK (Murwillumbah), and Les ZAOR (Newcastle). These are just some of the call signs that spring to mind. All those other chaps who came and who haven't been listed certainly were not overlooked, we enjoyed your company to the full and we hope to see you back again next year.

The easiest way to report the winners of the contests is by saying that John 4FP won all the contests except the blindfold tx hunt which was won by Tom 4ZBH. Good work, John and Tom.

It would be difficult to itemise and detail everything that eventuated at the Convention so news and information will be spread over the next one or two issues of "A.R."

As the June general meeting was taken up with a film show, very kindly organised by British Petroleum, there was little time to devote to discussion of Institute matters. The President, John 4FP, requested members to defer as many matters as possible until the following month and consequently no contentious matters were raised. The meeting lasted some 40 minutes before we had to vacate the M.L.C. Building, Edward St. Bruce 4ZBD gave a detailed report of the Convention and doubtless new methods have already been formulated for an even better Convention next year. One item of particular interest to VK4 boys is the formation of a v.h.f. society. It will meet at 4JO's QTH, third Friday each month at 8 p.m.

Well boys please bear with me and my demented style of reporting, but my concentration deteriorates in proportion with every new increase in the family!

MARYBOROUGH

The 10 mx quad at 4CB was damaged by wind. Meantime, Archie is working the boys on 7 Mc. 4DJ stayed up until 2 a.m. for 21 Mc. contacts with Europeans. Grahame has lost a few power transys lately. Has been heard working DX on c.w. for the first time. Getting an S meter for his Eddystone 750.

Dormant Hams, 4GH and 4AL, have been lining up their receivers, so maybe we will hear them soon. Alan is making a come-back, using xtal controlled c.w., of all things. 4BG, now using a bug, says his customers can't complain that they are not getting enough dots.

TOWNSVILLE

Do not know what has happened to the boys in this area, because once again there was not much of a roll-up at last general meeting held 26th June at residence of 4BX. Bill 4ZBE gave a complete survey of his visit to the Palm Beach Convention. He was very sorry to miss the final day, Monday. His report was so well given that a couple of the older Amateurs promise to try and get there next year. Unfortunately John 4DD was unable to be present to give his lecture which has been

deferred to the July meeting. As a few of the boys will be facing the barrier next week we wish them one and all the best of luck. One of the Z call sign boys is trying for the Morse Code.

Activity on the bands up here is very poor. Must be the weather or the conditions as there is no t.v. here for an excuse for not coming on the band occasionally. Ted 4EJ arrived back from Sydney displaying a new patch caused by watching the one-eyed monster, started saving all the small coins to get one when Brisbane station starts to cause the boys down there t.v. troubles.

The writer, as President of the T.A.R.C., interviewed the local Federal Member, Mr. Edmonds, and gave him a brief survey of Amateur activities in the Bowen cyclone, see "A.R." May, p.12, he being in the dark just how the Amateur helps in times of emergency. Mentioned also the help given in Northern Rivers district in previous years. Mr. Edmonds promises to help in every way possible.

Bob 4TK sends along his usual news of doings on 7 Mc. Bert 4BP has been on holidays, but has joined in the evening hook-up. Vern 4LK has a galah that persists in entering the shack and adding to the QRM on the band. It can screech 5/7. Vern still fixing new oscillator. Harry 4ZP has two additions to his sound effects. Harry is due for long service leave in a few months. Bazil is building a cubicle quad, his XYL doing the paint work on it. Has rebuilt his modulators using zero bias 807s. Congratulations to Nick 4WT on the arrival of a new female harmonic; not forgetting the XYL. Promises to come on the air occasionally.

Harry 4HK not heard for some time. 4MA popped in on a recent evening hook-up to enquire about Andy. Had a quest visitor, a s.w.l. Ian, from Adelaide who also called on 4ZW while in Cairns.

Bob 4RW has been calling in more regularly lately. In fact both the morning and evening hook-up has never been so well populated. John 4DK not heard from so much lately. In a letter he stated he was very busy. Don 4PW is having a spot of trouble with his multiband coupler, but still puts out an i.b. signal. Bob 4TK has completed his c.r.o. and now pleased with same; was off the air for several years until 4ZW pepped him up and caused him to spend many db's. Speaking of db's, have all you fellows in the north sent in your db. for the delegate to the I.T.U. at Geneva? Get in early so that matters can be finalised.

Edgar 4GF heard at times, likewise Eric 4EL out at Clevedon.

SOUTH AUSTRALIA

The "Tender" programme—and just how tender can a programme get—was the usual success, drawing a big crowd of members and visitors who so enthusiastically supported the energetic "Tenderes" Warwick SFS and Norm that the whole of the goods submitted found new owners.

Just prior to the start of that portion of the proceedings Doc 5MD rose to the occasion and after a brief and moving reference to the late Douglas 5BY called for a minute's silence in his memory.

Warwick then embarked on his new career, with the assistance of Norm, of course, and displayed a few hard streaks of business ability that rather belied that smiling easy going exterior that he is prone to exhibit.

His introductory remarks rather flavoured a free ad. for the nearby b.b.s.s., all the same some of us always thought there was some monkey business at that place, so now we know. Anyway, we are grateful to you Warwick for filling a difficult role so easily and successfully, and feel sure that your candid assessment of values, etc., left no doubt in anyone's mind that fair values were obtained and paid.

One feature of the meeting that must not be overlooked when assessing its success, is that it was conducted by the two Vice-Presidents, Lloyd 5OK occupying the chair in the absence of Brian 5CA who let the prevailing wog attack him. The Junior Vice-President had to read minutes (and take them) and also do some of the accounting work (check your adds boys) and see that everyone, including Doc 5MD was kept busy.

In general business the matter of the subs. to the I.T.U. Fund was brought to notice of all members once again, and it was agreed that anyone who wishes to pay their £1 to the Divisional Secretary, John 5JC, can do so, and he will then send on to Melbourne in bulk. Fill out your card when sending the sub. along so that correct acknowledgment can be made at the right time. You will hear more of this later. In any case the suggested £1 is the asking or minimum amount, but if

OBITUARY

DOUGLAS ROY WHITBURN, VK5BY

It is with great sorrow that we mourn the sudden passing of Dougal at the end of May.

His interest in radio extended into the early twenties and he obtained his licence and received the call sign of VK5BY in 1925. As an operator he could equal any and quite recently, to his delight, he was nominated as a Member of the First Class Operators' Club.

Like so many of his Amateur friends he responded to the appeal by the R.A.A.F. to serve his country as a Wireless Operator and Instructor. And many who trained at Signals School at Ballarat will recall his cheery "Early-Bird" programmes that he provided to get the slow ones out of bed.

In Institute affairs he took a keen interest and served on the Council as Secretary and President prior to World War II. On the reformation of the S.A. Division in 1946 he was responsible for much of the hard work of recruiting members and gave freely of his time and valuable advice to the new Executive.



On the air he was particularly interested in operating 14 Mc. c.w. and hundreds of his overseas friends are going to miss the familiar VK5BY. He had over 200 countries confirmed, but spent much time rag-chewing, a past-time he loved for he talked with his "bug key" as with a second voice.

At the time of his passing he was still serving the Institute as one of its Trustees. Truly it can be said that here was a life spent in service to his fellow men and the loving care of his family.

To his widow and children we extend our sincere sympathy and pray that the Grace of God will bring comfort and understanding to them in the days ahead.

— VALE VK5BY —

you feel generous there is no limit to what you can subscribe.

The cards have gone out to full members only (indeed to all licenced Amateurs—whether members or not), but not to Associates. Now there is nothing to prevent an Associate from making a contribution, which our Secretary will be pleased to accept, for, after all, Associates hope to be full members some day, so the things we will be fighting to retain at I.T.U. are vital and of concern to all intending full members.

We were pleased to welcome the following to membership: Full members—A. E. Shepard, 5DC; C. C. Rowe, 5UR; G. Wilde, 5ZGW; A. B. Holleban, 5ZBQ; L. H. Vale, 5NO; R. E. Langfield, 63IHC; and Associates—R. T. Rowe, W. Simmlister, T. Johnson, G. J. Phillips, R. McCosker, J. M. Vale, P. C. Drewar, A. C. Fehlberg, H. Holthouse, H. G. Kent, A. Adams, Norm Colman and Co. must have been very busy, and we understand there is a further big group coming on for next month.

It is advised that Ray Tuck (T.v.i. Committee) is now connected to the 600 ohm line, his number being LF 5725, so if you have a problem within the scope of this committee a ring to that number will start some action.

The R.D. Contest will be with us shortly after you read this, so check up those rigs, look the antenna over and solder all those dry

Joints, get a supply of contest sheets and pencils, make the necessary domestic arrangements to enable an expanded operating schedule possible, to really give the contest a go this year.

The new rules, details of which have already been published, together with notes of explanation, gives the "minor" operator a better chance now to include his contribution in the State score, so it is up to everyone to try and get that trophy back to this State for another spell. Don't knock off at the minimum score, pile them up and be in the fun, for every contact counts.

Ken 5KC was amongst those mobile over the June holiday week-end and operated portable at Black Springs. A good signal Ken, better at the distance than close, but then it was a peculiar week-end for 7 meg. work.

Have heard that Wally 5DF can prove he plays bowls, having received four trophies for his prowess in that regard, in fact Keith 5KH has actually seen them, which as he quotes, "Wally regards them as precious as DX cards." Good luck to you Wall, but don't keep off the bands altogether.

The 5PY tx in use at 5WC these days has finally buried all its bugs, in fact so good that Paddy Mark I. and II. modulate well. A visit by the R.I. up there helped the noise problem quite a bit.

Keith 5KH tweek perigrinations, continues to keep Eden Hills on the map, with Chas 5ON doing his share for the hills. If you are looking for an idea for a sky wire to fit a small back yard drop in on Tubby 5NO at Elizabeth and see the arrangement he heats with r.f. Works, well, too, judging by some of the reports the boys give him on his signal. Don't know exactly what type you would call it, it's not a quad either, cubical or comical, not a dipole, tripole, or monopole, you tell 'em Tubby.

"See you when you are older" Luke 3LL manages a constant signal and cheery comeback on any QSO.

David 5AW gives 40 a good ailing now, and since fitting the half-wave filters to the feeders has put his trouble behind him. Hughie 5BC comes on the d.c. bands a lot these days and is often heard here at very good strength.

If any of you miss out on the session on Sunday mornings, tune to 2 or 6 mx on Sunday night at 8 p.m. and hear the replay of it from 5GB. This service is provided by George for those who either cannot make it at 10 a.m. or are the late risers.

Talking of tapes, there are a number available, of lectures given at previous meetings and can be obtained from Gordon 5XU, to whom all enquiries should be directed. It is a part of the service available for country members who may not be able to attend these interesting meetings.

Technical articles are required from members for publication in this magazine. There must be many projects under construction, modifications of existing gear, or general ideas worth passing on to others that could make an interesting and helpful article to someone. So out with the pens fellows and get VK5 back into the news again. These articles do not have to be earth shattering, remember if a project interested you, it must necessarily interest many others, and if you solved it better still, let's know about it.

Tom 5AQ at Leigh Creek now active and looking for contacts. Lance 5XL is varying his hobby by interesting himself with a film club where they are working with a film and tape sync. scheme. Joe 5JO and his boys' club recently entertained some of the Two Wells boys when Tom 5TL, Carl 5SS, Frank 5MZ and John 5ZBA joined in and made a Ham night of it demonstrating some 1 and 2 mx gear and having some interesting contacts whilst so doing. Some models of electric trains made by the club members were also shown and played with by the "big boys". A good work Joe and Co., may it grow in strength.

We were all very sorry to learn of the sickness that is laying Jim 3LM low for although he is not a VK5 Ham, his voice surely is, for he must be one of the most consistent voices from VK5 heard and worked here. Do what they tell you, Jim, and take it easy, then come up smiling.

Instruments, yes, Doc 5MD again, whose phone number is LA 3911, these instruments are in demand so if you want one register your need with Doc and he will tell you when it is available.

The increase of 50 watts in maximum power input announced early July will no doubt suit many, more particularly the v.h.f. boys, so no doubt a lot of soldering irons are busy right now hitching the bigger tubes up or altering transformer tappings. It will certainly be easier to get better efficiency with the popular output tubes now, that previously had to be "screwed down" to keep below 100w.

WESTERN AUSTRALIA

I must apologise for the brevity of the notes this month, but this is due to your scribe having been on holidays and out of touch with things in general.

Last month's meeting was held as usual. The lecture for the night was given by Norm 6NF, who brought his crystal filter s.s.b. rig to the meeting. Norm told us of his endeavours to get a s.s.b. rig running and his final success with the filter type. The rig shown to us drives a final 100TH linear.

The announcement of the increase in maximum legal power to 150 watts came last week and was received with mixed feelings by VK6 Amateurs. It will make no difference to the QRP single 807 brigade—good luck to them. The majority of the others are using some tube combination which will permit of an increase beyond the 100 watt mark with little difficulty.

This month has seen a quietening of the DX bands, particularly 28 and 21 Mc., where few signals can be heard at present. This is expected to improve rapidly over the next few weeks. 40 and 80 mx have had their usual share of activity. These bands are being used a great deal these days. 8 mx is very quiet at present, being inhabited only by local stations. There was only one JA opening in June, when one station worked five JAs. The local boys are still turning their guns on Africa, but apart from a signal from 6CL being heard in ZS, nothing has eventuated.

Visited 6MU during the last couple of weeks. I was amazed at the signals put into Merredin (163 miles) by the 20 mx gang in Perth. 6KW and 6MK could be heard 59. I believe this is quite usual in this location.

6MA has been working on his rig and is getting it well set up. Transmitter and modulator are complete, and Alan is now working on a converter to put ahead of a compass rx.

As I said, notes are brief this month, so I'll say goodbye till next month.

The response to the appeal for funds to send a representative to the I.T.U. conference has been very gratifying so far. Have YOU sent your £1 yet?

TASMANIA

NORTH WESTERN ZONE

I believe it has happened at last. Ted 7EJ has commenced the beginners class at Devonport with about nine starters at the first meeting. Theory only is being attempted at the moment, but later it is hoped to expand and increase the meetings to weekly ones instead of monthly and also to include morse code instruction.

As mentioned last month, associate Ken Brown acquired 7RN's 107 rx and is busy building converters for it. Real hot they are too. Last time seen, Ken was replacing a head gasket on the Vauxhall. You shouldn't drive it so fast. Ken, Associate Terry Tonga has been welding the garden fork, probably expects an early spring. Apart from that Terry has acquired a ZC855 radar rx as advertised. Sounds like good t.v. material. Terry, 30 Mc. i.f. strip and a front-end which can be made to cover channel 7.

President Sid 7SF is also keen on the radar rx. Sid has also bought a xtal calibrator for 144 Mc., so anyone requiring frequency checks on 2 mx are welcome. Roy 7RN, although not heard lately, has embarked on the construction of a beam. This, presumably, will be mounted on top of the converted wind-mill tower, with the t.v. beam on top again. Another signal not heard for many years is from George 7XL, who has become so disgusted with the absorbent effect of the ionospheric cloud on 56 Mc. between here and VK3 that he has deigned to come down to 7Mc. George is running 80w., so should get out OK.

Our worthy Hon. Sec., Max, is away for a few days in Launceston, chasing grass seeds or something. Hope you had time to look some of the boys up whilst there, Max. The Devonport t.v. king, Athol Manning, says things are pretty quiet at the moment, although he has had some interesting results using a rhombic about 35 ft. up. Pat 7PM seen in Burnie recently after a bout in hospital; trust everything is OK again now, Pat.

As these notes will be the last notes I shall write as 7LS for some time, and as I shall be in VK6 by the time these appear, and the next meeting is held, may I take the opportunity of saying 7L all round, thanks for the many happy meetings. Cheers, 7LS clear.

PAPUA-NEW GUINEA

The meeting this month was once again poorly attended, there being only three members and two associates. It is hoped the absentees will be present at our next meeting. We welcome a new member this month, Bob Hooper, VK9RR, ex-ZL1AJK and ZL1AIR. Bob hails from Hamilton and is doing a tour of duty with O.T.C. here. Bob is very active on c.w. and recently was heard on phone.

Another surprise packet this month was our brass pounder, yes, the wrist has broken at last and Russ 5XK is now trying to break the jawbone. I heard him the other night with a very pronounced quiver in his voice. He reckons it's his microphone, but don't you believe it. Nerves—a plain case of nerves, that's what it is. Anyway, good luck in your new venture, Russ.

This Division will be holding meetings on the air in the near future to try and stir up more interest than we have at present. So all you chaps in the bush, keep your ear tuned to 9W1 for further announcements.

The time of the Sunday morning news bulletin has also been altered and can now be heard at 8.30 a.m. instead of 10 a.m. Apparently the chaps forgot about this change last week.

It was announced recently that the new regulations were ready and anybody requiring a copy should contact the Secretary who will send away for them.

Well, I'll have to QRT for now, but remember the monthly meeting is held on the last Wednesday of each month at 8 p.m., same QTH. A 100 per cent. attendance is expected.

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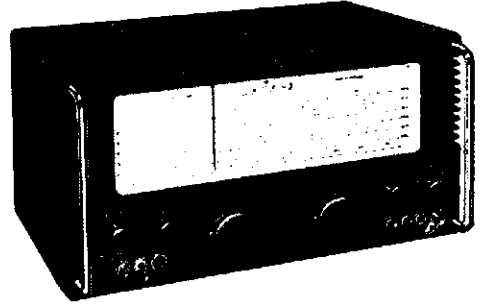
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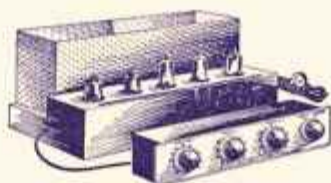
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EDITORIAL



REALISM IN SIGNAL REPORTING

A casual listening watch around the Amateur bands any day will soon reveal the inadequacy (or over-adequacy) of our present system of signal reports, if it is not already known by all. It is apparent that very little thought is given to present day signal reports that mean much to the recipient. How often do you hear a report other than 589 or 599? In contests this is especially so—you either hear them 599 or not at all.

There is little argument with the Readability part of our present RST system, which is realistically divided into five levels from R1 to R5; but what of the S and the T parts? Although on occasion one does hear an other-than-crystal signal, it appears normal to give T8 for anything from r.a.c. to a slightly chirpy signal of near d.c. note, completely ignoring the eight levels of tonal cadence. The Tone scale of reports has largely lost its usefulness especially as all stations should and most do emanate stable v.f.o. or crystal signals. This part of the report contributes nothing to the information we wish to obtain from a DX station.

Referring now to the S part of our system—the scale S1 to S9 is rarely used in its original context. Unless you receive a "60 db. over 9" report you can't be heard very well, or so it is thought. There has also always been some confusion between signal strength and readability, leading to further misunderstandings and incorrect signal reporting. Even with the advent of S meters on receivers this has probably added to our troubles. S meter steps are usually about 6 db. per S point, but, and a big BUT, above what level? Receiver noise atmospheric noise, domestic noise, or what?

Two important factors in reporting which considerably affect the pleasure of a DX contact are atmospheric noise (QRN) and interference from

other stations (QRM), yet these are often forgotten in our effort to get out that all-important "Ur sigs RST 599, OM". Even a legitimate 599 signal can become useless for the conveyance of intelligence if our next door neighbor decides to shave or his wife decides to spring-clean. The human ear, especially under the excitement and stress of a juicy DX contact, will not easily discern between nine levels of signal strength nor nine levels of tone. Which leads to the writer's contention that five levels are the maximum number which can be reasonably discriminated.

Two internationally agreed systems are at present in existence which to the writer's knowledge have never been used by Amateur stations. They are the SINPO and SINPFEMO codes, so called to indicate by the initial letters the particular receiving condition being reported. A study of both systems (which are given under the Federal Notes in this issue for information) shows a five level reference for each receiving condition on which the transmitting station requires information. Both systems offer something that is lacking in our present system—mainly a simpler and more reasonable method of five aural levels easily remembered yet providing more useful information than is conveyed at present.

The writer does not necessarily advocate the adoption of any new system as such, but merely wishes to draw attention to the inadequacies of the present out-moded system with a view to arousing interest in the subject and perhaps promoting some suggestions for a more workable and realistic approach to the Amateur method of effective signal reporting. Give this matter some concentrated thought—the Federal Executive will be pleased to receive your views.

FEDERAL EXECUTIVE.

How to Tune Your Pi-Network Final

Simple Procedure for Popular Tapped-Coil Systems

BY LEWIS G. McCOY, W1ICP

IT is apparent from the number of inquiries received from Novices asking how to tune a pi-network transmitter that this is a common problem. Fortunately, most of the current manufactured transmitters and those that are home-brewed have pi networks whose coils or inductance values are preset for each band. When this is the case, the tuning procedure is not very difficult.

Fig. 1 is the diagram of an amplifier with a typical pi-network output circuit. For the sake of simplicity, the band-switch has been omitted. C1 is the pi-network input or plate-tuning capacitor. L1 is the coil, or inductor, C2 is the variable loading capacitor, usually labelled **fine loading** on manufactured transmitters, and S1 is a switch usually labelled **coarse loading**. The switch connects additional capacitance in parallel with C2 when it is needed.

In learning how to adjust the controls on your transmitter, we suggest that you use a "dummy" antenna at first. A dummy antenna is a device having characteristics similar to those of an antenna system. But the radiation from it is negligible so that you can try the various adjustments without bothering anyone by putting a signal on the air.

Either by design of the antenna and its feed line (matched system) or by use of an antenna coupler between the transmitter and antenna or feed line, almost any antenna can be made (and usually is made) to look like a resistance so far as the transmitter is concerned. Therefore, a resistance can be used to simulate an antenna for testing purposes.

Ordinary house lamp bulbs are a convenient form of resistance to use in practicing the tuning of a transmitter. They have the advantage that they light up when r.f. power is fed to them and thus you can get a relative indication of power output.¹ Thus, for instance, if you use a 60-watt lamp, and it lights up to normal brilliance when the transmitter is loaded normally, you can figure that you have about 60 watts output. You should select a lamp that has a wattage rating equal to about 75 per cent. of your transmitter's rated power input. For example, a 60-watt lamp is a good size to use for the Novice 75-watt input level. The lamp should be connected across the output terminals of the transmitter, with short leads.

TUNING THE PI-NETWORK

Before turning on the power to the amplifier or closing the key, the output capacitance should be set at maximum

¹ Reprinted from "QST," Feb. '58.

² The resistance of a lamp bulb changes with temperature so that it cannot be used for accurate measurement. Also, the resistance of the lamp bulb at maximum will usually be higher than the 50 or 70 ohms most antenna systems are designed for. Nevertheless, pi-network adjustments will be similar.

capacitance. This means that C2 should be turned so that its plates are fully meshed and S1 should be turned so that all the fixed capacitors are connected. Instruction books of manufactured transmitters usually tell you which positions are maximum capacitance.

When power is first applied and the key closed, the reading on the plate-current meter will probably be above normal for the tube. The reason for this is that the output circuit is not tuned to resonance. But as you tune C1 through its range, you will find a point where the plate-current reading on the meter drops sharply. If you turn C1 still farther, you will find that the plate current rises to a high value again. The correct tuning point is the one where the plate current is minimum. This point is often referred to as the point of **plate-current dip**, or **point of resonance**.

tuned to the correct operating frequency. The only difference between a straight amplifier and a doubler or tripler is that the output circuits of the latter are tuned to the second and third harmonics of the frequency fed to the grid, while the output circuit of the straight amplifier is tuned to the same frequency as that fed to the grid. In some manufactured transmitters, the tuning range is restricted so that it is impossible to tune to any frequency except in the band for which the band switch has been set. In others, and in many home-built rigs, the tuning range is so great that both the correct operating frequency and its second harmonic (twice the operating frequency) can be tuned to within the range of C1. In such cases, a plate-current dip will be found near maximum capacitance of C1 (usually the correct one at the operating frequency) and a second dip near minimum cap-

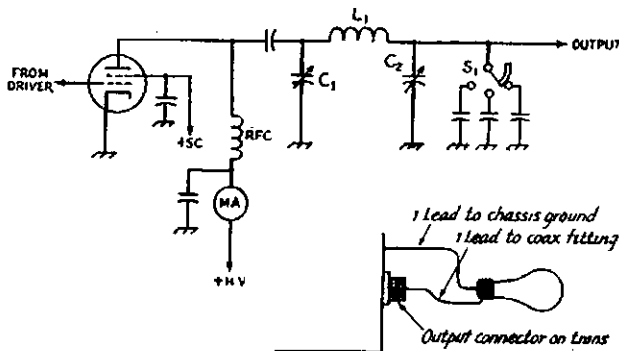


Fig. 1.—Circuit diagram of a typical pi-network tank circuit. C1 is the input or plate-tuning capacitor, C2 is the output or loading capacitor, S1 is used to switch fixed capacitors in parallel with C2 to avoid the need for a much larger variable at C2.

The amplifier should not be operated off resonance any longer than it takes to tune the output circuit to resonance because the large input power that the amplifier draws when it is tuned off resonance is not converted into useful r.f. power but is dissipated in heating the tube elements to the point where the tube may be permanently damaged. (We have seen some Amateurs who thought they were loading the amplifier when they tuned off resonance because the plate current was higher!)

It is probable that on the first trial the plate current will dip to a very low value and the load lamp may not show any light at all. The low value of plate current means that the amplifier is not drawing much input power and therefore we can't expect much output power. The reason that the amplifier is not drawing much plate current is that the load is loosely coupled to the amplifier. Adjustment of the loading controls, C2 and S1, will increase the coupling to the load and the amplifier will draw more input power.

CHECKING RESONANCE

However, before proceeding with the loading adjustment, it is most important to make sure that the amplifier is

acitance where resonance occurs at twice the operating frequency.

Naturally, care must be used to avoid tuning the transmitter to the second harmonic. If your operating frequency is in the 3.7 Mc. range, and you make a mistake, you'll land on 7.4 Mc.; if your operating frequency is supposed to be in the 7.1 Mc. range, you'll be radiating on 14.2 Mc.

In some transmitters there may be responses at other frequencies generated in driver stages. The moral is: If you find more than one dip in plate current, check with an absorption wave meter.² (This check should also have been made at the grid of the amplifier to make sure that it is being driven at the correct frequency.)

LOADING THE AMPLIFIER

Once you have determined the correct setting for C1, you are ready to start adjusting the loading by means of C2 and S1. Both of these have been previously set to put maximum capacitance in the circuit.

First, turn the variable capacitor C2 toward minimum capacitance while

(Continued on Page 5)

² McCoy, "The Band Checker," "QST," Nov. '56.

Crystals Substitute Mechanical Filter

BY RUDY FAESSLER,* HB9EU

FOR many years, an i.f. crystal filter in a communications receiver has been standard equipment for a high quality communications receiver in the medium price class. The classic arrangement, Fig. 1, is well known to every Ham and for many years it has proved an excellent help for thousands of Hams around the world.

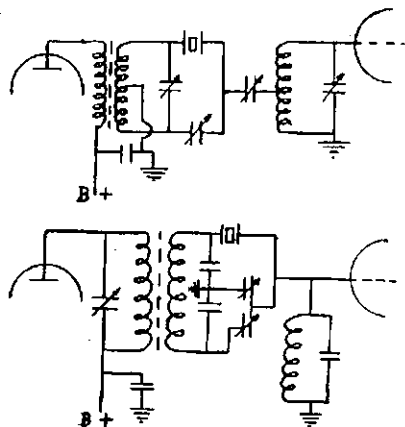


Fig. 1.—Two variations of normal xtal filters.

All Amateurs who have used such a crystal filter know that it has some disadvantages. If we take a critical look at the resonance curve of such a filter, Fig. 2, we find two special disadvantages:

1. The absence of a so-called "flat-top"
2. The curve looks like a triangle, with the skirts too broad.

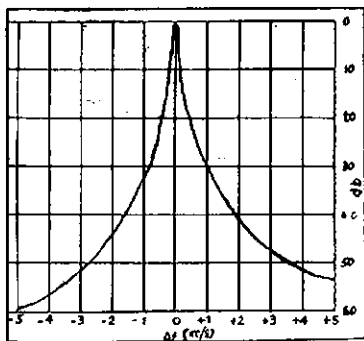


Fig. 2.—Resonance curve from a classic xtal filter of Fig. 1.

Of course crystal filter circuits have been developed, Fig. 3, which give better rectangular curve-forms, but they are more complicated to construct and to tune properly, and they take more parts. Such filters cannot usually be built without some precision measuring equipment.

This article will discuss a crystal filter circuit which is easy to build and tune, and which will give ideal band-pass form which every DX man needs in his receiver.

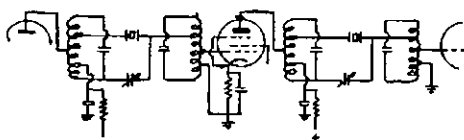


Fig. 3.—Typical circuit of a triple xtal filter.

Looking at the curve form, Fig. 4, of a prototype of such a filter, with diagram in Fig. 5, you will see that it is nearly the same as that of a mechanical filter. You will also notice that the circuit includes no coils and that it can be constructed in a very small space on a chassis.

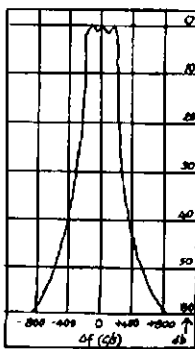


Fig. 4.—Resonance curve from Fig. 5.

Bandwidth at -3 db. equals 400 cycles.
fo equals 400 Kc.
 $\frac{U_o}{U_i}$ equals 31.7 db.

Crystal (Type FT241-A) frequencies:
CR1 equals 400.18 Kc.
CR2 equals 399.84 Kc.
CR3 equals 400.00 Kc.

The circuit is a three-stage "staggered-tuned" amplifier in which each stage includes a cathode-follower followed by a degenerative amplifier in a cathode-bias circuit.

Fig. 5.—Circuit diagram of the three stage "staggered-tuned" filter.

C1—1000 pF.
C2—30,000 pF.
Cn—see Text.
R1—470K ohms.
R2, R5—1,500 ohms.
R3—100K ohms.
R4—1K ohms.
R6, R7—4,700 ohms.
Rq—See Text.

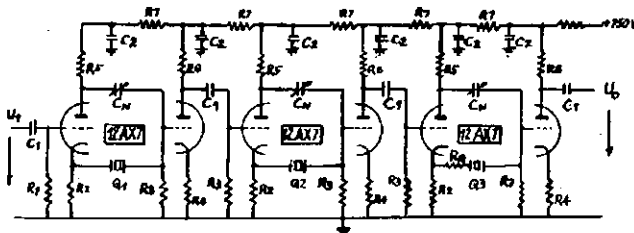


Fig. 7a shows such a stage alone. The signal U_1 produces on the cathode resistor of V1, a signal with the same phase, which is coupled by a crystal Q to the grid of V2. As the crystal is the equivalent of a series-resonance circuit, with very high Q, so only signals with the crystal resonance frequency will pass through from cathode V1 to the grid of V2. Every crystal includes a real part and a shunt capacity. The latter one (crystal holder capacity) must be eliminated. This is accomplished through Cn which couples a signal with a phase-shift of 180° from the plate of V1 through the neutralising capacity Cn to the grid of V2. The value of Cn should be approximately the same as the holder capacity of the crystal Q.

To give a better understanding of the function of the circuit, Fig. 7b presents one stage again with its main circuit

elements, and Fig. 7c is the equivalent circuit showing their functions.

To calculate the gain of a stage on its resonance frequency, the following equation can be used for nearly exact values:

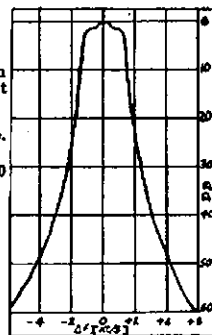
$$\frac{U_o}{U_i} = \frac{I_q Z_{ci}}{U_i} = \frac{Z_{ci}}{R_i + R_q}$$

If R_i is large in respect to Z_{ci} , then R_i must not be included in the calculation. R_i is the internal resistance of V1, R_q is the resistive part of the crystal, Z_{ci} is the reactance of the input capacity of V2 plus the wiring capacity. I_q and C_q are the real components of the crystal.

Fig. 6.—An application of 1600 Kc. on circuit of Fig. 5.

Bandwidth at -3 db. equals 2.4 Kc.
Gain at fo equals 1600 Kc. : 5 db.

Crystal frequencies:
Q1 equals 1601 Kc.
Q2 equals 1599 Kc.
Q3 equals 1600 Kc.



To get the desired flat-top with a ripple (top to valley response of the resonance curve) of approximately 3 db., it might be necessary to add a resistor (non-inductive type) in series (Continued on Page 5)

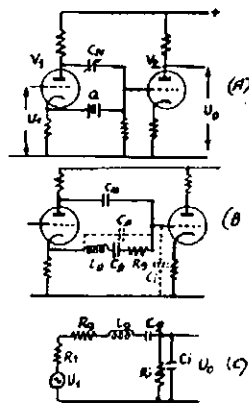


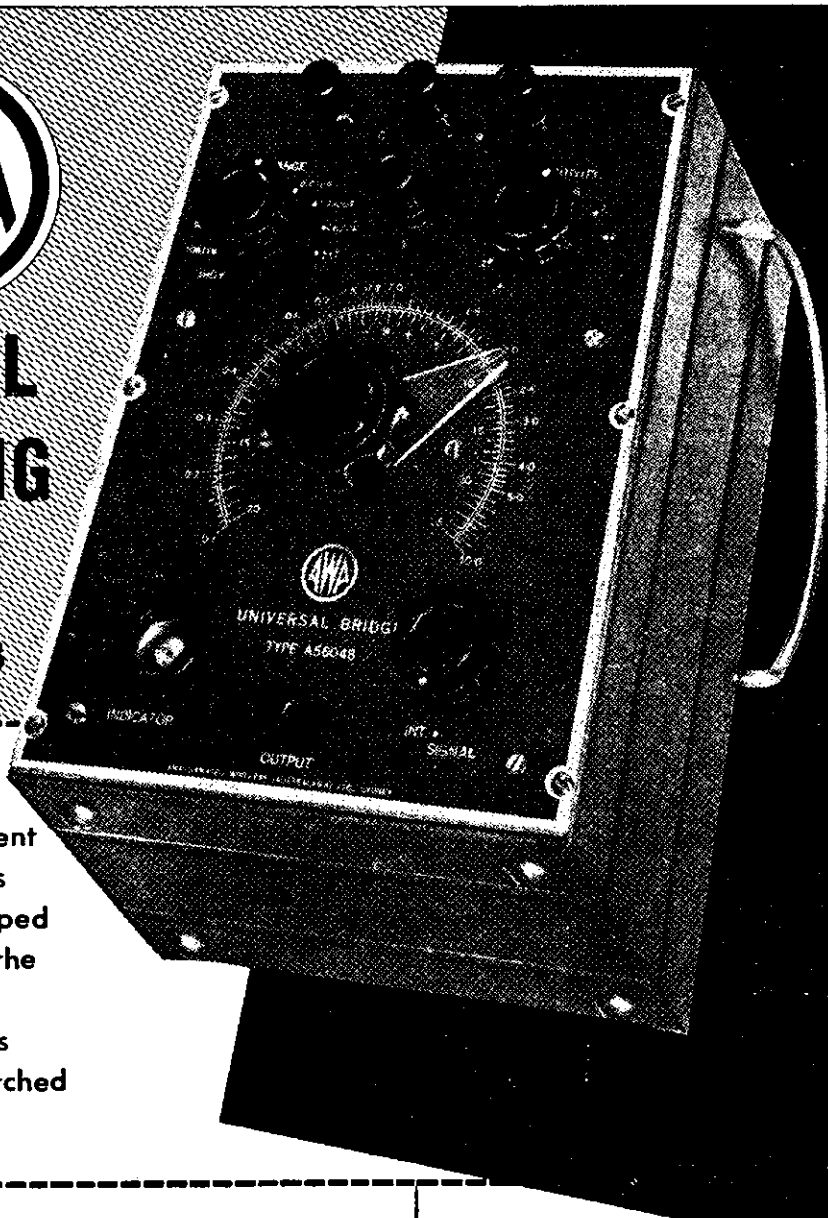
Fig. 7.—Equivalent circuit from one stage of Fig. 5.

* Chamstr. 58-D, Zug, Switzerland.



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TYPE A56048



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- **Provision for use with external frequency source**

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Resistance Range:	0.1 to 10M.
Capacitance Range:	10 uF to 10 uF.
Inductance Range:	Comparative Measurements above 1mH.
Comparative Measurements:	Ratio 0.1 to 10.0 with switch on "EXT" Ratio 0.8 to 1.25 with range switch on "%" (-20% to +25%).

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TIME DELAY CIRCUITS FOR USE WITH MERCURY VAPOUR RECTIFIERS

BY S. T. CLARK,* VK3ASC

MOST Hams are familiar with the advantages of mercury vapour rectifiers—low voltage drop and high efficiency compared to vacuum rectifiers. Since it will undoubtedly be a number of years before the "silicon" types, with their even higher efficiency, become cheaply available and we can throw out our rectifier filament transformers, I propose to give a short dissertation on ways of preventing your prized 83 or 866s from finding a premature grave in the dust-bin.

The first, but not the most reliable, method of preventing premature failure is to switch the rectifier filaments on and wait for up to fifteen minutes—take careful note of the manufacturer's recommendations in this respect.

The second, inexpensive method is to switch the heaters on before the evening meal and switch the h.t. afterwards. The trouble with these two methods is that in the case of the first, impatience is likely to cause us to take a risk because we hear a rare one calling CQ, or in the second, our "forgetteries" work overtime and the filaments don't get much warm-up time.

What we need are inexpensive (the cheaper the better) means of overcoming premature switching without too much delay. T. R. Baker, VE3AXC, describes a good system in May "QST", but Amperite 115N030 thermal delay relays are not available in Australia unless you have a U.S. friend who sends Xmas and birthday presents.

What can the VK Amateur do to solve his problems? There are a number of time delay systems that can be put to good use, preventing premature deaths in your family of rectifiers.

The first of these is to use a relay, 24 volt type, with at least two sets of contacts that will carry about two amps. at 240 volts, operated by the bleeder current of a low-power bias or driver-multiplier power supply. (In the case of the latter, a "3000" or similar low current type operating microswitch is recommended.)

The amount of delay required is set by using a resistor in series with the tube heater to slow up the heating of the cathode so that the relay only closes after the required time interval. In building such a unit it is necessary to ensure that the relay closes OK on the bleeder current, and in the case of a bias pack, this can easily be 40 to 60 mA. as a stiff supply is needed for bias purposes. Using the bias supply also has the added advantage that if the bias fails, your transmitter will be switched off and so the equipment "fails safe".

To come back to our two sets of contacts, even the youngsters will see that one set of contacts are going to be used to switch the a.c. to the h.t. transformer, but what about the other set? You are right, they are used to short circuit the resistor so that the tube

operates with its rated heater voltage applied and so is able to give of its best. Any rectifier with a cathode can be used—5V4G, 6X5GT, 6X4, 6V4, etc., although the low current types such as the 6X5, etc., are the easiest to control.

The second method that can be used is to use a 3 or 5 watt resistor to heat a brass rod and cause that to operate a microswitch, through a simple "multiplying" lever system if necessary. In fact, some microswitches require so little movement to operate them that you will probably find that the ceramic tube on which the resistor is wound expands enough to operate the switch. In this case the "delay" is set by an adjusting screw positioning the resistor correctly and the application of the correct voltage to the resistor causing it to heat up enough, but not too much. (Take note of ratings.) You will also need to make sure that the resistor is of the vitreous type, i.e. I.R.C. or similar.

The third method is to use a disposals time delay relay, if you can find one.

The fourth method is to approach United Radio Distributors, or British Merchandising Pty. Ltd. (both in Sydney), or ask your favorite dealer to obtain for you one of Ediswan's series of DLS series delay relays. They are vacuum delay relays with 4-pin British or octal bases for operation from 4 or 6 volt a.c. supplies, and they are relatively inexpensive.

Don't shy away from the 4v. versions either because a resistor will soon modify them for operation on some other suitable filament voltage. You can calculate the required resistance value using Ohms Law and make it up from a piece of resistance wire or buy one of suitable resistance and power rating, as usually only 1 to 5 watts will be required.

Don't worry about the "delay" being shorter if your rig has only been switched off for a very short time. If the "delay" has not had time to cool, it is certain that the rectifier will still be full of vapour.

Generally speaking it is the "cold start" that does the damage and it is usually recommended that you wait fifteen minutes before switching on the h.t.

I believe that time delay protection of m.v. rectifiers is well worth while, even though you can buy them from "Dan", "Snow" or "Mac" for about £1 per 866. It is always wise to remember that the abovementioned gents will not be available when you do the wrong thing and up goes a pair of rectifiers.

FOR YOUR OWN SAFETY

In making connections between power supplies and apparatus, always place the socket on the power supply so that accidental contact is not possible. **DEATH IS SO PERMANENT!!!**

HOW TO TUNE YOUR PI-NETWORK FINAL

(Continued from Page 2)

you watch the amplifier plate current (which has been previously adjusted to the dip at resonance). The plate current should start to rise. As soon as it has risen a noticeable amount, re-adjust C1 to the bottom of the dip in plate current. You will notice this time that the dip in plate current is less pronounced and that the current does not dip to as low a value as it did previously. This indicates that the amplifier is beginning to take more power. As the plate current at the dip point begins to rise, you should notice that the load lamp will start to get brighter, indicating that as the amplifier begins to take more power input, it produces more power output. Also notice that when you tune C1 away from the plate current dip the plate current will increase but that the output power will be reduced.

If the plate current at the dip is not up to the rated value for the amplifier tube when you have reached minimum capacitance on C2, return C2 to the maximum capacitance setting, turn S1 to the next position and repeat the same procedure. The process should be continued, advancing S1 one position at a time, until the amplifier is drawing rated plate current at the plate-current dip. By the time the amplifier is fully loaded, the dip in plate current will have become relatively broad. Adjustment of the capacitances will become more critical, as the frequency of operation is increased.

In most transmitters you will find that you can increase the loading until the amplifier is drawing considerably more than rated plate current, and you may get some corresponding increase in power output. However, you should not operate the amplifier this way if you expect to get normal service life from the amplifier tube or tubes.

CRYSTALS SUBSTITUTE MECHANICAL FILTER

(Continued from Page 3)

with the crystal to keep the Q of the crystal in the middle of the bandpass curve-down (Rq in Fig. 5). This value must be calculated experimentally. Also the bandwidth can be changed this way, within small limits.

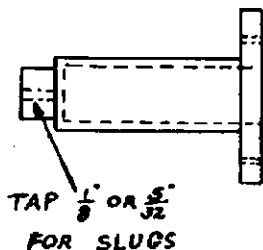
Needless to say, that for extremely sharp bandpass, it is possible to use a single stage with only one crystal or two stages with the crystals on exactly the same frequency. Also it is possible to use four stages in the same manner as Fig. 5 presents.

The discussed filter circuit can be used for frequencies from 200 Kc. to 2 Mc. Receivers with a 1600 Kc. i.f. have bad selectivity if coils are used in the filter circuit. Cross modulation is the trouble with such receivers. With a three-stage "staggered tuned" crystal filter, cross modulation can be eliminated completely. A typical curve of such a filter is shown in Fig. 6. The filter circuit is very useful for many other Ham improvements.

MAKING COIL FORMERS

How often has a Ham over the years turned his junk upside down to look for something to wind a coil on? In my case, many times, and it is only within the last couple of months that I have found the answer, and here it is.

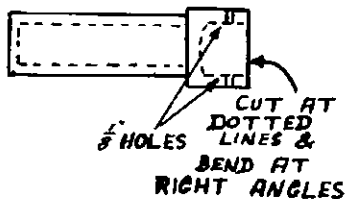
As you know, when a doctor uses a Penicillin syringe the plunger and cylinder are thrown away as useless, but I had a brain-wave. The material of which these syringes are made is Polyethylene, which is also the insulating material in co-axial cable, and the shape as you will see by the sketch, makes them an admirable coil former 1 1/2" long and 9/16" diameter with a 3/8" hole. This constitutes the syringe and another form is made from the plunger 1 1/2" long 3/8" diameter with 1/4" hole. Both pieces can be slug-tuned, one with 3/8" slug, and the other with a 1/4" slug.



To make these formers I proceeded as follows:

Firstly, I pulled out the needle with pliers, then I drilled a 1/8" hole through where the needle was removed and tapped 5/32". This is standard for a 3/8" slug. In the case of the plunger, the end was drilled and tapped 1/8" to accommodate a standard 1/4" slug.

Now this material lends itself to threading on a lathe, and I have made a number with 16 and 32 turns per inch. I drilled 1/8" holes in the flange of the cylinder for holding-down screws. In the case of the plunger I cut out pieces as shown in sketch, bent the lugs remaining at right angles, and drilled 1/8" hole through each side for holding down purposes.



If one wants to use slugs from the top of chassis, a small piece of wood or perspex turned and tapped to fit the screws of the slugs can be cemented into the cylinders, which also allows the coils to be wound well away from the surrounding metal.

Of course, it is not necessary to thread the cylinders so that a close wound coil can be used instead. When the coils are wound, cement them in position (with the tension still on) with any cement you have on hand. In

SIMPLE DESIGN COVERING ALL BANDS FROM 1.8 TO 30 Mc.

The tuner to be described was devised for a blind Amateur so that he could accurately resonate his p.a. tank circuit and, with the p.a. switched off, tune the exciter for maximum drive. It can also be used as a monitor for both c.w. and phone, and is useful wherever a simple wavemeter is needed. No originality is claimed for the design, but it is put forward in the hope that it will be of help to other sightless operators.

It will be seen from Fig. 1 that the unit consists of a tuned circuit, a diode r.f. rectifier (V1), and a triode audio oscillator (V2). The only power supply needed is for the heaters of the two valves.

In operation, the tuned circuit is set to the centre of the desired band and a small amount of r.f., picked up by a short length of wire attached to the aerial terminal, is rectified by V1 and used as h.t. for V2. V2 then oscillates, and a note is heard in the headphones.

* Reprinted from R.S.G.B. "Bulletin," April, '58.

As the driver or p.a. tank is tuned to resonance, the amount of r.f. picked up by the tuner increases, thus causing the volume of sound in the phones to increase.

By this means the transmitter can be peaked up as accurately as if the operator were watching a meter.

The switch S2 prevents oscillation when the tuner is being used as a phone monitor.

Construction is simple and the component values and layout are not critical. The transformer T1 provides the anode-to-grid coupling to make V2 oscillate and couples the output via a low impedance winding to the headphones. The transformer used in the original unit is a surplus item numbered ZA14587, but any transformer with similar windings, such as the modulation transformer from a Wire-less Set No. 17 or the output transformer from the "A" set of a WS19 should be suitable.

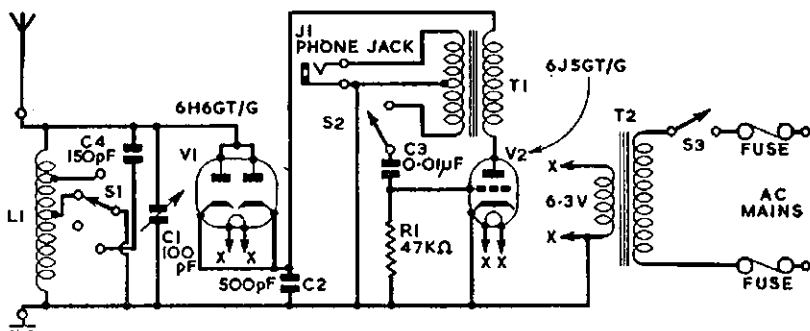


Fig. 1.—Circuit diagram of audible tuner. C1 is the main tuning condenser, C4 being switched in for 1.8 Mc. by wavechange switch S1. L1 is 30 turns 26 s.w.g. wire on 1 inch diameter former, tapped at five turns for 10, 15, 20 metres, and at 15 turns for 40 metres.

my case I use perspex dissolved in chloroform.

You will find in the cylinder a rubber bucket. Push this out, drill a hole through the centre and you will have a rubber grummet ideal for insulating wires through chassis, etc.

—W. H. Hannam, VK2AXH.

REMOTE TUNING OF THE CUBICAL QUAD

A great help in receiving through QRM with a cubical quad antenna is being able to phase out interfering stations by adjusting the quad's reflector at the operating position. This may be done with receiving-type twin-lead and a 360 pF. variable capacitor.

Attach one end of the twin-lead to the junction of the reflector and the tuning stub and the other end to the capacitor which has been mounted at the operating position in the shack. Set the capacitor at half capacitance and then adjust the stub for maximum front-to-back ratio as is normally done.

I can adjust for front-to-back ratio over the entire 21 Mc. band with this arrangement. The forward gain remains essentially the same regardless of the

setting of the capacitor, but interfering signals from the back may be reduced an average of 30 db.

—Capt. J. R. Hagen, K4JMA, "QST" Feb. '58.

COIL FORMER FROM 35 MM. FILM CASSETTE

A useful coil former is readily available in a well known 35 mm. film cassette. The black spool is styrene and being hollow can be adapted to take a slug.

—G. Bills-Thompson, VK3AHN.

MULTIPLE POSITION CRYSTAL HOLDER

A simple and inexpensive holder for a group of crystals may be made by mounting salvaged tube socket clips in a sheet of plastic.

Holes drilled to accommodate the clips should have a diameter slightly smaller than that of the clips. This will allow the clips to be force-fitted into place. Heating each one with a hot soldering iron will seal it to the plastic. Naturally, the heat should be applied with caution so as not to completely melt the holder.

—L. F. Lind, K4AWQ ("QST," Mar. '58)

CORRESPONDENCE

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publishers.

Editor "A.R.," Dear Sir,

When working George VE2LI (ex-G5LI) recently, I mentioned the late VK5BY, knowing that they were old friends.

George was very shocked at the news of Doug's death as they had many QSOs over the last 25 years from both G5LI and VE2LL.

He specially requested that his great sorrow be expressed in the VK Ham Journal and that his sympathy be extended to Doug's widow and family, and also to the W.I.A. at the loss of such an outstanding member.

—H. M. Roberts, VK5MY.

COUNCIL OF ADULT EDUCATION OF VICTORIA CLASSES

Editor "A.R.," Dear Sir,

Readers of "Amateur Radio" may be interested to learn that the Council of Adult Education of Victoria will be holding a class for those interested in practical electronics.

The class is experimental in so far that instead of the students being asked to work on a set project, they will be invited to come up with anything they are actually working on and an attempt will be made to develop the lectures around the immediate practical needs of the members of the class.

The C.A.E. is anxious that information about this class should reach as

many technically minded people as possible and if you could assist in giving any publicity I would be very grateful.

—R. Hartkopf.
[Details of the class are shown hereunder.—Editor.]

ELECTRONICS FOR THE HANDYMAN

Mr. R. Hartkopf
Adult Education Centre,
114 Flinders Street,
Melbourne.

7.45 p.m. — 9.15 p.m.
Beginning September 18
Thursdays.

This course is exclusively for people who are actually working on some electronic gadget—anything from a crystal set to a hi-fi or an electronic brain.

Practical experience gained by class members working on their individual projects will be linked with basic theory, thus enabling them to expand their knowledge.

Duration of course: 10 weeks. Fee: £2/0/0.

ADDITIONAL FREQUENCIES FOR VK2WI BROADCASTS

There are now three transmitters in full operation at VK2WI, Dural. The frequencies used on the Sunday broadcasts are: 3575 Kc., 7146 Kc., and 146.0 Mc. Call-backs are taken on 7050 Kc. at present.

During August, the transmitters commenced operation on full power after the supply authorities connected in a pole transformer about 400 feet away from the transmitting room. Previously power had to be drawn for over two miles away.

BOOK REVIEW

DRY BATTERY RECEIVERS WITH MINIATURE VALVES

By E. Rodenhuis

Here is yet another absorbing volume from the prolific Philips Technical Library.

Even the advent of television has not reduced the popularity of the dry battery portable type receiver. In fact they appear to gain in favour each year.

Although transistors are beginning to make their way on to the local market, they are as yet not available in sufficient quantities to seriously challenge the miniature valve.

From an Amateur point of view these tubes have obvious applications in portable emergency gear.

Chapters in the book are devoted to a full discussion in the use of dry battery valves and include sections on valve types, circuit design, electronic tuning indicators, and typical circuits.

One interesting feature is the use of these valves in high frequency f.m. circuits.

Unfortunately all the valves described are European types and are unavailable here. However, as full data is given on each one, it would not be hard to substitute a local equivalent.

Our copy from Philips Gloeilampenfabriek, Hblland.

The book is available from Philips Electrical Industries Pty. Ltd., 69-73 Clarence Street, Sydney. On information supplied, the price is 32/6 Sterling.

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LET US LOOK AT THE FACTS:

- ★ Clip-in insert. Can be replaced without removal of mounting bracket.
- ★ Half inch and centre mounting interchangeable with standard arms.
- ★ Robust construction with positive positioning for "Standard" and "Longplay" positions.
- ★ Non-hygroscopic adhesives used throughout in the manufacture of the crystal element.



- ★ Slip-in Sapphire styli, interchangeable with standard makes.
- ★ Replacement styli available, also fit other standard cartridges.
- ★ High compliance, which ensures good tracking, thus resulting in low record wear.
- ★ Wide frequency response, enabling the utmost realism from modern wide-range recordings.
- ★ Attractively and safely packed in sealed clear-plastic container.

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AMATEUR TELEVISION

PART SEVEN

BY E. E. CORNELIUS,* VK6EC/T

TESTS AND MEASUREMENTS

To obtain optimum performance of the camera chain, certain test equipment and test charts are invaluable. The important checks to be applied are:—

1. Scan linearity.
2. Frequency response.
3. Low frequency phase response (square wave).
4. System gamma.
5. Pulse durations, rise and fall times.

Scan Linearity will be discussed first, and requires the use of a test chart and a grating generator. The grating generator is designed to provide a grid, grating or crosshatch pattern on the picture tube, with 20 vertical bars, 17, of which should be visible, and 15 horizontal bars, 14 being visible, the remainder being lost in blanking.

*167 Wood Street, Inglewood, Western Aus.

A corresponding test chart is made, having 17 vertical rows of circles, and 14 horizontal rows. This is scanned by the camera, and reproduced on the monitor. The grating is superimposed electrically, and with perfect scan linearity, the bars fall centrally across the corresponding circles.

The circles are made such that the width of the inner white circle is 1.5% of screen width, and that of the black outer circle is 3%. Then the displacement of any bar can be measured as a percentage.

Fig. 31 shows the test chart, with important dimensions. In the top left hand corner is shown a part of a superimposed grating showing accurate linearity. The chart is made from show-card paper, with black Indian ink, and glued to masonite.

The chart alone will not show scan linearity in either camera or monitors. If the camera is scanning too fast on

the right, on a linear monitor, the right hand side of the pattern will be compressed. An equal and opposite non-linearity of the monitor can exactly cancel this by expansion on the right (the most common condition) resulting in apparent perfect linearity of both. A linear monitor, however, would show up the camera non-linearity.

Method—Camera Linearity

Set up the camera on the chart and adjust the scan width and height to just show the edge arrows on the monitor. Not the viewfinder, as this shows slightly more picture width and height, due to the non-standard blanking provided from the drive pulses.

Superimpose the pattern from the grating generator, panning and tilting the camera slightly to obtain register of the centre V. and H. bars with the centre of the pattern. The grating signal can be mixed by feeding into the mixer, or via a series resistor of the

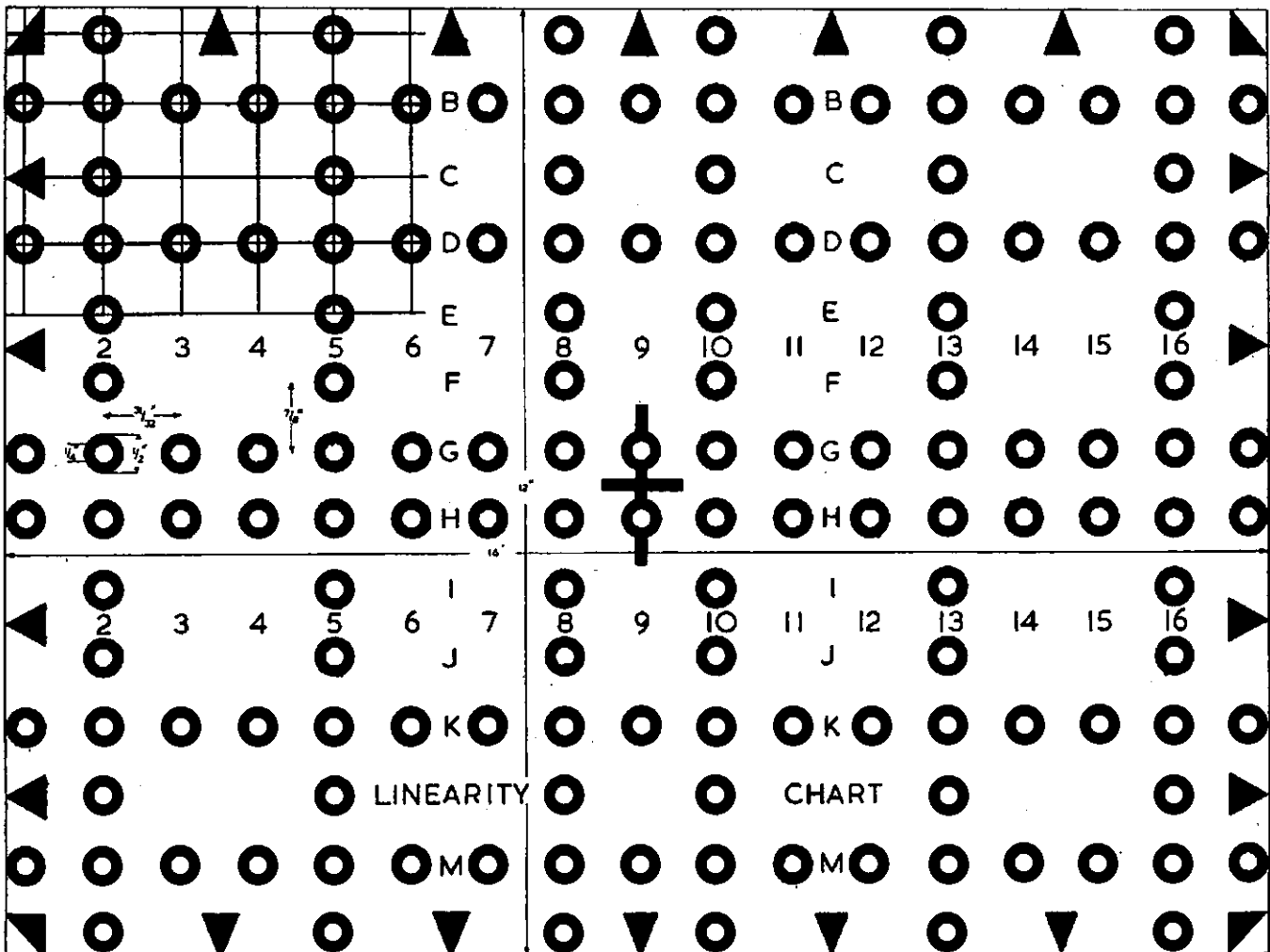


FIG. 31.—LINEARITY CHART

order of 1,000 ohms to the viewfinder or c.c.u. input.

Using the camera linearity and width controls in conjunction, adjust the picture from the chart until the best horizontal scan linearity is obtained, while maintaining the correct width. The rows of circles will move horizontally as the linearity control is varied, and the final result should give better than 2% non-linearity for all of the 17 bars. Some compromise will be necessary, and small errors all across the screen are better than a large error, usually at one edge, and accurate scan over the rest.

Once set, mark or lock the camera horizontal linearity and width controls, and do not disturb them until a tube or circuit is changed. Then operate similarly on the vertical linearity and height controls, and lock or mark these when optimum results are obtained.

Picture Tube Linearity

Any deformation of the chart or grating now seen on any monitor tube is due to non-linearity of that tube's own scanning circuits. Using an engineer's dividers measure the distance apart of adjacent grating bars on the monitor screen. Adjust the horizontal linearity and width controls, and the vertical linearity and height controls until the bar spacings are as near equal as possible.

The toughest test that a camera chain has to face is to delineate accurately a large circle. This is an extremely sensitive test of linearity, and some deformation will still be detectable when the linearity is better than 2%.

The grating generator is a very useful instrument, other than for linearity checks, as it provides a convenient source of signal for many functional tests on individual units and as a video source for "on air" testing. The circuit is shown in Fig. 32.

It is fed with 4 volt negative line drive pulses, or composite sync., as a split off the signal generator. The differentiated pulses synchronise a 15,625 p.p.s. blocking oscillator, which drives

a X20 multiplier giving 312.5 Kc. p.p.s. output for the 20 vertical bars. It is not possible to obtain 15 horizontal bars directly by division from 15,625, and it is first necessary to multiply by 6, and then divide by 125 in three steps of five.

The isolating amplifier V1 synchronises V2, a blocking oscillator using grid and screen. Two tuned circuits in series with the anode are tuned to X10, 156.25 Kc., and X6, to 93.75 Kc. These use 175 Kc. i.f. transformers loaded to the new frequency.

The 156.25 Kc. is doubled again to 312.5 Kc. in V3, and amplified by V4, which injects sync. into the 312.5 Kc. blocking oscillator V5, for the 20 vertical bars.

The 93.75 Kc. signal is divided by three phantatron dividers by 5 x 5 x 5 to 750 p.p.s., which is the frequency of the 15 horizontal bars. These two bar frequencies are combined in an ECC35 (V9) clipped and amplified by V10, and fed to a cathode follower V11, for low impedance output, delivering about 1 volt p/p. in 75 ohms.

The 15,625 p.p.s. b.o. transformer may be similar to a receiver type, with three equal windings. The transformer for 312.5 Kc. is not an easy component to design. The output pulses should be 0.25 μ sec. in duration and this is determined almost entirely by the b.o. transformer characteristics. I used a vintage "Siruser" core with similar windings in each of the three former slots. Each is wound with 60 turns of 36 gauge B. & S. I suggest that a powdered iron core be used, with pots to enclose the windings, similar to the "Permaclad" design. Wind with about 60 turns per winding and test. Regardless of pulse rate, over wide limits, the pulse duration (width) will be substantially constant. Measure the pulse duration, as outlined later, and if too long, reduce the number of turns on each winding, and conversely. When somewhere near the correct pulse width, make sure the b.o. is running near 312.5 Kc. before the final checks and adjustments are made.

As the h.t. supply is glow-tube regulated, the counter is very stable, and once adjusted, should need no further attention. In my unit, the horizontal bars lock within a minute of switching on, and stay locked indefinitely. For monitoring the count, connect a c.r.o. to the cathode of the stage. When the correct count is obtained, the vertical displacement of each fifth pulse is obvious.

Frequency Response

Ideally the overall video chain should be flat from 25 c.p.s. to 5 Mc., with constant phase delay throughout this range. Flat frequency response alone is not sufficient. Two methods of checking this are available, one by h.f. and l.f. signal generators, for sine and square wave response, the other by the use of resolution and streaking charts. The first method is desirable for initial design and construction, and the second for occasional routine checks.

H.F. Response

From 100 Kc. upward, provided the frequency response is flat, phase delay will be no problem. The individual response of each unit should be good, as well as that of the overall chain. Step by step frequency response checks would be prohibitively time wasting. Sweep frequency techniques are ideal and quick. The equipment required is a video sweep generator, low capacity detector probe, and any c.r.o.

The technique is to feed a video frequency of constant amplitude, swept from 100 Kc. to say 6 Mc., at a 25 to 50 c.p.s. rate, into the unit at the correct level and impedance. The output of the unit, correctly terminated, is fed to a probe, and so to a c.r.o., with its horizontal sweep in synchronism with the video sweep.

About the only satisfactory way to obtain a sweep from 100 Kc. to 6 Mc. is by a beat frequency technique. The sweep generator to be described is only one approach to this, and the swept oscillator could use any of a number of mechanical and electrical sweep methods.

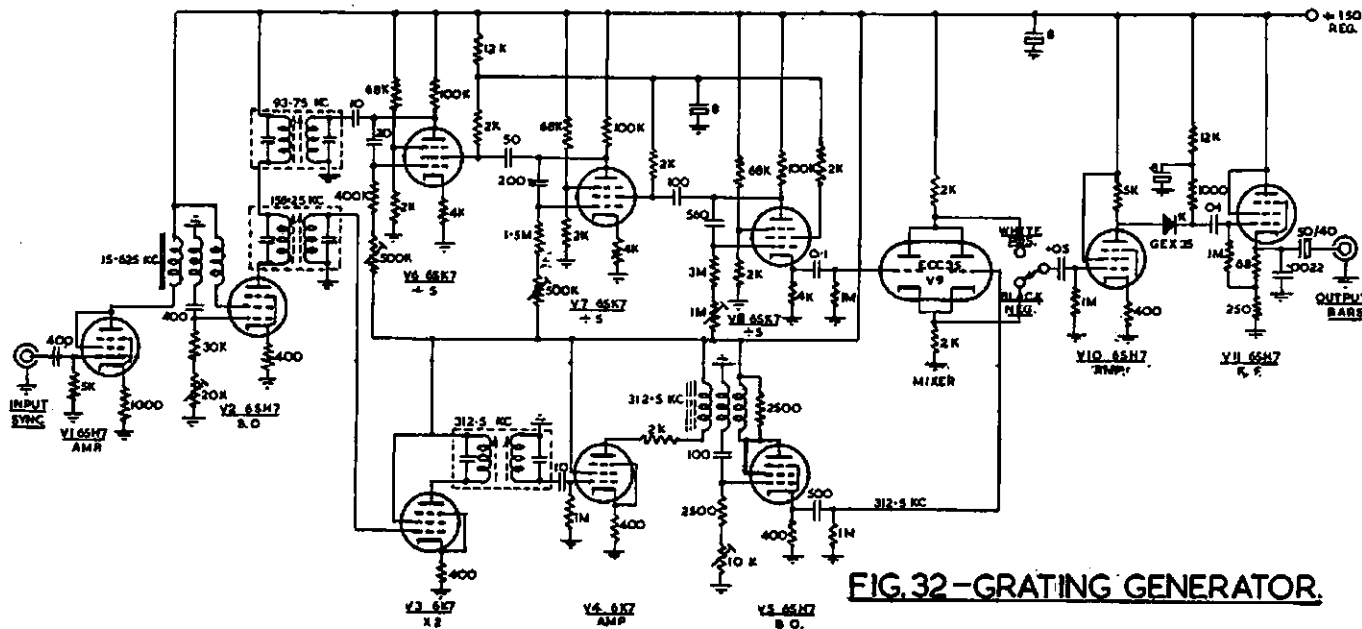


FIG. 32 - GRATING GENERATOR.

Video Sweep Generator

In this generator, the fixed oscillator operates on 16.5 Mc. doubling to 33 Mc. The swept oscillator is a reactance tube type, on a fundamental frequency of 11 to 13 Mc., and tripled. The sweep is unidirectional or offset, with 11 Mc. as the rest frequency, by means of the bias arrangement in the sawtooth output circuit.

The 11 to 13 Mc. sweep is passed through a tripler limiter, and mixed in a germanium diode with the fixed 33 Mc. The 0-6 Mc. video output, is amplified in a video amplifier, and about 1.0 volts peak to peak is available from the cathode follower output. See Fig. 33.

The sawtooth generator V1 is a blocking oscillator at 25 c.p.s. synchronous with the mains. The sawtooth, of amplitude 5 volts p.p. is biased with -5 volts to make it unidirectional in polarity, and then fed through a potentiometer (sweep width) to the reactance modulator. As the maximum percentage deviation required is high, 2 Mc. in 11 Mc., a cathode follower type reactance tube modulator is used (V2, V3), varying the frequency of the oscillator tube V4, tripling in its plate circuit. In order that the zero video frequency, which occurs at about 50 Kc. before locking of the two oscillators takes place, should always be at the left of the c.r.o. display, regardless of sweep width, a set zero control is provided, which corrects zero drift.

The two-stage 33-39 Mc. amplifier-limiter, V5, V6, uses over-coupled transformers for flat response. Details of these transformers T1, T2, T3 are shown in Fig. 34. Tuning of primary and secondary is by means of a twisted pair of 22 gauge plastic wires, about 3/4" long.

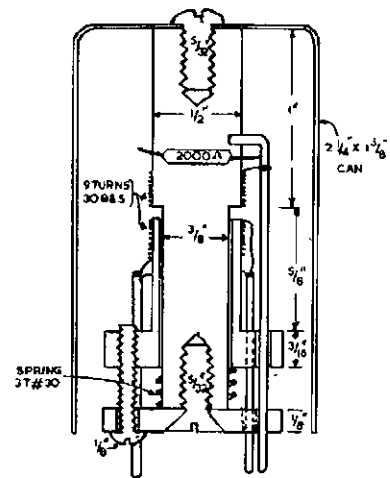


FIG. 34-33-39MC TRNSFMR

The coupling between primary and secondary is variable, and this is used in final adjustment to flatten the swept video output level over the full range.

The fixed oscillator V7 uses the grid-screen circuit for the oscillator on 16.5 Mc., and doubles in its plate circuit in the transformer T3. It was found that if the tube was worked on the fundamental, its frequency was pulled by the swept oscillator, and locking occurred. The mixer diode is an OA54, having a 1,000 ohm load, feeding the grid of the video amplifier V8. Output at low impedance is available at the co-axial output connection from the cathode follower V9. C.r.o. sync. is effected from the positive pulse from the cath-

ode of V1, at 25 p.p.s., fed to another co-axial outlet.

Detector Probe

This is shown in Fig. 35. The germanium diode, resistors and capacitors are mounted in a small plastic pill box, shielded inside, with a short low capacitance probe mounted on one end. It introduces about 1.5 pF. additional capacitance, and this can be ignored on low impedance circuits and allowed for on high. Its output can be taken to the vertical amplifier of any standard c.r.o.

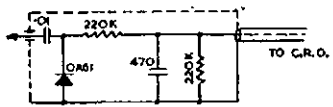


FIG. 35- PROBE

Operation

The sweep generator injects a signal at the appropriate level and impedance to the unit under test, and the probe is coupled across the correctly terminated output. The level of the detected envelope of the swept video is displayed on the c.r.o. screen as a line as in Fig. 36A. As it stands it is meaningless, as the reference zero is missing.

In the c.r.o. used, a car radio type vibrator, its reed loaded with wax to resonate at 50 c.p.s., is run from the filament line and is arranged to short circuit the probe output at 1/100 second intervals. This dots in the zero base line and enables the deviation of the trace from the ideal straight line to be assessed. See Fig. 36B. The response of the individual units must be very good, as a 1 db. drop per unit, results

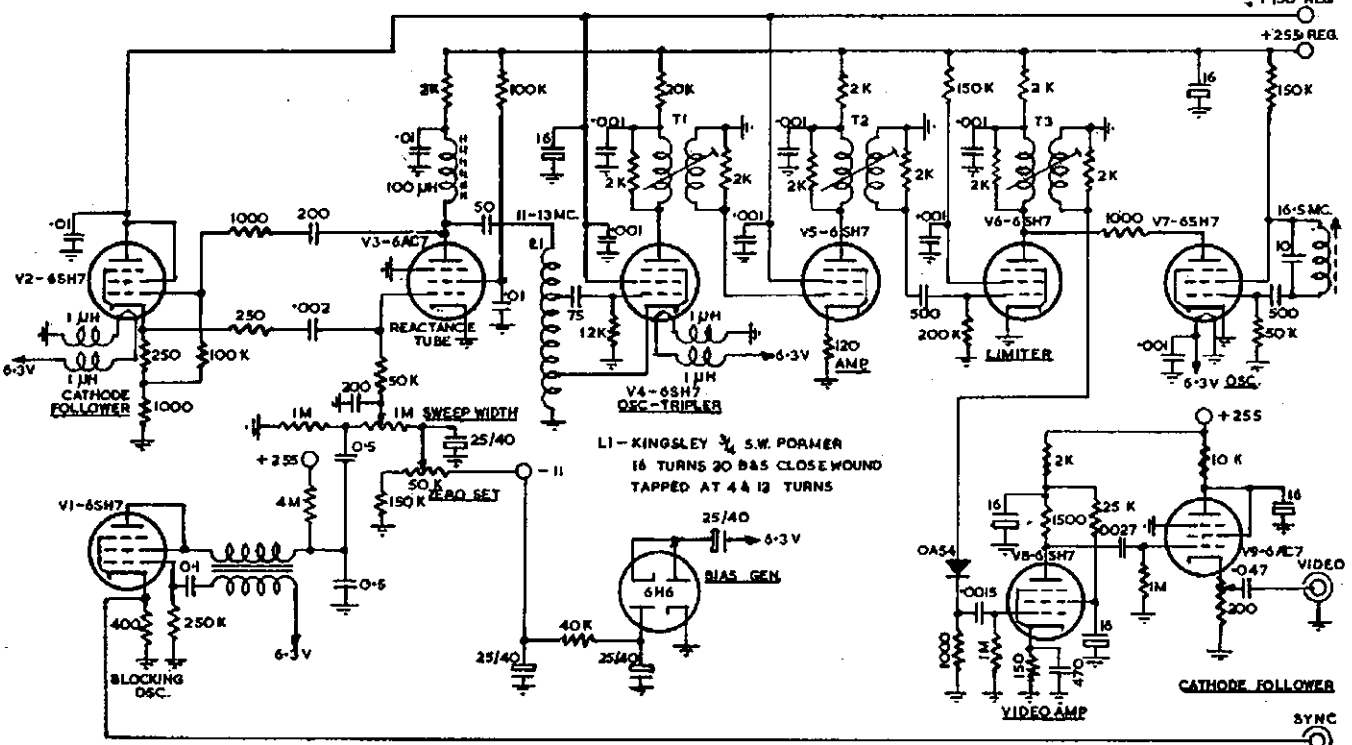


FIG. 33-VIDEO SWEEP GENERATOR

in 3 db. over 3 units, which is excessive. Each unit should be flat $\pm 5\%$ (0.5 db.) at least 5 Mc. and the overall response of the system flat to 20% (2 db.).

Frequency Marker

A service type oscillator can be used to inject a marker signal into the probe input, at a frequency between 100 Kc. and 6 Mc., to mark any part of the curve. Do not leave it connected to the probe while in use, as it may overload the video amplifier and modify its response. I find that with about 1 volt output from the marker, stray capacitance will usually give enough coupling to provide a mark, when the oscillator output lead is placed close to the probe tip.

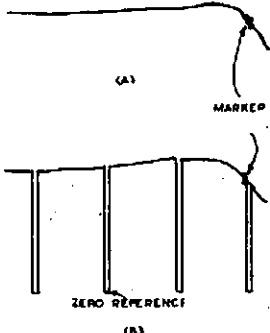


FIG. 36—C.R.O. DISPLAY

Low Frequency Response

Poor low frequency response implies either low frequency droop, or low frequency phase shift. Amplitude fall-off is serious, but l.f. phase shift is disastrous. Normal RC couplings between stages cause low frequency phase shift, the phase becoming more advanced as the frequency is lowered. All the circuits described to date use l.f. compensation to maintain phase and frequency response within commercial limits. One of the best methods of checking these factors is by means of a square wave at about 50 c.p.s.

Note.—It is impossible to check with a low frequency square wave, any circuit incorporating keyed clamps. Unless a special generator is used, giving a signal with horizontal blanking pedestals inserted in the square wave, the clamps will treat the square waves as hum, and obliterate them with results similar to severe differentiation. The clamps will, however, restore a signal with a poor low frequency response, so square wave checking through them should be unnecessary.

Square wave methods can be used in the camera and monitor, which have no clamps, and through the c.c.u., where blanking pedestals are inserted before any clamping occurs. The technique is to inject a square wave into the unit under test and examine the waveform delivered, by a c.r.o. The square wave must be above suspicion with less than 1% of tilt (sag), and a suitable squarer, a cathode coupled double clipper, is shown in Fig. 37.

This will clip a sine wave of any frequency from 15 c.p.s. to 20 Kc., of amplitude 5 to 50 volts r.m.s., to a square wave with less than 1% tilt. In

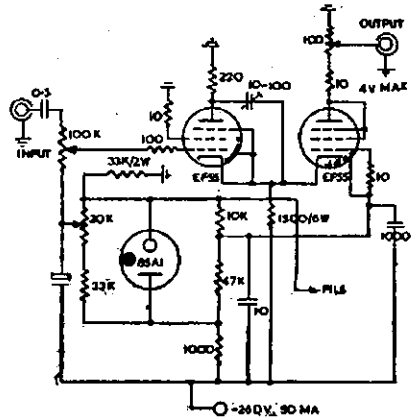


FIG. 37—CLIPPER

this cathode coupled clipper, only one tube can conduct at a time and the changeover is extremely rapid. Note that h.t.+ is earthed, and the output is taken from the anode circuit without a coupling capacitor. The potentiometers in the input circuit adjust the clipping levels and hence the mark-space ratio. For our purposes, 1:1 is most suitable.

The c.r.o. too must be above suspicion and should be checked in advance by examination of the square wave from the clipper. If there is any detectable tilt, it is in the c.r.o. and must be allowed for in evaluating the displayed waveform. Referring to Fig. 38A, this waveform is within limits of less than 3% tilt at 50 c.p.s. Fig. 38B shows good frequency response, but leading l.f. phase shift due to insufficient compensation, the most common condition.

Fig. 38C shows good frequency response, but l.f. lagging phase shift due to overcompensation. Fig. 38D shows poor l.f. response, but no phase shift. Poor l.f. response usually occurs in conjunction with leading phase shift. Fig. 38E shows a rising l.f. response, but without phase shift, and usually occurs with a lagging phase shift, due to overcompensation.

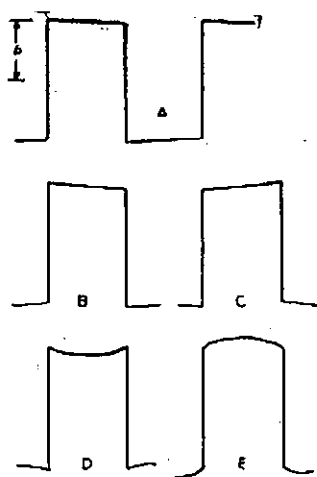


FIG. 38

An overall check on l.f. and m.f. response can be obtained by use of a streaking chart, such as that shown in Fig. 39.

This chart, when used before the camera, effectively generates a series of square waves, of progressively longer duration. These run from 0.133 μ sec. on block 1 to 37.5 μ secs. on block 15. When transmitted through the system, the following effects may be noted:

1. Ringing after blocks 1, 2, 3 or 4 showing a peak in h.f. response in the region 1 Mc. to 5 Mc.
2. Black streaks after any or all blocks, indicating excessive l.f. response and lagging phase shift.
3. White streaking (overshoot) after any or all blocks, indicating reduced l.f. response and leading l.f. phase shift. These two latter conditions are used to set up correct camera high peaking.

Using the chart, the high peaker is adjusted to the point where the streaking following the blocks just changes sign from black to white. It is most sensitive on the smaller blocks. Slight h.f. overcompensation gives slight overshoot into the white and gives crisper pictures, but tends to cause ringing. Taken to excess, it gives an apparent negative picture or bas relief effect.

Note.—The chart must be aligned such that the blocks are parallel to the scanning lines. This can be adjusted by noting the position giving maximum streaking or overshoot. If the chart is levelled, it is the best on which to adjust camera yoke orientation for a truly horizontal scan.

The chart is 12" x 16" and the physical length of each block and the corresponding duration in microseconds is tabulated below:

Block No.	Length inches	Duration μ secs.
1	0.04"	0.133
2	0.08"	0.2
3	0.09"	0.3
4	0.135"	0.45
5	0.2"	0.67
6	0.3"	1.0
7	0.45"	1.5
8	0.675"	2.25
9	1.0"	3.3
10	1.5"	5.0
11	2.25"	7.5
12	3.375"	11.25
13	5.0"	16.5
14	7.5"	25.0
15	11.25"	37.5

The chart can be on white show-card paper in Indian ink, the 5 μ sec. timing bars after the blocks are 1.5" apart.

System Gamma

This can only be checked with a chart having a grey scale, and would be very difficult to make up with inks. I use a photostat of the R.M.A. resolution chart, which has four 10-step grey scales. The original was very good, being a full page illustration in an old copy of the Proceedings of the I.R.E. (U.S.A.), but I am unable to quote which issue. One shown in Ennes' "Principles and Practices of Telecasting Operations", page 265, is only fair, but seems to be the best published in standard text books.

A 16" x 12" or larger copy of this chart would be of great value for streaking, resolution, interlace and gamma checking, and those interested

will probably be able to locate a chart or have one copied.

For checking gamma, the camera views the chart and the system adjusted for the best picture and the correct levels. Then the monitor is used to check that:

1. The video levels are correct for full black and white.
2. The monitor shows optimum rendition of full black and white from the chart.

Then if the system gamma is correct, each of the ten steps of the grey scale should be clearly visible. If not, adjust the "set gamma" control, making sure that the system gain and the output levels remain constant the while. If a compromise is necessary, some degree of white compression is less objectionable than black compression.

Pulse Duration, Rise and Fall Times

The A.B.C.B. has laid down standards for sync. and blanking pulses, a copy of the Standards being available from the Board on request. Measurement of pulse duration can easily be made by the "Pulse Cross" display described in Part 6, published in August, but evaluation of pulse rise and fall times is not so easy.

In the equipment described, the sync. and blanking pulse rise times are all well within the specifications at all points in the chain. Measurement is best done with a c.r.o. of wide bandwidth, 3 Mc., or better, and triggered sweep, in order to be able to display a pulse over a large part of the screen. The rise and fall time for all horizontal pulses is between 0.2 and 0.4 μ sec., measured from levels 10% to 90% of maximum amplitude.

A method of measurement, using normal sweep, is as follows: Display two pulses on full screen, say 4" from leading edge to leading edge. This is

64 μ secs., i.e. 16 μ secs. per inch. Check the pulse width, and adjust to the standard. If a sync. pulse, adjust to 5 μ secs., i.e. 5/16".

Now using sweep expansion, spread one sync. pulse as wide as possible, say 1". Measure now from 10% to 90% of the height, the rise and fall times should be less than 0.4 μ sec., which is 0.08" say 5/64".

These tests enable a complete evaluation of the performance of a camera chain, and the use of the three charts, linearity, streaking and R.T.M.A., enable periodic checks to be made quickly.

I had hoped to be able to describe the video c.r.o. in this part, but as a complete description is too lengthy, it will be dealt with in full in Part 8 next month. This extends this series to nine parts, the final instalment in November dealing with the transmitter.

NEED SOME POLYSTYRENE CEMENT?

If so, make it yourself, cheap, too

First off, get an empty nail polish bottle from the XYL. A few minutes with some acetone and you will have a clean and compact bottle, holding enough cement to last for some time, complete with applicator brush. If the bottle has a plastic insert which is intended to prevent spilling, discard this.

By some diligent shopping in one of the chain stores, you will discover some small cheap article made of clear polystyrene. Since this is likely to be an attractive item in the eyes of either the XYL or junior op., keep it from view until you get home. Now cut pieces from this article, side-cutters are best for this job, the pieces sufficiently small to go into the nail polish bottle.

Fill the bottle with chloroform except for a space of about 1/4" at the top. Put in the pieces of poly, which will dissolve in an hour or two.

The polystyrene to chloroform ratio is purely a matter of preference, but a fairly thick solution is best for coil doping. On the other hand, you will use most of this cement for repairing many of the plastic toys, rattles, refrigerator dishes, etc., which are available these days; for this a thin solution is better. The writer's junior op. has a plastic duck, essential bath equipment, of course, which has been repaired 17 times to date. Oh yes—clear poly is recommended partly to avoid any possible trouble with dye material where there is r.f., and also because pink cement looks somewhat out of place on a yellow duck!

If you want a slow-drying solvent, use xylol. For a quick-drying solvent, use tri-chlor-ethylene.

—Reprinted from "Break In," Jan., '58.

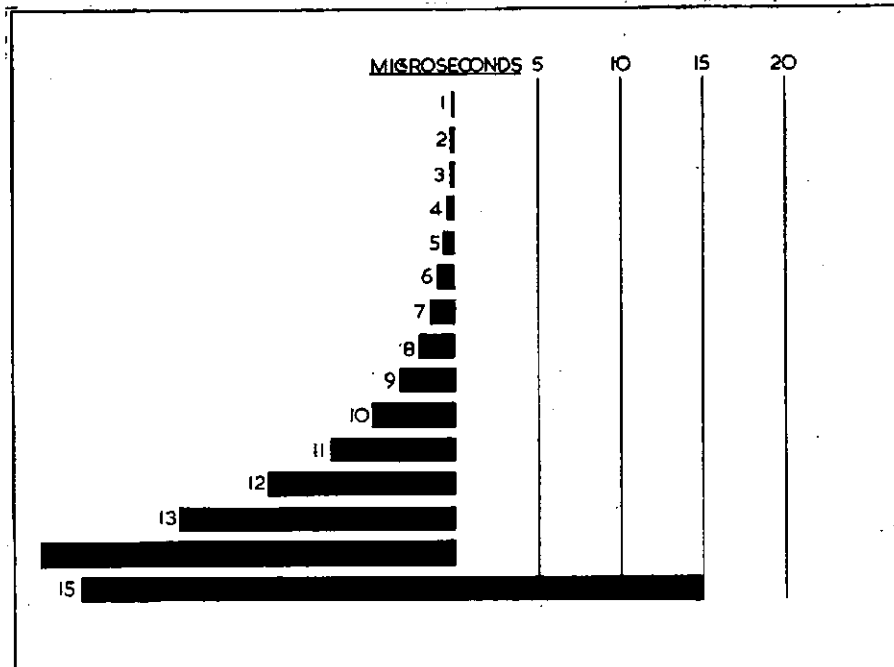


FIG 39—STREAKING CHART

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**MEET THE OTHER AMATEUR
AND HIS STATION**

**ARNOLD HOLST*
VK30H**

ARNOLD Holst was born in Ballarat, Vic., in 1897 and is the eldest of three pioneer Ham brothers—Arnold, Hector (deceased), and Otto (VK3BY). Arnold's licence was issued in January 1914 with the call sign XPH. From 1916 to 1919 he saw service in the 1st Australian Wireless Signal Squadron in Mesopotamia and Persia using mobile Marconi 1½kw. and ¼kw. spark transmitters.

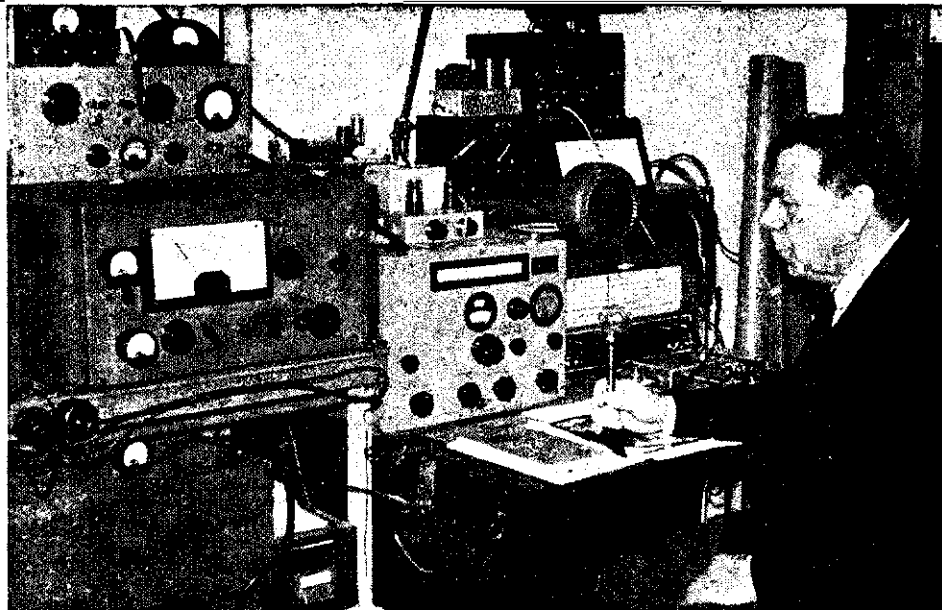
Arnold became active again about three years ago and is still happy to feel a morse key under his fist.

The five-band 100 watt transmitter uses a Geloso v.f.o. unit into a pair of parallel 6146s with pi output.

The unit above the transmitter contains a low-pass filter for t.v.i., reflected power meter and outgoing power meter, and an all-band aerial coupler. Sitting on top of this is a percentage modulation meter and the matching box of the Panda G4ZU beam.

Below the transmitter is a Type "S" power pack which supplies h.t. for the 6146s only and 12 volt relay supply.

* 10 Filintoft Avenue, Toorak, Vic.



The Geloso h.t. supply power pack is out of the picture. Also not in view is the modulator using 807s in class B zero bias and its power pack.

The receivers are Eddystone 680X and Marconi CR100.

The antenna system consists of a Panda G4ZU beam for 20, 15 and 10 meters and a 67 ft. long horizontal ended through a linear transformer, 34 ft. long and 300 ohm ribbon for 40 metres.

The shack is an upstairs room in the house. The mast for the beam is attached to the house about six feet from the shack window and rests in a car steering box, the column of which is brought through a hole in the window frame.

The long tube-like objects against the corner of the shack are not old tuning inductances for 100,000 metres, but rolls of artist's canvas. Painting and sketching in oils shares with Ham Radio VK30H's spare time.

SPECIAL ISSUE OF "AMATEUR RADIO" NEXT MONTH

With the October issue, "Amateur Radio" celebrates the 25th Anniversary of its publication as the official journal of the Wireless Institute of Australia. The Publications Committee is grateful to J. H. Magrath & Co. Pty. Ltd. for vacating the front cover so that a special design, in keeping with 25 years of service to the Amateur, can be printed thereon.

Through the co-operation of old and new advertisers, many more pages will be included in this special edition. Featured articles will be:

- ★ An H.F. Transistor Receiver.
- ★ The W.I.C.E.N. V.H.F. Communicator.
- ★ Construction of a Grid Dip Oscillator: Oscillator and use of same.
- ★ A Video Oscillograph in the series of Amateur Television.

In addition many more articles and items of general interest will be included.

May we suggest that you tell your friends so that they will not miss this issue. As only a limited quantity of extra copies will be printed, it will be to their advantage if they order their copy of the October issue of "Amateur Radio" in advance.

Maybe you would like some extra copies for your Overseas Amateur friends. If so, place your order immediately with the W.I.A., Victorian Division, 191 Queen St., Melbourne, C.I. and we will post a copy direct, for the sum of 1/9 including postage.

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- Test Oscillator Unit, 230v. a.c. — 300v. (approx.) 100 mA. Rect. 5U4G. Test freq. 800 c.p.s. and 1800 c.p.s. Host of useful parts, £4/0/0.
- Power Transformers, 230v. a.c. input. Double wound sec. 155v. each, 200 mills., £1/0/0.
- Fil. Transformer, 230v. input, two 6.3v. at 1.7 amp., two 6.3v. 0.6 amp., one 6.3v. at 10 amp., 35/-.
- Halicrafters S40A Communications Receiver, excellent condition, £45/0/0.
- Strip of four EF50s, plug, resistors, condensers, pots and trimmer, £1/0/0.
- Six inch C.R.O. Indicator Unit, tube ACR13, own power supply, 2500v. d.c. (including two EF50s). Excellent for modulation indicator, panadapter, etc. £10/0/0 each.
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VK-ZL DX CONTEST, 1958

Note changes in scoring for VK-ZL stations. These should make the Contest more interesting. Note overseas scoring different to that used by VK-ZL stations.

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 GMT, Saturday, 4th October, to 1000 GMT, Sunday, 5th October.

C.w.—24 hours from 1000 GMT, Saturday, 11th October, to 1000 GMT, Sunday, 12th October.

Duration for all contestants is 24 hours.

RULES

1. There shall be three main sections to the Contest—

(a) Transmitting Phone.

(b) Transmitting C.w.

(c) Receiving—Phone and C.w.

2. The Contest is open to all licensed Amateur transmitting stations in any part of the world. No prior entry need be made. Mobile Marine or other non-land based stations are not permitted to enter the Contest.

3. All Amateur frequency bands may be used, but no cross-band operating is permitted.

4. C.w. will be used for the second week-end and Phone for the first week-end. Stations entering for both Phone and C.w. must submit entirely separate logs for each.

5. Only one contact per band is permitted with any one station for Contest purposes.

6. Only one licensed Amateur is permitted to operate any one station under the owner's call sign. Should two or more operate any particular station, each will be considered a competitor, and must submit a separate log under his own call sign.

7. Entrants must operate within the terms of their licences.

8. Cyphers: Before points may be claimed for a contact, serial numbers must be exchanged and acknowledged. The serial number of five or six figures will be made up of the RS (telephony) or RST (c.w.) reports plus three figures which may begin with any number between 001 and 100 for the first contact, and which will increase in value by one for each successive contact, e.g. if the number chosen for the contact is 053, then for the second contact the number must be 054, for the third 055, and so on. If any contestant reaches 999, he will start again with 001.

9. Scoring:

(a) Overseas Stations: 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. These are ZL1, 2, 3, 4, 5, VK0, 1, 2, 3, 4, 5, 6, 7, 9.

(b) VK-ZL Stations: FIVE points for each contact on a specific band with

an overseas station and in addition, for each new country worked on that band, BONUS points on the following scale will be added—

1st contact 50 points.

2nd contact 40 points.

3rd contact 30 points.

4th contact 20 points.

5th contact 10 points.

For this purpose the A.R.R.L. countries list will be used with the exception that each call area in U.S.A. will count as a scoring area.

10. Logs:

(a) Overseas Stations: (i) Must show in this order—date, time in GMT, call sign of station contacted, serial number sent, serial number received, band used. Underline each new VK-ZL district when contacted and use separate log for each band.

(ii) Summary sheet to show—call sign, name and address (block letters), details of rig, TOTAL SCORE by showing total of districts worked on all bands and total contacts on all bands. (Districts multiplied by contacts equals Total Score.)

(b) VK-ZL Stations: (i) Must show in this order—date, time in GMT, call sign, of station contacted, serial number sent, serial number received, band of operation, contact points, bonus points. Use a separate log for each band.

(ii) Summary sheet to show call sign name and address in block letters, and score for each band by adding contact points and bonus points for that band and TOTAL SCORE by adding scores together. Details of equipment used—receiver, antennae, transmitter and power used.

11. Declaration to be attached to all logs: I hereby certify that I have operated in accordance with the rules and spirit of the contest.

12. The right is reserved to disqualify any entrant who, during the contest, has not observed regulations or who has consistently departed from the accepted code of operating ethics.

13. The ruling of the Executive Council N.Z.A.R.T. will be final.

14. Awards: (a) VK-ZL Stations: Certificates will be awarded by N.Z. A.R.T. to the top scorer on each band and the top scorer in each VK-ZL district. The top scoring ZL in c.w. and also in Phone will receive a suitable plaque.

(b) Overseas Stations: Certificates to the top scorer in each scoring area. Additional certificates will be awarded depending on the number of logs received, e.g. to high scorers on different bands and place winners.

15. Entries from VK-ZL stations must reach N.Z.A.R.T. Contest Manager, ZL2GX, 86 Lytton Rd., Gisborne, N.Z., before 20th December, 1958. From Overseas stations must reach N.Z.A.R.T., Box 489, Wellington, N.Z., before 23rd January, 1959.

RECEIVING SECTION

1. The rules are the same as for the transmitting section, but it is open to all members of any Short Wave Listeners' Society in the world. No transmitting station is permitted to enter this section.

2. The Contest times and logging of stations on each band per week-end are as for the transmitting section.

3. To count for points, logs will take the same form as for the transmitting section but will omit the serial number received. Logs must show the call sign of the station heard (instead of "worked"), the serial number sent by it, and the call sign of the station being called.

Scoring will be on the same basis as for transmitting stations. It is not sufficient to log a CQ.

4. VK receiving stations may log overseas and ZL stations, while ZL receiving stations may log overseas and VK stations.

5. Certificates will be awarded to the highest scorers on the same basis as for the transmitting stations.

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VCR. 55

NATIONAL FIELD DAY, 1959

(Draft Rules to be ratified by all Divisions on or before 30th September, 1958)

The Federal Contest Committee of the Wireless Institute of Australia invites all operators of portable, mobile and fixed Amateur stations to participate in the 1959 National Field Day Contest.

Objects: The operators of portable and mobile stations within the Commonwealth and its Mandated Territories will endeavour to contact other portable, mobile and fixed stations, both within their own State and in other parts of the Commonwealth.

Date of Contest: The Contest will be held on the Sunday preceding Australia Day, that is 25th January, 1959.

Duration: The Contest will commence at 0900 hours and end at 2100 hours E.A.S.T. on the above date.

RULES

1. The Contest shall be an Open Contest, divided into the following Sections:

A.—Single Operator—Transmitting:

- (1) Portable or Mobile H.F.
- (2) " " " V.H.F.
- (3) Fixed H.F.
- (4) " " V.H.F.

B.—Multiple Operators—Transmitting

- (1) Portable or Mobile H.F.
- (2) " " " V.H.F.
- (3) Fixed H.F.
- (4) " " V.H.F.

C.—Receiving:

- (1) Fixed or Portable H.F. and V.H.F.

2. All Australian Amateurs may enter the Contest. Mobile or Portable Stations are limited to an input power, with aerial connected of 25 watts to the final stage. This power shall not be derived from either private or public mains.

A Portable or Mobile Station shall not be located within a radius of one (1) mile from the home(s) of the operator(s), nor be situated in any occupied dwelling or building.

No apparatus shall be set up at the site selected for portable operation earlier than 24 hours before the commencement of the Contest.

A Portable Station may be moved from one site to another during the Contest.

More than one transmitter may be used and in the case of the multiple operators' section, several bands may be used simultaneously.

3. All Amateur frequency bands may be used, but no cross-band operating is permitted.

4. Amateurs may enter for one of the above sections listed in Rule 1. Any emission may be used during the Con-

test providing all such emissions comply with paragraphs 85, 86 and 87 of the current Regulations.

5. Only one contact per station per band is allowed and arrangements for schedules for contacts on other bands is not permitted.

6. More than one operator may participate in the operation of the Portable or Mobile Station provided that all operators are licenced Amateurs. (Refer also to Rule 14.)

7. Entrants must operate within the terms of their licences.

8. **Cyphers:** Before points may be claimed for a contact, serial numbers must be exchanged and acknowledged. The serial number of five or six figures will be made up of the RS (telephony) or RST (c.w.) report plus three figures which may begin with any number between 001 and 100 for the first contact and which will increase in value by one for each successive contact, e.g. if the number chosen for the first contact is 053, then for the second contact the number is 054, for the third 055 and so on. If any contestant reaches 999 he will start again at 001.

For checking purposes only, the location of the Portable or Mobile Station worked should be shown alongside each contact in the log.

9. **Entries** must be set out as shown in the example, using only one side of the paper. Entries must be postmarked not later than Saturday, 14th February, 1959, and addressed to the Federal Contest Committee, W.I.A., Box 1234K, G.P.O., Adelaide, South Australia.

10. **Scoring** will be based on the table shown.

Scoring Table

Portable and Mobile Stations:

- (a) For contacts with Fixed Stations within the competitor's own State 2 points.
- (b) For contacts with Fixed Stations outside the competitor's own State 3 points.
- (c) For contacts with other Portable or Mobile Stations within the same State 5 points.
- (d) For contacts with other Portable or Mobile Stations outside the competitor's own State 10 points.

Fixed Stations:

- (e) For contacts with Portable and Mobile Stations in the Contest within the same State ... 2 points.
- (f) For contacts with Portable and Mobile Stations in the Contest outside of the State 5 points.

The following constitute Call Areas: VK1 (A.C.T.) and VK2 combined, VK3,

VK4, VK5 (South Australia), VK5 (Northern Territory), VK6, VK7, and VK9.

11. **Logs:** All logs shall be set out as in the sample shown and in addition will carry a front sheet showing the following information:

Name..... Section.....
Address..... Call Sign.....
Call Signs of other Operators.....
Location(s) of Portable Station.....
from.....hours to.....hours
from.....hours to.....hours.

Portable or Mobile Stations to include on this front sheet a brief description of the equipment used including the h.t. voltage and power input to the final amplifier of the transmitter.

Declaration: I hereby certify that I have operated in accordance with the rules and spirit of the Contest.

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

12. The right is reserved to disqualify any entrant who, during the Contest, has not observed regulations or who has consistently departed from the accepted code of operating ethics. Portable procedure must be used at all times.

13. The ruling of the Federal Contest Committee of the W.I.A. will be final. No dispute will be entered into.

14. **Awards:** Certificates will be awarded to the highest scorer in each section set out in Rule 1.

Certificates will also be awarded to the highest scorer in each State in each section if the scoring is considered adequate.

Further certificates may be granted at the discretion of the Contest Committee.

In the case of a winning station being manned by more than one operator, each operator will receive a certificate provided that he has contacted at least 25% of the stations submitted on the log, and that he has signed the log declaring this to be true.

RECEIVING SECTION

1. The rules are the same as for the transmitting sections and it is open to all Short Wave Listeners in the Commonwealth and Mandated Territories.

2. Contest times and logging of stations on each band are as for the transmitting section.

3. To count for points, logs will take the same form as for the transmitting section, but will omit the serial number received. Logs must show the call sign and location of the station heard (instead of worked), the serial num-

(Continued on Page 17)

EXAMPLE OF TRANSMITTING LOG

Date/Time E.A.S.T.	Band	Emission	Call Sign	RST/NR. Sent	RST/NR. Rcvd.	Location Station Worked	Points Claim.	Blank

Note.—The standard W.I.A. Log Sheet follows the above form.

EXAMPLE OF RECEIVING LOG

Date/Time E.A.S.T.	Band	Call Sign Heard	RST/NR. Sent	Station Called	Location Station Heard	Points Claim.	Blank

Note.—The standard W.I.A. Log Sheet follows the above form.

L.T.U. FUND DONATIONS

Under £10/0
P. Lowe, VK3ZDO (10/-).

Amendments to Previous Lists:

July List: Delete reference to VK2GK, J. H. Macmillan, and insert instead: V. J. McMillan, VK2AWN, £1.
Amend R. Beasley, VK2VD, to read R. Bensley, VK2XP, £1.
Amend W. A. Cooper, VK2AQX, to read W. A. Cooper, VK2AQI, £1.

The progressive total as at the 31st July is £1,344/2/0.

NATIONAL FIELD DAY, 1959

(Continued from Page 16)

ber sent by it and the call sign of the station being called.

Scoring for both Fixed and Portable Receiving Stations will be on the same basis as for transmitting stations. It is not sufficient to log a station calling CQ.

4. Conditions relating to location and power supply requirements of Portable or Mobile Receiving Stations are as for transmitting stations outlined in Rule 2.

5. A station heard may be logged only once for each band.

6. Awards: Certificates will be awarded to the highest scorer, and the highest scorer in each State.

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Listed below are further subscribers to the fund to send an Amateur delegate to the International Telecommunication Conference at Geneva in July 1959. The fund is steadily growing, but the initial influx of donors has decreased to a steady stream. There are still a large number of Institute members and others who, for various reasons, may not have yet sent in their donations. We sincerely enjoin them to make an effort to do so in the next month, for our aim is £2,500 to be raised by December. When it is considered that our delegate may have to remain in Geneva for a period of 3 to 5 months, our objective is not too high bearing in mind air fares, cost of living in Europe and compensation for salary loss.

Some queries have been received from contributors as to why their donations have not been previously acknowledged in this column, as they donated early in the appeal. We can only apologise for these omissions by saying that these delays have occurred through remittance of monies from the Divisions. All donations received direct by the Federal Executive have been acknowledged without delay and will continue to do so.

Please keep your donations rolling in and forward to:—

Federal Secretary,
Box 2611W, G.P.O.,
Melbourne, C.I., Vic.

The following is a list of contributions to 31st July, 1958:—

£5/5/0
E. M. Fanker, VK2HS; M. A. Brown, VK2OR;
Geelong Amateur Radio Club, VK3ATL.

£5/0/0
J. McN. Ferrier, VK3MC.

£4/0/0
Victorian Far North Western Zone.

£3/0/0
A. E. R. Wood, VK3ZAE.

£2/2/0
E. H. Cox, VK1GU; M. Folle, VK3MZ; L. P. Moncur, VK3LN.

£2/0/0
D. Soraghan, VK2PU; F. C. Tregurtha, VK-2FT; H. B. Bodkin, VK2KV; W. R. C. Stevenson, VK3AWS; A. W. H. Chandler, VK3LC; A. R. Williams, VK3WE; D. G. Baulch, VK-3ZCG; B. S. Baulch, VK3ZCG; N. J. G. Watling, VK4WT; P. H. Syme, VK5KB; B. H. Bussenschutt, VK5OR; E. O'Connor, VK9BP.

£1/12/0
B. H. Gates, VK8KJ.

£1/10/0
M. H. Stuckey, VK2ARF; P. D. Williams, VK3IZ; A. C. Hawker, VK3IB; A. Heath, VK-5ZX; W. A. P. Luke, VK9WP.

£1/5/0
A. H. Sandilands, VK0AS; G. Rutter, VK2CB.

£1/1/0
A. G. Sabln, VK2AGS; J. B. Williams, VK-2AYW; K. Phillips, VK3AEP; R. W. Easterbrook, VK3RM; D. H. V. Rankin, VK3ZAG; A. Pritchard, VK3CP; R. W. Badrock, VK3ZGC; D. A. Wardlaw, VK3ADW; P. W. Hay, VK4PH; L. H. Cox, VK4LE; H. J. Townsend, VK5HT; R. G. Haskard, VK5RH; A. E. Shepard, VK5DC; L. Thomas, VK5IT; D. Couch, VK6WT.

£1/0/0
R. May, VK1PM.
K. Mitchellhill, VK2ANU; T. Bremner, VK-2ANV; T. Stockman, VK2ATS; O. Oliver, VK-

2AZX; D. Vaughan, VK2FY; G. Hodgson, VK2OH; C. G. Smith, VK2TW; G. Chapman, VK2AIT; S. Ward, VK2SW; T. Thorpe, VK2TL; W. Wilson, VK2XK; R. Reynolds, VK2AFR; H. Harman, VK2GH; R. Sargent, VK2HM; T. Newport, VK2JF; J. Moen, VK2Z—; N. Laftman, VK2APL; G. Wheaton, VK2AWV.

K. Pincott, VK3AFJ; L. Weller, VK3AIW; G. Powles, VK3AMF; R. Pope, VK3ARP; R. Stephen, VK3ARS; S. Clark, VK3ASC; A. Lock, VK3AUL; C. Cullinan, VK3AXU; T. Baker, VK3DK; G. Lance, VK3DS; A. Zander, VK3PG; A. Buesst, VK3ZBZ; R. Rutledge, VK3ZG; N. Felstead, VK3AAI; T. Challis, VK-3AAT; R. Abbott, VK3ABB; C. Arnold, VK-3AJA; K. Lloyd, VK3AKF; J. Fryer, VK3AQF; C. Pickering, VK3ATP; R. Burbridge, VK3AVB; G. Mackay, VK3AWP; S. Bryant, VK3CI; H. Hodge, VK3HE; C. Rainbow, VK3JR; A. Kiasick, VK3KB; R. Fisher, VK3OM; R. Bowen, VK3ZAD; A. Pridgeon, VK3ZCP; D. Johns, VK3ZDJ; D. Watson, VK3ZEK; F. O'Donnell, VK3ZU; G. Bradstock, VK3AGL; H. Kellas, VK3AHK; L. Burnston, VK3AZB; G. Turner, VK3GN; Mrs. M. Williamson, VK3HQ; W. Iliffe, VK3OY; R. Sankey, VK3XP; D. Tanner, VK3ZAT; G. Sheeran, VK3AGS; H. Gale, VK-3AJJ; J. Spark, VK3AJK; W. Sievers, VK3CB; L. Thompson, VK3LT; R. McDonald, VK3MD; L. Money, VK3MY; C. Hyatt, VK3XH; D. Hale, VK3DE; A. Giddings, VK3DG; G. Kidson, VK3—; C. Stilwell, VK3ACN; B. Gillies, VK3AGG; I. Berwick, VK3ALZ; P. Linden, VK3ZAF; A. R. Adam.

Central Technical College, VK4CT; A. Price, VK4PA; H. Hilder, VK4HH; H. Larsen, VK-4JW; V. Green, VK4VS; C. Goodall, VK4GA; H. Dearnes, VK4KW; R. Wilson, VK4RW; K. Hawkes, VK4HP; M. Wratten, VK4MW; N. Dangerfield, VK4ND; J. Saunders, VK4ZBR; R. Denby, VK4AX; A. Couper (deceased), VK4BW; J. Taylor, VK4JT; I. Johnson, VK4KL; A. Morrison, VK4MA; M. Hudson, VK4MH; A. Smart, VK4SM; R. Stack, VK4TK; K. Nutt, VK4XD; B. Whitnee, VK4ZW; C. Burns, VK-4ZY; R. Fitzsimmons; D. Gibb; C. Vaughtin.

G. Muirhead, VK5ZCM; A. Williams, VK-5BO; J. Sheard, VK5JA; D. Pitt, VK5ZBG; R. Bell, VK5NB; L. Coombe, VK5ZBC; H. Roberts, VK5MY; A. Powell, VK5NP; C. Sappatzer, VK5SS; B. Edwards, VK5—; J. Trevor, VK5AM; B. Austin, VK3CA; G. Stallard, VK5ES; F. Tapley, VK5TT; G. Mathews, VK5GS; J. McAllister, VK5JO; L. Leonard, VK5LT; R. Roper, VK5PU; P. O'Connor, VK-5US; L. Wallbridge, VK5UX; G. P. Bowen, VK5XV; R. Hercus, VK5ZAR; R. G. Bishop; A. R. Haig; R. K. Johnson.

M. Saw, VK6SM; H. Stephens, VK6ZZ; R. Dowsett, VK6RD; A. Eder, VK6ZBE; F. Wright, VK6FR.

K. McCracken, VK7KM; D. M. Sloman.
W. Bock, VK9KC.

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DX

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Conditions for this month have been similar to those existing for June and this opinion is general from overseas stations. Early in the month there was quite a severe disturbance of radio conditions which coincided with the arrival of VK2AIR at Lord Howe Is. for his DXpedition. Such is fate.

In a recent issue I mentioned the well organised DXpedition to Navassa Is. With all the organisation that was put in to it, things went far from well, one reason being the inability to obtain permission to operate from the planned areas. The team consisted of five and each member found himself up for approx. \$1000 each by the time they had finished. Any starters for a DX pedition?

Here was an item of vital interest to Amateurs generally, whether DXers or not. As from 10th May, the U.S. Amateurs have lost 1875 to 1927 Kc. and all Amateur bands above 220 Mc. will be on a shared basis. Amateurs must expect interference from the sharing organisations but must not themselves cause any interference. This takes place BEFORE the I.T.U. Conference in a country which is reputed to be pro-Amateur. What action can be expected in countries which do not consider the Amateur of any value to the community. RALLY, BOYS, RALLY, to the I.T.U. Fund to have Australian Amateurs represented.

NEWS AND NOTES

For those interested in keeping abreast of DXpeditions, an ear should be kept on the A.R.R.L. broadcasts through WIAW, where the latest information is given.

Naturally, we must give some details of the Lord Howe Is. DXpedition of VK2AIR, where he operated as VE2AYY/LH. The way this went off has resulted in very favorable comment from DX stations. I am hoping to get Alan to write an article for the magazine so will not steal his thunder, but there were some very interesting results and conditions observed, sufficient to prove that Lord Howe Is. is NOT the best place to try for a DX-pedition. Conditions made no attempt to follow predictions. Briefly, 1,900 contacts were made of which 1,425 were Ws (one W asked me when was he going to work W stations) in 43 countries. Best operating time was 170 contacts in one hour. We planned predictions to cover 24 hours except for 30 mins. for our daily sked time. One comment from overseas was "when does he sleep" and the reply, "in the 30 mins. break."

Maldive Is. activity is again in full swing with VS9MA providing the "dog pile". The operator is ex-487DT.

VQ9GU (VQ4GU) has been operating from the Seychelles Is., phone only. If he has not closed by the time this reaches you, his activity is mainly 21 Mc., and round 1800-2100, the only time when the a.c. is available at his hotel, although there have been reports of other times (W4KVX).

Chipperton Is. is expected to show some activity late August or early September if licensing difficulties can be overcome. W8ZVQ is master of ceremonies.

The proposed Andara DXpedition for July did not eventuate. Plans are in hand for it to be 1959, but no actual dates as yet.

Efforts are being made to get some activity from VU5. VUIHX and other VU's are so trying to get licensing matters sorted out so they can operate from the Nicobar Is. VS1BB and others have hopes of being on from there during August or September (W6YY and W4KVX).

MP4BBE and MP4BCK are both active on c.w. from Bahrain Is.

Danny Well has commenced his move round the Caribbean Islands so there is only one safe thing to do and that is keep an eye on the bands. 14 and 21 Mc. c.w. and phone. He got caught in the radio blackout whilst on from YV0 and was a sitting shot as there was no pile up on him from W stations.

VR3A has been discharged from hospital and convalescing in Sydney and has a brand new YL jnr. op. to keep him company. (That was not his reason for hospitalisation, though!).

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

SAOM sez that VR3A has not been able as yet to QSL contacts made since last April but that will soon be attended to.

VK Amateurs have reduced their bad name with SM3C21. You will find a list in the QSL section of cards he has received since his last letter.

Some EA9s (at Letuan) have now changed their prefix to CN9 (W4KVX).

Chatham Is. is allocated separate country credit as from October 1. QSOs made since 1945 are eligible for credit. ZLSVB is at present active on 3580, but is hoping to get approval for 14 Mc. operation shortly.

Cards for the recent FY0NA DXpedition should be available from the printer about this time (W4KVX).

The June issue of Short Wave Magazine is extremely critical of the present "country" rating farce. There is so much criticism throughout the DX world that I feel something must eventually be done to get something stable into this controversial subject. Whilst it is agreed that this is mainly for credit for an A.R.R.L. Award, the country listing was used by many other organisations as a yard stick for their Awards, with the result that many have become unworkable.

From SM3C21 I glean the following information: ETZTO is active on 14 Mc. c.w., ETEXY on 14 and 21 Mc. c.w. and phone. FD8ZC active on 14 Mc. c.w. 3A2CE active on 14 Mc. c.w. ZDBJP active on 14 Mc. phone. M1H active on 13 Mc. phone. ST2AR active on 14 Mc. c.w.

Another for the YLCC chasers is ZE7JY (20W) and TF3KG (SM3C21).

VK6TC now has only limited operating time (3KB).

G3FBK expects to operate 2A2BT from Monaco during Sept. Exact dates are at present unknown (BERS195).

W4KVX very kindly sent me his DX bulletins 28-38 by air, at 50 cents each, to enable me to have some good DX news in time for this issue. If any of you are interested in keeping abreast of the latest DX news weekly, suggest you contact Don W4KVX or myself for the rates of this service. If you want them by air, it will be quite expensive when you think of 50 cents per copy mailing cost. He provides me, for this page, a copy of each bulletin gratis, normally by surface mail, but unfortunately much of the information by the time it reached you, would be out of date. Now to business. Firstly, an interesting point is raised. During the radio blackout early in the month, he could only hear one S. Pacific station, VK3KB, and his signals came from the North. How???

FK8AS, if he can raise the air fare, hopes to make a flying trip to Wallis Is. and to operate for the two full days the plane remains there. LA2E/P hopes to be active from Hopen Is., Svalbard in 1958 and 1959.

WHITE, on returning to the West Indies in October, may operate from some of the VP2 islands.

SV0WB hopes to be on 14, 21 and 28 phone and c.w. the latter part of August.

Further activity is planned from Navassa in Sept. or early October by H17LS. ZD7SA is now active from 7 to 28 Mc.

A further DXpedition is planned to Trinidad Is. (PY0) late October or early November, depending when the Brazilian Navy has a ship going there. PY1CK, PY2CK, PY1HQ and PY7AN are the operators and will be using c.w. a.m. and s.s.b. for a week or 10 days signing PY0NA and PY0NB.

Amateur Radio is now prohibited in Pakistan and Ceylon for an indefinite period. Tax Don.

For the V.h.f. DXers, the m.u.f. is going to bring similar conditions commencing September to those existing last year and early this year. The m.u.f. in Sept. for Lat. 20° S will be 47 Mc. October 5th, Japan is 80 Mc. and Philippines 52 Mc., and November, Central Japan and Lat. 20° S, it reaches 47 Mc. which are similar conditions to when the breakthroughs commenced last season.

ACTIVITIES

General band conditions have not produced many reports this month. Cold shacks would not be any incentive for watching flat bands.

VK2AYY/LH was worked on 3.5 Mc. by quite a few of the gang who put their gear up there. He also worked W4VNE and W8JIN. 2AGH: ZKIAD*. 2AMB: W4VNE.

7 Mc.: 2AGH: VK2AYY/LH*, K3KJK*, HC-41M. 2AMB: HC41M, T187DM, DUTSV, UA0GF. 2QL: UA0GF*, 4X4GF, HC41M. BEB5195: OQ-5RU, PY6JD (2100z), J41YN, JA3RK, JA1BXS, VU0TC, 4X4HK and 100 Europeans.

14 Mc. C.w.: 0TC: W*, KA*, VS8*, LA*, UO5*, OZ*, HB*, UA*, UB*, HA*, ON*, SM*, DL*, UL*, XZ*, VP5*, VE*, GM*, UC*, HK*, XE*, JT*, OY7*. 0KT: UA0*, LU*, W*, JA*, OH*, F*, UL*, ZS*, VE*. 2AGH: VU2AJ*, FF8AC*, OKIKJS*, YV0AB*, VK2AYY/LH*,

CESAG*, VP8CY*, UA8AW*, UC2CB*, SV0WP*, CN8GU*, CO2SW*, VP2VB*, VE8PS*, FB8ZZ*, 2AMB: PY1HQ*, VP5BL*, YO3FY*, UB5KC*, CT2AI*, VE2PD*, YV0AB*, KS6AD*, PY2CK*, PY2EJ*, VP2VB*, CN8DJ*, VP9Y*, VK2AYY/LH*, KG1ER*, UQ2AN, PZ1AM, PZ1AR, SV-0WP, VOIDX, HSIC, FP8AB, VP7NM, PY8YP, JT1AA, KM6AX, ZD1FG, KZ5IF, VP2GL, UQ-2AB, FB8AC. 30W: UL7HB*, UA9KCC*, XZ-2TH*, BV1US*, XW8AI*, UB8KAA*, HC1HL*, HL8KEF, HL3KAA, VQ8AT, ZE7JY, VK2FR, VS9MA, YS10, HC41M. 2QL: YV0AB*, UA-1KAE*, FB8XX*, VP2VB*, HC41M, VS9MA. 3KB: ZD1FG*, VP2VB*, YV0AB*. 4DO: FF-8AJ*, VK2AYY/LH*. CT1CB*. 7LZ: YV0AB*, VP8CY*, LU0AC*, KS6AG*, UA0KZA*, HSIC*, KM6BL*, HC1HL*, SM1BVQ*, VP2VB*, BERS-195: BV1US, FA8R, FB8ZZ, HSIC, KS6AD, KS6AG, KB6BJ, KM6AX, KX6BT, LU1AA, VK2AYY/LH, VP5BL, VP9Y, VS9MA, VS9AE, V51FJ, XE1Y, VQ8AJ, YV8CY, VK9RR, ZKIAK. WIA-L2022: CN8EV, CN8GU, CT2AI, DUTSV, HSIC, ZJ0HA, KB6BJ, KM6AK, KS-6AD, KW6CQ, KZ5IF, KZ5BB, KZ5IF, KX6BT, SV0WE, UQ2AS, UC2CB, VS9MA, VQ2GW, VQ-3CP, XW8AI, XE0ND, XZ2TH, YV4AU, YV-5HL, YJ1DL, ZKIAK, ZK2AD.

14 Mc. Phone: 0KT: VE*, W*, G*, GU*, 0TC: VS2*, JA*, W*, YV*, FK*, KP*, D1*, XW*, KR*, 2AGH: VP2VB*, 2AMB: HF3FL*, YV5BG*, KB6LP*, SAOM: CO2MG*, CT1DU*, DL31R*, EA3CF*, EA3E*, FUBA*, G*, KB-6BH*, TG9AL*, T12LA*, XE1FT*, XE3KW*, 4DO: W*, VE*, KL7*, VK9*, 7LZ: PILI*, BERS195: KA0JL, VR2BJ, WIA-L2022: CE2CO, CN2BK, EA8CK, FK8AS, HL8KS, KM6BL, VK-0TC, XZ2XN, 4X4HA, Ian Thomas: W1, W2, W3, W4, W5, W6, W7, W8, VK6BS, VR2BJ, VR2DA, VK0TC, VE7, VK0KT, FK8AS.

21 Mc. C.w.: 0KT: JA*, W*, OH*, UA*, SM*, VU*, UL*, V*. 2QL: KW6CB*, VK2AYY/LH*. 4DO: KG6AFO*, 7LZ: EASKT*. WIA-L2022: CN8FM, KZ5BB, KP8AL. 21 Mc. Phone: WIA-L2022: H18GA, KM6BK, VESVQL/SU, VK0KT, VP1EE, VP8AK. 28 Mc.: 4XJ: OQ8RU*, ZS4PB*, W*, KB8*, ZL*. WIA-L2022: W, KH6, FK8AS.

QSL SITUATION

July produced QSLs for 2AGH from CT3AN, LZ1KXZ, CT2AI, FB8XX, FFAJ, LA8LF, UB-5UW, UA0KKD, ZP8HK, KCAAF, KR6AD, VX-01J, LJ3D, LA9BE, UC2CB. 2AMB: 3W8AA, U50MF, LU8DJX, LU8GM, CE4AD, CEDDY, CE2CO, SP7HX, FB8YJ, FB8CD, VS9AC, LZ-1WD, XE1RM, ZE7JY, YV5ABO. 20W: UA-0KUA, UA0KJV, HA5HD, HASBO, HASWZ, XW8AL. 2QL: UO5AA, FFAJ, UA0JM, FY-7YF, ETZUS, KP6AL, KB6BJ, ZP5CF, FB8BS, FB8YJ. 7LZ: KCAAF, BERS195: FASLX, FN-8AD (1955), KB8BJ, KW6CQ, LU7GDM, OQ5IE, VK1DY (1954), VP7NB, 3A2BG. Some interesting information from SM3C21 who sez the following rarer Russian prefixes are reported to QSL 100 per cent. UC2KAB, AA; UD6DD, AL, BI, KAB; URF6B, AM, KPA; UH8KAA; UI-8KAA, KAE; UJ3AF, KAA; UL7KAA, FA, GM; UMSKAA; UN1AE, AB; UO5AA, PK; UP2KCB, KBG, AS, AT; UQ2AN, AS; UR-2KAA, AN, AO, BU, AK, BV. Sven has now received QSLs from VKs 9AD, TBI, 3ACN, 7SM, 4NC, 6KW, 5XN, 7LZ, 22L.

QTH OF POSSIBLE INTEREST

VP2GL—Box 44, St. Georges, Grenada (2AMB). HL8KEF—Box 39, Pyongyang (20W). HC41M—Box 4881, Manta, Ecuador. VS9MA—R.A.F. Gan, B.F.P.O. 180, Maldives. KW6CB—Box 72, Wake Is. HSIC—Box 1038, Bangkok (7LZ). KM8BL—Navy 3080 F.P.O., San Francisco (7LZ). YV0AB and VP2VE—Via KV4AA. KW6CQ—Box 88, Wake Is. (BERS195). VESVQL/SU—56 Canadian Signal Sqn., U.N. E.P. B.P.O., Beirut (WIA-L2022).

I had hoped to give a list of stations operating s.s.b. but space has probably run out, so I will give it next month.

And now we wind up another month and my thanks to my DX friends W4KVX, W6YY, and SM3C21 for their help, and 2EG for his info on the VK0 boys, 2AGH who is still adding new ones, 2AMB has heard but not raised his elusive zone 35. 20W waiting on confirmations for two zones and not 23. 3KB who skip took out before I copied all his info, SAOM now a very proud grandfather with the arrival of a junior op. for VR3A, 4DO who hopes for an improvement in DX to see how his new band of 21 Mc. will shape, 7LZ who wishes he could keep himself right up to the minute on—whats new, 4XJ, hope your painting is successfully completed. Les. To the s.w.l. boys BEB5195, who I should say very happy to get his FN8AD QSL after so long, WIA-L2022 who chasing his H.A.S. and finally Ian Thomas, who seems able to sort out the DX on his small rx. Would like to hear it on a lively dog pile Ian. Don't forget that zero hour is the 28th of each month, fellas. 73.

S W L

Ian J. Hunt, W1A-L3007
211 St. George Road,
Northcote, N.16, Vic.

First for this issue comes a letter from Don Grantley, of Holbrook, N.S.W. He states that he has been flat out preparing for the R.D. Contest which, of course, will be past by the time you read these notes. A complete overhaul of all equipment has been his aim. Lots of rain has kept Don indoors for the past month and as a result he has heard over 100 stations to increase his countries tally to 149. He also tells me that Rod Bent, of Albury, whose father manages the station where Don is employed, has constructed a small transistor rx to cover the 40, 80 and 20 mhz Ham bands.

Eric Trebilcock has forwarded details of a Japanese s.w.l. who would like to correspond with s.w.l.s. in VK. He is Keiji Shigeta, 180 Noshio Kiyose, Kitatama, Tokyo, Japan. He is interested in exchanging Amateur radio periodicals, photographs and call books. So if you wish, go ahead and drop him a line. Thanks very much for your note, Eric.

John Wallace, who is located in Canterbury, Melb., has also sent me a letter stating that he is interested in the S.w.l. Group. Welcome to you John, and hope to see you come along to our meetings. They are held on the last Tuesday of each month at 8 p.m. at the W.I.A. Rooms, 191 Queen St., Melbourne.

Dave Jenkin, of Orbst, is again back on the farm chasing cows and is preparing for the R.D. Contest. He has been very busy modifying his new AR7 rx in accordance with details recently published in "A.R." He was very lucky to find his great pal, Sticker (a cattle dog) which strayed whilst Dave was down in the big city. Dave has to rise very early each morning to milk the cows, but always seems to find time to drop me a line. How about some of you others doing likewise?

Two letters have been received this month from the beautiful city of Geelong, these from Horace Barling and Bill 3BU. Horace is attempting to make the best of things, but the cold weather does not suit him. He was very happy to receive a visit just recently from 3BU, 3IC and 3ALG, of the Geelong Radio Club, and tells me that Fred 3ALG has now loaned him a rx which knocks spots off the Zenith which was in use before. I hope those chaps are gratified, having been of assistance to an s.w.l. who was definitely a person in need. Good luck to you fellows and thanks on behalf of Horace.

Bill 3BU, in his letter, has told me of some of the things he has done to improve his AMR300 rx. He has 6BA6s as r.f. stages and a 6AE8 as a mixer, but thinks that an ECH35 would also work well in this position. He took the loading resistor off the last i.f. stage and fitted a tone control and noise limiter. He found the xtal filter was too sharp and, this could qualify for the Hints and Kinks section, shorted the xtal pins with fuse wire, this proving a very good move and giving a little extra gain on DX.

That then ends the letters for this month, and thanks to all who wrote to me.

S.W.L. OF THE MONTH

This month we meet Maurice Cox, W1A-L3055. He is 32 years of age, married with a son and daughter. He is a South Australian by birth and spent his early days in Woodville, a suburb of Adelaide. When young, he spent a great deal of time playing around with a dual wave rx at home, but gave it away and joined the R.A.N. at 17½ years of age as a sick berth attendant. He became interested again in radio in 1950 and has since used the Marconi RI155, AR8 and BC342N type rx's. He is very keen on playing around with antennae and looks like becoming a specialist on this subject.

He has been a member of the VK3 Group for 18 months and is looking forward to getting his A.O.C.P. He is at present Assistant Secretary of the VK3 Group. Only recently has he become interested in collecting QSL cards and already has a score of 56 to his credit.

Once a keen cricketer and model railway enthusiast, he has given these away for s.w.l. work. He not only listens to Amateur Stations but to the s.w. broadcast stations as well and has been made an official reporter for Radio Japan and the Canadian Broadcasting Corporation. Maurice works as a clerk at the Repatriation Dept. and lives at the Olympic

Village, West Heidelberg, where the Russian Olympic team were billeted. He has not, however, yet evidenced the endurance of Vladimir Kuts, but hopes to emulate a similar feat during the R.D. Contest.

Maurice has a very comprehensive log and indexing system, but is not too happy about the number of VK Amateurs who don't QSL even when return postage is enclosed. His present gear consists of a BC342N rx, a 6AE8 mixer-osc. converter covering from 16.2 to 32 Mc., whilst the antenna is a folded dipole cut for 20 mhz, made from 300 ohm ribbon. He is now in the process of putting up a 66 ft. windom antenna and building an antenna coupler.

VK3 GROUP JULY MEETING

This meeting took the form of a matter night with 13 members present despite the bad weather. A newcomer was Arthur Brook, of Essendon, to whom we extend a hearty welcome to the Group. After general business was dispensed with, Ian Hunt told members a little about the L.T.U. Appeal and then everybody had a general earbash amongst themselves. The meeting ended with a session from 3WI with George 3WJ at the controls, many of the members being given the chance to participate in a QSO.

CARD OF THE MONTH CONTEST

We have not yet received any details of similar contests run in the other Divisions, but would be very pleased to hear of same.

The card of the month for August in the VK3 Division resulted in a draw between Ian Hunt, with a card from XZ27H, and John McEwen, with a card from FB8BC. A total of 10 cards were entered in this month's contest.

As mentioned in last month's notes, the VK3 Group President and Secretary sat for the July A.O.C.P. exam. You will be pleased no doubt to hear that both passed to qualify for the Limited ticket. Our congratulations are also passed to another VK3 member, Bert Stebbing, who passed at the examination set at Deniliquin whilst up there, and as well to Bob Wallace who had not quite got around to actually joining the Group but was just on the verge when he was posted in his Army job to Bandiana, up near the border. So it looks as if there will soon be a few more chaps on the air to talk about the good times had with the S.w.l. Group. Be assured though that they are not going to stay on the v.h.f. bands, but intend to pass the Morse test now and get down to the h.f.s. to work some of that DX they have been hearing for so long.

Whilst talking about Morse, let me drop a little hint which may be of use to you if you

wish to polish up your sending and have no audio oscillator. The idea is simply to tune to a steady unmodulated carrier. In my case I use the signal from our city Fire Brigade station which is usually unmodulated, switch on the rx i.f.o. and key the resultant audio output. With my rx there are two headphones jacks in parallel and I use the phones in one and a key wired to short out the audio when it is left in the up position. To return the system to normal I have only to pull out the plug for the key and I'm in the s.w.l.ing business again. I can assure you it is a very simple and yet useful idea.

So with that my friends I must conclude these notes for yet another month. I wish you the best of good luck with your listening and hope you have a good time during the R.D. Contest.

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FIFTY MEGACYCLES

This month's 50 Mc. column is handed over to Lance 4ZAZ, Mt. Morgan. Extracts are from notes accompanying his log which summarises his DX contacts from Feb. to July '58. "Generally I received about the same report as I gave. Quite a few of the JAs are QRP and my super local QRM, the 66kv. transformer yards and power lines, put the signals down somewhat. At times it completely paralyses the rx and nothing but an S9 plus signal is detectable or copied. I became really annoyed about the noise when it completely blotted the Yanks that Bob 4NG worked on the morning of 16th March. When it came a bit more civil, I started copying WOCNM (at Colorado Junction, I think) fine business. I was becoming even more annoyed when he had refused to answer either Bob or me by 1230, and by about 1430 when WTSPQ and his W7 mates completely ignored VK for a bit of rare W6 DX. I became downright panicky. When the W6s came up again they had their feet up holding a post-mortem. Luckily for me and some other 6 mx VKs who are a bit light on for Ws, one of them decided to look around the band.

"The lesson I learned from this is to look around the band for the weak ones when ANY DX is on. Either the W0 or W7SPO was running only 20 watts, and he was putting in a signal peaking to S8 at times, and good copy for quite a long time. It is pounds to peanuts if he had looked past the S9 plus W6s he would have had for himself one or two VKs.

"Another point that arises from the season's doings is the matter of local natter sessions. How many DX openings have been found by getting on to a local natter session going on someplace. But how many VKs take a tune over the band between overs when we are swapping lies. A lot of the old hands do, but I know from personal experience that there are a lot who don't. I think that during the quieter periods in this hemisphere it is important that we use the band as much as possible and listen between overs. Who knows, there may be an SM or a ZS or LU or anyone sitting on the fence waiting to get in on the act. If the band is not used and monitored we will miss the rare ones for sure.

"Many JAs have worked 15 countries and only need Europe for W.A.C. They have numbers and geographics on their side but most of their success is due to the fact that at any given time there is a JA somewhere calling CQ and monitoring the band.

"Even in the late evening periods DX is possible. We have worked KH6 here when it has been 2 a.m. over there and the JAs work DU at around midnight our time. From our point of view, the only condition which behaves to a prescribed pattern is the JA F2 and TE path. KE6 has popped up at odd times of the evening and odd times in the 27-day cycle. The same with the Ws. From the times the W commercials started to come through above 42 Mc., we formed the conclusion that the period from 0700 to about 1100 was the time most likely to give us results. This did, in fact, prove to be correct. Bob worked his first W6 at about 1020, but the band stayed open till about 1530 with not many breaks in between. Maybe the sporadic E over there extended the F2 to give us the W0 and W7 signals. The W6s came back at 1500 for another F2 peak after the sporadic E petered out over there. Also of interest during this period, odd JAs were copied at times during the afternoon calling LU. Confirmed next day by numerous happy JAs with news of LU and CE and KH6 contacts on the same lot of F2. The KH6 contacts were probably made on the same sporadic E cloud the Ws had. Three countries were worked that day, W, KH8 in the early evening, and JA after the KH6 opening.

"With the advent of VK9s on the band, it was proved that at the same time as we were getting the fluttery signals with typical TE characteristics, JAs were giving the VK6s S9 F2 reports. This was also the case when they were heard working DU, KX6 and KG6. It would seem then that the TE type of signal is the tailend of F2 to some place else. In the early part of the season, and the latter stages,

the TE type of signal was the only one heard and there was no evidence of the solid F2 signals. However, I have almost formed the conclusion that during that period the solid F2 path does exist. Maybe it is from north to south poles or someplace else, but I think that the type of signal we have been calling TE is only a side effect of an i.b. drop of F2. To further reinforce this assumption, when TE sigs are on to JA, the 'commercials' around 40 Mc. are solid F2. To add a little more confusion, the TE sigs from JA seem to peak with the beam a little further west than the solid F2. This may not be accurate, as the solid F2 boys are hard to peak, anything up to 20 or 30 degrees doesn't make much difference. I do not know what the generally accepted theory on TE is. The only data I have seen is by courtesy of Bob 4NB which indicates that TE is a double hop signal without a ground hit in the intermediates zone, and the critical angle is about 7 degrees (radiation angle, that is). Perhaps we will be able to learn what the backroom boys make of it some time in the future, and read about it in 'A.R.'

"The F2 path to JA sometimes becomes very selective and radiation angles become critical. Many times during the season there has been up to a 20-minute time lag between Bob and myself. Sometimes him first, at others vice-versa. I used to panic a bit for a while and think the thing had blown up, but soon learned that if I stuck around for a while we would come good. His experience was similar. I don't think that it is the 24 miles that makes the difference, more likely the 700 or 800 ft. of elevation and the fact that a lot of my low angle lobe gets shot up as high angle stuff from my beauf. hills.

"The gear used during the period was as follows:

Tx—60w. to an 807, pi output and antenna couplers to 72 ohm twin.

Ant. (till April sometime)—4 el. 0.2 spaced Yagi folded dipole match. After April—4 el. wide-spaced with 300 ohm folded dipole and 300 ohm twin lead. Having a fairly long run, this cut down the feeder losses and we had a better match.

Mod.—EL34, AB2, speech clipper and xtal mike, power tranny mod. trans., changed in May to a correct mod. trans., which improved the modulation very much.

Rx—Xtal converter 6BK6 r.f., 6J6 osc./mult. 6CB6 mix., 7.5 Mc. to base E or a mod. fed AR6, plus rx by kind courtesy of 4NG to sharpen the thing up if needed.

June—Added 6BQ7 r.f. cascade, use optional ahead of main conv. Improved signal/noise and gain a little. Main purpose was to broaden the pass-band of the converter. Now has pretty flat response from 44 to 52.5 Mc. Also brings the power leaks right into the shack, instead of to the back door, when they are on. This has been a great comfort to me when listening for rare DX, hi!

Also in June.—New tx, p.p. 807s (must have known we were going to get 150w.). Exciter can deliver 10w. to the antenna, drive the final, or supply 48 Mc. to a two mx tripler coming up one day. Xtal 50.2 Mc. or v.f.o.

"DX worked during the period. Five countries confirmed, JA, KH6, W6, ZL and VK9. JAs—251 different stations, AJD and a one-day A.J.D. W.A.JA—38 confirmed, I think QSLs to come will bring that up in the 40 mark. I know there is one JA8 and one JA9 prefecture that no one has worked yet, Kagashima and Ichikawa respectively.

"Regrets during the period. Missing the KX6 and not being around when Bob had the LUs on the band.

"Hopes for the future. Plenty of DX for the VK gang, and retention of the 6 mx band. My main purpose in submitting my log is to help to back up our claim that Channel 1 t.v. would be a shambles for a considerable period of the year. As I see it, during the sporadic E season, t.v. sets on fringe areas would probably find it hard to decide if they were going to give to their owners their own local programme, the one across the other side of the country, or JA6JY and the gang. Furthermore, what would 5 megs. of t.v. at 100kw. or even 1kw. do to the Ham bands of the rest of the world when we can get S9 plus from a watt or so and a piece of wet string for an antenna?"—VK4ZAZ.

JA signals are on the way again. VK4 and VK9 have set the ball rolling. With 4ZAZ hearing 5MK early in July and VK9/VK4 in contact on August 3, the 27-day cycle appears due around August 30. Despite one widespread aurora during the month, sighted as far north as Queensland, no contacts apart from local were made in the various Divisions though a keen watch was kept. Several times the VK3 gang were alerted during the month when weak signals appeared on the band, but nothing

came of them. Bill 4WD enters a strong plea re DX QSLs. Quite a few VK stations have not QSLed JA stations as yet and the JA boys are worried about it. If they are worth working, then they are worth a QSL card or note of acknowledgment if you have no card on hand! Poor show boys!

Logs received and passed on to F.E. came from 4NG, 4ZAZ and 9XK, all very fine efforts. The response to the appeal for logs has been gratifying, but more are needed, so make this a 100 per cent effort.

You have read of the experiences of 4ZAZ. Lance also adds, "I hope to see some of the other active VKs let us know what they have heard during the past season, and conditions vary over the VK landscape, and a comparison of findings between North, Central and South VK4s, VK2s, VK3s, VK5s, VK6s and VK7s, not forgetting VK8, would be a great help in determining the extent of the F2 conditions which operate around this country."

NEW SOUTH WALES

"Hi chaps, well we all know how cold the nights have been lately and this probably accounts for some easing off of activity, however our meetings, events and contests have been well patronised and by reports, quite a deal of new equipment is under construction.

July Meeting.—Barry 2ZAG, well known to the Institute for his capable lectures, treated us to an interesting discussion on power supply design, filtering, protection, etc., and brought to our attention the versatility and economy of the dry rectifiers now available. Barry concluded with an introduction to the design of transistorised portable power supplies.

The good roll up of some 40 odd members and visitors, went on their way to the good of 15 feed-through bypasses, generously donated by Barry's place of toil.

Midwinter Contest.—On 13th and 14th July, the Group held this annual contest and this year the Saturday evening was in the form of a message handling competition, whilst on the Sunday a scramble was held.

Over 30 stations were active and results are just to hand. 1st 2MZ 123 pts., 2ZCF 115, 2ZCH 109, 2AWZ 102, 2ZDG 88, 2ZCW 70, 2PM 64, 2RX 56, 2ZBQ 34, 2ZBX 30, 2ZJD 29, 2ON 23, 2ZCF 15. It is unfortunate that conditions were poor and country participation was difficult.

Country News.—From the north we hear that Stewart 2ZDF has a new 144 rig going with a 3/10 in the final and a 12AX7 modulator. 2ZDF and 2ZDL are active (but it is disappointing that conditions to Sydney are so poor). Lindsay 2ON of Gosford, is being worked in Sydney at S8 and is very interested in 2 mx gear. From the west we believe that Neville 2DR, out in the frozen wastes of Blayne, is hibernating beside the fire with low power 7 meg. gear. How about it, Nev.? Hugo 2WH at Forbes has his 32 el. beam up and 2BT, Eugowra, has a cascade under construction. Up in the Blue Mountains it is told that Don 2ART will soon be going with a 522 and cascade. Also three converters have been finished by associates and we hope to hear these chaps some day.

Wal 2MZ has been busy on a 6BQ7 converter as well as converting a Command rx and has given us some details of the "Do" to be held at Catalina Park on 26th October. The day will include all the regular fox hunts, competitions, etc., and a special bus tour is arranged for the ladies. V.h.f. boys will recall the last effort and are hoped to turn out in force again.

144 Mc. Around Sydney.—2ZCW is now one of the big guns, having erected a phased array. 2ZCH is making his presence felt with an 829. 2ZCF is very pleased with his 6BE7 discriminator and is, of all things, building converters for the d.c. bands. 2ZF has a good sig. with his 6 el. beam and 2AZN will be leaving soon for a stay in London. 2ZAQ is building a new shack. 2RX is taking holidays. 2ZBX is now mobile, and 2ZDG is almost mobile. A welcome back is extended to Charlie 2AZK, of Hurstville. 2GE has also been heard on two. Congrats. to John Lek, an active v.h.f. member who has now passed the A.O.C.P.

Fox Hunt, 28/7/58.—2HL with 2ABZ were the fox and 1st place was taken by Dick 2ZCF and crew, followed by 2PM/2ER/3ZAQ, followed by 2AWI, 2ZBB, 2OA, 2ZAV. Horrie put on a wonderful hot soup supper and we were all pleased to meet Dave 3ZAQ.

Dates to Note.—8/8/58, no meeting, but members and visitors should gather at the gates of Channel 7, Gore Hill, for a conducted inspection. 27/8/58, night hidden tx hunt. 14/9/58, special new day event.—2AWZ.

VICTORIA

V.h.f. Meeting.—17 members were present at the July v.h.f. meeting and the lively discussion resulting didn't finish till past 2300 hrs. Field day gear brought along included Bob

PREDICTION CHART, SEPT, '58

Mc.	E. AUSTRALIA	W. EUROPE S.E.	Mc.
0	2	4 6 8 10 12 14 16 18 20 22 24	45
28	GMT		28
31	-----		31
14	-----		14
7	-----		7
E. AUSTRALIA — W. EUROPE L.E.			
0	2	4 6 8 10 12 14 16 18 20 22 24	45
28	-----		28
31	-----		31
14	-----		14
7	-----		7
E. AUSTRALIA — MEDITERRANEAN			
0	2	4 6 8 10 12 14 16 18 20 22 24	45
28	-----		28
31	-----		31
14	-----		14
7	-----		7
E. AUSTRALIA — N.W. U.S.A.			
0	2	4 6 8 10 12 14 16 18 20 22 24	45
28	-----		28
31	-----		31
14	-----		14
7	-----		7
E. AUSTRALIA — N.E. U.S.A. S.E.			
0	2	4 6 8 10 12 14 16 18 20 22 24	45
28	-----		28
31	-----		31
14	-----		14
7	-----		7
E. AUSTRALIA — N.E. U.S.A. L.E.			
0	2	4 6 8 10 12 14 16 18 20 22 24	45
28	-----		28
31	-----		31
14	-----		14
7	-----		7
E. AUSTRALIA — CENTRAL AMERICA			
0	2	4 6 8 10 12 14 16 18 20 22 24	45
28	-----		28
31	-----		31
14	-----		14
7	-----		7
E. AUSTRALIA — S. AFRICA			
0	2	4 6 8 10 12 14 16 18 20 22 24	45
28	-----		28
31	-----		31
14	-----		14
7	-----		7
E. AUSTRALIA — FAR EAST			
0	2	4 6 8 10 12 14 16 18 20 22 24	45
28	-----		28
31	-----		31
14	-----		14
7	-----		7
W. AUSTRALIA — W. EUROPE			
0	2	4 6 8 10 12 14 16 18 20 22 24	45
28	-----		28
31	-----		31
14	-----		14
7	-----		7
W. AUSTRALIA — N.W. U.S.A.			
0	2	4 6 8 10 12 14 16 18 20 22 24	45
28	-----		28
31	-----		31
14	-----		14
7	-----		7
W. AUSTRALIA — N.E. U.S.A.			
0	2	4 6 8 10 12 14 16 18 20 22 24	45
28	-----		28
31	-----		31
14	-----		14
7	-----		7
W. AUSTRALIA — S. AFRICA			
0	2	4 6 8 10 12 14 16 18 20 22 24	45
28	-----		28
31	-----		31
14	-----		14
7	-----		7
W. AUSTRALIA — FAR EAST			
0	2	4 6 8 10 12 14 16 18 20 22 24	45
28	-----		28
31	-----		31
14	-----		14
7	-----		7

been heard by George 3ZCG in Moe. Quite a few Melbourne stations now have converters, stabilised tx's or both for 1 mx and would be anxious for sheds with country stations.

15 Metres.—Ivan 3ZDI and Les 3ZCN have been conducting experiments on this band and have exchanged signals. Les is using a 448A lighthouse tube r.f. stage feeding into a xtal mixer.—3ZAI.

QUEENSLAND

50 Mc.—Still plenty of VK4 activity, with a few new calls appearing on the band. 4NS, 4ZAX, 4ZBL and more to come. Quite a few are going high powered in the near future. Allan 4ZBF is re-building bigger, brighter, better in his hope. A V.h.f. Group has been formed here and meets at the QTH of 4JC on the third Friday of the month. 4HD and 4ZAT were heard in Brisbane at good strength but 4ZAO has not been heard on the band lately. 4NG and 4ZAZ are back on the job working JA for the last few weeks (July/Aug.), mostly at night; July 28, weak carriers; July 29, JA7, JA8, 2100 to 2330, fair opening with flutter; July 31, JA around 2100, quite a bit of flutter; August 1, carriers to S8 with flutter; August 2, weak signals around 2030 also with flutter. JAs heard in Brisbane by Whisky Delta; July 19, 1815 to 1830, S8; July 21, 1750-1800, S4 to S7; July 23, S3 to S6. On each occasion signals marked by QSB and flutter.—4WD.

SOUTH AUSTRALIA

DX, what does it sound like? 8 mx as flat as a board. Well, just wait till those JAs come through, the QRM will be terrific. There must be a terrible lot of re-building going on, for signals are very scarce on 50 Mc. these nights. Only one new call heard on the band, Brian 5ZBI by name, located at Nallsworth. Welcome old man. I hope your trips to the country do not coincide with a JA break-through. Brian's gear is an 807 to folded dipole, v.f.o. controlled. Another likely for the band is George 5ZGA heard cross-band with Lance 5ZBC the other night 6 to 1 mx. George has his converter ticking over nicely now and should soon have a 8 mx array on top of his 40 ft. tower.

Other stalwarts still on 6 mx are Graham 5ZAP, who is trying to alter his change-over to one switch. You always hear Brian's multipliers first. Ray 5ZEM gradually stoking up a stronger signal. Curl 5ZBL trying out all his 815s to stop them going soft. Brian 5ZEX getting the ultimate in modulation and that ever-sharp George 5GB reading and always listening for that weak signal from the north end north east. Others heard regularly of a Saturday evening are Reg 5QR and Bob 5BT, working cross-band 2 to 6.

Les 5AX couldn't get to dinner the other Sunday, one after the other, all the city boys poked a signal into Gawler and Les, whose converter decided to do the right thing, was loathe to break away from the contacts. It is told that Les eventually had his dinner with the dog. Incidentally, Les was running 150w, to an 829b, but has reduced this to a bare 60w. I wonder how long it would have lasted Les?

Ross 5MK has his tower up to 60 ft. now and it should withstand any wind, for each leg is anchored to reinforced concrete 8 ft. into the ground. Ron's new beam is tuned up and he has a guaranteed standing wave ratio of 1:1.120202 or thereabouts. A nice set up. Ron. I wouldn't mind a 5 el. yagi like it. Nearly forgot to mention Graham's 5ZAP 6 mx mobile converter, apparently working OK and intends to use a 6AQ5 in the final of his mobile tx.

144 Mc.—I hope any visiting mobile from Interstate will forgive us. It's not the lack of tx's, it's just the lack of signals. Ring LF 6738 and I can guarantee a signal within 5 minutes.

288 Mc.—Somewhat similar to 2 mx with an occasional mod. osc. session, the most consistent signals being Gary 5ZGH, George 5ZGA and Lance 5ZBC, and occasionally Graham 6ZBT.

The birds have whispered to me that within 2 months there will be a pattern for t.v. testing on 1 mx complete with f.m. phone, working in the band from 280 Mc. up. Here's your chance to build that 288 Mc. converter by 3ZAI in the August issue of "A.R.", feed it into your t.v. rx and be the first to see the pattern. Controlled signals will eventually be essential on 288 Mc. with normal transmissions on the lower 2 megs of the band.—3ZAW.

PAPUA-NEW GUINEA

50 Mc.—After a couple of years of continuous 1900 EAST skeds, Russ 9XK, Port Moresby, worked through to 4NG, 4ZAZ and 4HD on August 3. There was no sign of the Brisbane gang 60 miles to the south of 4HD. Russ heard weak JA sigs of varying strengths on July 3, 13, 24 and 29, and worked JA on July 4 and 23, and Aug. 4, with signals varying from 5/9 to 4/5 each way. Sigs were marked by flutter most of the time.

3ZAN's motor generator set which uses a surplus d.c. motor as a generator and can give both 300v. d.c. and 230v. a.c.; John 3ZAJ's 1 mx xtal locked converter using a new coaxial line 6Q4 r.f. stage; Ray 3ZAE's 1 and 2 mx tx's, and finally Norm 3ZBU's mobile 2 mx tx with a QQQ03/12 final.

Considerable discussion was needed before the following set of rules for the next series of v.h.f. field days was adopted, they are:—

1. Five Field Days to be held for the season, one in November, December, January, March and April, the January Field Day to correspond with the National Field Day.
2. The operator to operate as long as he chooses during the Field Day, but the log submitted to contain only five consecutive hours of operation.
3. Each operator to use a different location each Field Day, at least five miles from one previously used.
4. Scoring: one point per mile, the distance to be agreed upon by both stations with a maximum of 250 points per contact. No band multipliers.
5. Logs to be submitted on standard log sheet with addition of mileages within a fortnight of the contest.
6. Metres.—No DX signals have been heard in VK3 for the past few months and activity is limited to local QSOs. A 6mx scramble has been arranged for the fourth Sunday of each month from 2000 to 2030 hrs. The first scramble which took place in July was won by Jock 3ZDG, who worked all of the stations operating (13), equal second were David 3ZAT and Ian 3ZBP, with 12 contacts each. So that no logs need be submitted, a control station (the winner of the previous scramble) calls each competing station, takes their score and then announces the winner. The next scramble will be held on Sunday, 28th September.

Ron 3AEJ will be passing through Sydney on his way to Brisbane and will be looking for contacts on 6 mx. Ron has a walkie-talkie operating on 50.32 Mc. which uses either batteries or a.c. power supply, and will be in Sydney on the evening of September 26 and the morning of the 27th, and in Brisbane on the evening of September 28.

2 Metres.—Allan 3AEL, who is at present in Canada, crossed the border some time back and visited West Hartford, Connecticut, the headquarters of the A.R.R.L. Allan made the acquaintance of George Grammar, Ed. Tilton, and the rest of the gang and sends along his regards to the v.h.f. gang in VK3.

Apparently the lull in 2 mx activity during the winter season has been used to advantage by Jack 3ZEF and his second op, both have passed the exams for their full call signs and are awaiting their new calls. Max 3ZCV, who was operating portable in Melbourne during August, tells us that he and Hughie 5BC heard 6WG on 2 mx during one of the 6 mx break-throughs to VK6. Max, whose QTH is in Ouyen, unfortunately was not able to make the QSO both ways, however, it does look like the 2 mx band could bear watching during 6 mx openings.

1 Metre.—Les 3ZCN now regularly replaces the 3WI broadcast on 288.16 Mc. from his QTH in Noble Park and after the broadcast calls for reports on either 1 or 6 mx. Les, who is running 80w, to a QQQ06/40 final, has already

**Wireless Institute of Australia
Victorian Division
A.O.C.P. CLASS
commences
THURSDAY, 6th NOV., 1958**

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.

AUSTRALIAN NATIONAL ANTARCTIC RESEARCH EXPEDITIONS

VACANCIES—Antarctic Division at

MAWSON — DAVIS — WILKES — MACQUARIE ISLAND

Applications are invited for the undermentioned vacancies in the 1959 Expeditions to Mawson, Davis, Wilkes and Macquarie Island.

PERIOD OF EMPLOYMENT

Two to four months preparatory work in Melbourne followed by approximately twelve months at the Station. Tentative sailing dates: Macquarie Island—early December, 1958; Mawson, Davis and Wilkes—late December, 1958. Whilst absent from Australia, kitting and maintenance are provided free by the Commonwealth, and there is an allowance of 37½% of salary up to a maximum of £575 per annum; in addition to which a district allowance of £275 per annum for married men, and £175 per annum for single men is paid. Recreation leave accrues at rate of five weeks per annum. Subject to the provisions of the Income Tax Assessment Act, Zone Allowance deduction of £180 may be allowable. Salaries commence within the appropriate range according to qualifications and experience. Employment will be in a temporary capacity under the Public Service Act 1922-1955.

★ PHYSICIST

Positions: Macquarie Island (1), Mawson (1), Wilkes (1).

Duties: To carry out research on Ionospheric, Cosmic Ray, and Auroral Phenomena involving operation and maintenance of radar, pulse counting, photo electric and other electronic equipment, photographic and spectrographic equipment.

Qualifications: University degree, preferably with honours, with Physics as a major subject (or equivalent). Sound knowledge of, and experience in, electronics.

Salary per annum: £1,416-£1,686.

★ TECHNICAL OFFICER

Positions: Macquarie Island (1), Mawson (2), Wilkes (1).

Duties: Responsible for functioning of Ionospheric, meteor radar, and/or other electronic equipment, participate in investigation of geophysical phenomena.

Qualifications: Sound training or laboratory and/or field experience in electronics, including pulse techniques, essential.

Salary per annum: £1,181-£1,421.

Classification as Technical Officer Grade I, £1,181-£1,331, or Technical Officer Grade II, £1,331-£1,421, and commencing salary within those grades will be determined in accordance with experience and qualifications. Results or any academic studies should therefore be stated.

★ SUPERVISOR (RADIO)

Positions: Mawson (1), Davis (1), Wilkes (1), Macquarie Is. (1).
Duties: To service and maintain radio, radiosonde and rawin equipment and act as Senior Radio Telegraphist.

Qualifications: Applicants should state any appropriate licence or technical diploma held by them. A thorough knowledge of theoretical and practical electronics is essential, plus a First Class Commercial Operator's Certificate of Proficiency or equivalent service experience.

Salary per annum: £1,085-£1,115.

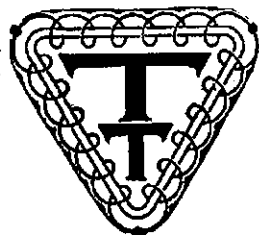
★ RADIO OFFICER

Positions: Mawson (2), Davis (1), Wilkes (2), Macquarie Is. (2).
Applicants should possess Commercial Operator's Certificate of Proficiency or equivalent service experience, together with wide experience in operation and maintenance of ground installations.

Salary per annum: £945-£1,065.

Applicants must be in robust health and have experience in outdoor life such as skiing, mountaineering, bushwalking, etc. The successful applicants for the Physicists and Technical Officers positions will be required to commence duty as soon as possible. Applications, which must be accompanied by a recent photograph and the names of at least two referees, should reach—

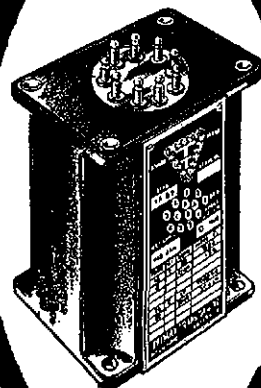
The Director, Antarctic Division, Department of External Affairs, 187 Collins Street, Melbourne, by 16th Sept. '58.



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 Victoria—Dave Wardlaw, VK3ADW.
 Queensland—Arthur Wair, VKAAW.
 South Australia—Rex Richards, VK3SDO.
 Western Australia—Ron Hugo, VK6KW.
 Tasmania—Doug. Fisher, VK7AB.
 Papua-New Guinea—Rus Coleston, VK9KK.
 Fed. Contest Committee: Reg. Harris, VK3RR, Secretary, Box 1234K, G.P.O., Adelaide, S.A.
 QSL Bureau: R. E. Jones, VK3RJ, 23 Landale Street, Box Hill, E.11, Vic.
 Awards Manager: A. G. Weynton, VK3XU, 5 York Street, Bonbeach, Vic.

NEW SOUTH WALES

President: Perc. Healy, VK2APQ.
 Secretary: Norm Beard, VK2ALJ, Box 1734, G.P.O., Sydney.
 Meeting Night: Fourth Friday of each month at Science House, Gloucester Street, Sydney.
 QSL Bureau: Box 1734, G.P.O., Sydney. Frank Hine, VK3QL, Manager; assisted by Allan Smith, VK2AIR.
 Zone Correspondents: North Coast and Tablelands: Noel Hanson, VK2AHH, Ryan Ave., West Kempsey; Hunter Branch: R. W. Rose, VK2AQR, 17 Brooks St., West Wallsend; Coalfields and Lakes: H. Hawkins, VK7CYL, 9 Comfort Av., Cessnock; Western: W. Sitt, VK2WH, "Cambijowa," Forbes; South Coast & Southern: E. Fisher, VK2DY, 2 Oxley St., Warrawong; 8th. Western: J. W. S. Edge, VK2AJQ, Wallace St., Coolamon; Tamworth: S. Smith, VK2APS, 50 Upper St., Tamworth.

VICTORIA

President: F. G. Bail, VK3YS.
 Secretary: J. R. Lancaster, VK3JL.

NOTES

Administrative Secretary: Mrs. May, C.O.R. House, 191 Queen St., Melbourne.
 Meeting Night: First Wednesday of each month at the Radio School, Royal Melbourne Technical College.
 Divisional Sub-Editor: V. M. Jones, VK3YE, 7 New St., Surrey Hills, E.10.
 QSL Bureau: Inwards and Outwards—W.L.A., 191 Queen St., Melbourne, C.I., Vic.
 Zone Correspondents: Western: W. J. Kinsella, VK3AKW, Magdala, Lubeck; South Western: W. Wines, 46 Cranley St., Warrnambool, and W. Zimmer, VK3AWZ, 70 Skene St., Newtown; Far North Western: M. Folie, VK3GZ, 101 Lemon Ave., Mildura; Midlands: R. Jonsson, VK3ND, Farnsworth St., Castlemaine; North Eastern: L. Elison, VK3ALE, 72 Orr St., Shepparton; Eastern: J. Spark, VK3AJK, 20 Marshall Ave., Moe.
QUEENSLAND
 President: John Pickles, VK4FP.
 Secretary: W. J. Rafter, VK4PR, Box 838J, G.P.O., Brisbane.
 Meeting Night: Fourth Friday in each month at the State Service Union Rooms, Elizabeth Street, Brisbane.
 Divisional Sub-Editor: A. Simpson, VK4ZAK, Cr. Baden Powell and White Sts., Everton Park.
 QSL Bureau: Jack Files, VK4JF, Vanda St., Buranda.

Zone Correspondents: Maryborough: R. J. Glassop, VK4BG, 60 North St., Maryborough; Townsville: R. K. Wilson, VK4RW, Hogan St., Stuart. Townsville.

SOUTH AUSTRALIA

President: B. W. Austin, VK5CA.
 Secretary: J. C. Haseldine, VK5JC, Box 1234K, G.P.O., Adelaide. Telephone: M 7851.
 Meeting Night: Second Tuesday of each month at 17 Waymouth St., Adelaide.
 Divisional Sub-Editor: E. C. Daw, VK5EF, P.O. Box 44, Gawler, S.A.
 QSL Bureau: G. Luxton, VK5RX, 27 Belair Ed., West Mitcham, S.A. (Inwards & Outwards).

WESTERN AUSTRALIA

President: L. Roeger, VK6HR.
 Secretary: J. R. Rims, VK6BE, Box N1002, G.P.O., Perth, W.A.
 Meeting Night: Third Tuesday of month at Perth Tech. College Annex, Mounts Bay Rd.
 Divisional Sub-Editor: J. R. Eims, VK6BE, 29 Central Road, Kalamunda.
 QSL Bureau: Jim Rumble, VK6RU, Box F319, G.P.O., Perth, W.A. (Inwards and Outwards).

TASMANIA

President: P. E. L. Dunne, VK7PD.
 Secretary: K. E. Millin, VK7KA, Box 571B, G.P.O., Hobart.
 Meeting Night: First Wednesday of each month at W.I.A. Clubroom, 147 Liverpool St., Hobart.
 Divisional Sub-Editor: W. W. Watson, VK7YY, 58 Brooker Ave., Moonah.
 QSL Bureau: J. Batchler, VK7JB, 39 Willowdene Ave., Lower Sandy Bay, Hobart.
 Zone Correspondent: North Western Zone—Terry Tong.

PAPUA—NEW GUINEA

President: F. N. Nolan, VK9FN.
 Secretary: G. A. Greville, WIA-L9004.
 Divisional Sub-Editor: R. Clark, WIA-L9001, P.O. Box 204, Port Moresby.
 QSL Bureau: D. S. Brown, VK9SB.

FEDERAL

RADIO SIGNAL REPORTING CODES

The Comité Consultatif International Radio (C.C.I.R.) in London in 1953 recommended that the SINPO and SINPFEMO codes be used instead of the older Q and other codes in use.
 The signal report consists of the code word SINPO or SINPFEMO followed by a five or eight-figure group respectively, rating the five or eight characteristics of the signal code. The letter X is used instead of a numeral for characteristics not rated.

Although the code word SINPFEMO is intended for telephony, either code word may be used for telegraphy or telephony.

	S	I	N
Rating	Signal Strength	Interference	Noise
5	Excellent	Nil	Nil
4	Good	Slight	Slight
3	Fair	Moderate	Moderate
2	Poor	Severe	Severe
1	Barely audible	Extreme	Extreme

	P	O
Rating	Propagation Disturbance	Overall Readability
5	Nil	Excellent
4	Slight	Good
3	Moderate	Fair
2	Severe	Poor
1	Extreme	Unusable

Example: Signal report SINPO 555X4 would mean excellent signal strength, moderate QRM; no QRN, propagation disturbance not rated, and overall readability good.

In the case of the code word SINPFEMO, the letters S, I, N, P, and O have the same meaning as for the SINPO code, but in addition the letters F, E, and M have these additional meanings:

	F	E	M
Rating	Frequency of Fading	Modulation Quality	Modulation Depth
5	Nil	Excellent	Maximum
4	Slow	Good	Good
3	Moderate	Fair	Fair
2	Fast	Poor	Poor or nil
1	Very fast	Very poor	Continuously overmodulated

Example: Signal report for SINPFEMO 34254453 would mean fair signal strength, slight QRM, severe QRN, no propagation disturbance, slow fade, good quality of modulation, maximum depth of modulation, and fair overall rating or readability.

The overall rating or readability of telephony for both code words is also interpreted as follows:

Rating	Operating Condition	Quality
5	Signal quality unaffected	Commercial
4	Signal quality slightly affected	Commercial
3	Signal quality seriously affected, channel usable by experienced operators	Marginally commercial
2	Channel just usable	Not commercial
1	Channel unusable	Not commercial

T.V. EXAMINATION

The Australian Broadcasting Control Board has notified the following candidates that they

were successful at the examination for the Television Operator's Certificate of Proficiency held in Sydney and Melbourne on 10th June, 1958:

Sydney: William Leonard Aubrey, James Peter Gee Cox, Ernest Casimir Crouch, Kevin Douglas Curtin, Noel Stanley Hill, William John Hollister, Alex Richard Jepson, Owen Thomas Kavanagh, William John Lark, Milton Charles Moorhead, William Russell Nelson, David Barry Fletcher Quick, Thomas Llewellyn Robson, Edward Hamilton Smith, Gordon Clive Snell, Cecil Snyder, Edward Lionel Kenneth Travers, Peter Andrew Tkachenko, John David Watson, William John Weller.
 Melbourne: Donald Patrick John Davenport, Basil James Gilbert, Richard William Moncur Jones, Kevin Lo, Henry David Myers, James Edward Reilly, Walter Ernst Ritter, Harold Gilbert Smith, Edwin Charles Joseph Snell, Terrance Leslie Stokes, Kenneth Owen Donald.

The examination was conducted by a Board of Examiners comprising officers of the Australian Broadcasting Control Board, Mr. R. H. Mondell, of the Dept. of Technical Education, Sydney, and Mr. F. A. Kempson, of the Royal Melbourne Technical College.

Examinations are conducted twice yearly, on the second Tuesday of June and December. Applicants who have passed any sections of the examination on a previous occasion will be exempted from these 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 on 9th December, 1958, and applications for this examination must be lodged with the Secretary of the Board, 497 Collins Street, Melbourne, by 15th November, 1958.

FEDERAL QSL BUREAU

Jack Elliott, ZL3CC, who has visited Australia on several occasions, is indulging himself in a world tour in 1959. Itinerary takes in Sydney, Melbourne, Adelaide, Fremantle, Colombo, Port Said, Naples, Versailles, Gib-

SILENT KEY

It is with deep regret that we record the passing of:—

VK4BW—Andy Couper.

CONTEST CALENDAR

Compiled by W.I.A. Fed. Contest Com.
 ★

R.D. CONTEST:

Return of Logs—Postmarked not later 5th Sept, 1958, to F.C.C., Box 1234K, G.P.O., Adelaide.

VK-ZL DX CONTEST:

Dates: Phone—4th-6th Oct., 1958.
 C.W.—11th-12th Oct., 1958.
 Bands: All h.f. bands (including 11 mx).
 Rules: See new Rules this issue.
 Logs: To Contest Manager, N.Z.A.R.T.

"CQ" WORLD-WIDE:

Dates: Phone—20th GMT, Oct 25, to 20th GMT, Oct 27.
 C.W.—20th GMT, Nov. 29, to 20th GMT, Dec. 1.

Bands: All h.f. bands (including 11 mx).
 Rules: No change from 1957 except for minimum operating time of 12 hrs. to qualify for an award. (Note Rule 8, sections 6 and 7.) Rules will appear in this journal next month.

R.S.G.B. TELEPHONY CONTEST

Dates: Nov. 22 and 23.
 Bands: Restricted.
 Rules: Same as for 1957 except for scoring bonus for working G3 stations.

ROSS HULL MEMORIAL V.H.F.:

Dates: 1st Dec., 1958, to 31st Jan., 1959.
 Bands: All v.h.f. bands.
 Rules: Same as for 1958-57.

NATIONAL FIELD DAY:

Date: Sunday, 25th January, 1959.
 Bands: (1) H.F. (2) V.H.F.
 Rules: Note changes for ratification this issue. Returns Sept. 30.

rallar and Tilbury on forward journey. Jack will spend two days in Melbourne early in February while the Orcaides is in port. ZL3CC plans to spend some time in U.S.A. on the return journey.

Details of the Radio Club Uruguayo "Certificate 33-Orientales" may be had from this Bureau or from the Awards Manager W.I.A. Rather a tough certificate to come by.

Another elusive Certificate is that called "Diploma Da Africa Portuguesa". Details are available on application to this Bureau or from Awards Manager W.I.A.

Details of yet another Certificate styled S.O.P. Award (Sea of Peace), sponsored by the Rostock district of the German Democratic Republic, have also come to hand.

A further Certificate styled "W.A.L.A." (Worked All LA) is now issued by the N.R.R.L. Contacts from 1950 are valid for this award. Full details from this Bureau.

The Paraibas Association of Radio Amateurs (A.P.R.A.), from that district of Brazil, forwards details of their new award called "Cabo Branco". Entitlement demands the contacting of 10 YP Amateurs.

One of the most consistent DX stations to be operated by a member of the fair sex is OQ8E. The operator is Jane Hiernaux, XYL of another well known DXer, OQ5GU. Jane operates mostly 14 Mc. c.w. and uses 50 watts to a g.p. ant. Her sigs can be frequently heard in VK between 1400z and 2300z. Contacts are sought with VK and a card is assured via Box 403, Stanleyville, Belgian Congo. Ray Jones, VK3RJ, Federal QSL Manager.

NEW SOUTH WALES

The attendance at the July meeting was higher than for many months with nearly 60 members assembled at Science House. 30 new members were elected, including 11 full members. This continued increase in Divisional membership is most gratifying and amounts to three new members joining every two days. It was agreed that the names of 36 unfinancial members be deleted from the register.

The news of the proposed 11 kv. power extension down Quarry Road, Dural, caused much comment. John Moyle 2JU spoke on the dangers of power line interference which might result at VK2WI. Dave Duff VK2EO assured members that negotiations with the Supply Authorities had resulted in their agreeing to terminate the 11 kv. in a transformer at the northern boundary to the Division's property, and continue the extension along Quarry Road at 415 volts 3 phase. The Supply Authorities had agreed to take every possible precaution against interference and would use fog-type insulators on the 11 kv. line. It was anticipated this extension would be in operation by the end of August.

The Secretary reported that the Correspondence Course was functioning well and that 40 had enrolled to date.

A letter from the VK3 V.h.f. Group was read. This letter asked for support from VK2 Division to their request that the 50 Mc. band be retained.

The lecture given by Max Riley, VK2ARI, under the heading "A Guide to Constructors" was of particular interest. Max covered a wide

field of subjects closely allied to problems encountered by home constructors of both transmitting and receiving equipment.

Noel Hanson, VK2AHH, from Kempsey, moved the vote of thanks to Max.

A large number of members gathered as usual to extract their QSL cards from Frank Hine's card bins which are available at each meeting.

The usual coffee and biscuits available after the meeting saw members gathered in small groups discussing their pet theories.

HUNTER BRANCH

Bill Kirchner, VK2ZK, lecturer in chemical engineering at the Tighe's Hill Technical College, entertained the boys at their July monthly meeting, showing how the atomic clock works and judging by some of the questions Bill was called upon to answer it showed that some of the lecture soaked into the grey matter. Atomic structures of the ammonium molecule were passed around for examination and as far as I know no one swallowed them for pills.

President Lionel 2CS thanked Bill on behalf of the following who were present: VKs 2XT, 2AQ, 2AOR, 2QB, 2ZDL, 2ZDF, 2RJ, 2AEE, 2SJ, 2FP, 2WQ, 2SF, 2ZK, and Associates Sutherland, Hughes, Jefferson, Bailey, Davis, O'Brien, Rugg, Roberts, Lihdsay, Richardson, Bergmann, Connors and Stobbs. A nice diversion was created when an atomic-blonde brought her exercise to be marked by Bill—oh, to be a teenage teacher.

Alan 2SJ, from Maitland, was a new face and we hope to see you often, Alan. By lengthy and devious routes a message of greetings was received from Ron Bishop, ex-2WB. Gordon Sutherland, our Social Secretary, reported on the progress of our dinner and field day and to date everything is running very smoothly. Several films were available for projection but unfortunately some cad pinched the University's machine—hope he gets life. Our old friend, Wal ZLAUL/2 has been heard in N.Z. on a local b.c. station and by the time this is in print we will have received 120 slides of N.Z. plus a tape describing them and they will be shown as soon as practicable.

Pop 2AHL made a quick trip up to exchange sets with Bill 2ZL; don't know how he made out as the last time I saw the set Bill was removing the cob-webs with a hose. The weather must be getting warmer as there was quite a roll-up at Bill 2XT's monthly social gathering. A welcome visitor was Barry 2AAB, Swedish s.w.i., Sven, has logged the signals of 2AOR and 2ZL. John 2XQ heard for first time reporting to 2AWX and someone woke up Jack 2KQ to do likewise; must have been 2XT's voice as he took over 2AWX for the night.

I have seen many strange things, but I never ever thought I would see a Ham shovelling, yes, shovelling, valve sockets into a tin; ask 2ZL, he can tell you all about it.

The latest honour that has come to your Branch is the knight-hood bestowed on your correspondent by someone or other in N.Z., who, after seeing my photo, drew his sword and said, "Arise Sir Cumference." That's me, boy!

Don't forget Oct. 4 and 5 and send in your registration pronto and before Sept. 27. Good speaker, good dinner, good company—what more do you want?

Next meeting at University of Technology, Sept. 12 and the social at 2XT's on Sept. 24, and while you are about it, have you donated to the I.T.U. Fund? You should you know.

VICTORIA

The problems of eyesight and television were presented to the last meeting by Mr. Owens, of Andrew Geddes Pty. Ltd., Melbourne. Everyone who heard this lecture should now know the reasons for most of the eyesight difficulties which arise and should also know most of the means at our disposal for combating them as this received very close attention by the lecturer. Surprisingly enough, troubles from this source are rather prevalent and until manufacturers were put on the right track, much time was spent in trying to right sets which were in fact satisfactory; the trouble being with the viewer's eyesight. The lecture as presented to us was originally designed to give assistance to dealers and the like in these matters. One of the difficulties often encountered is the difference between the eyesight of young and old. Because of this difference a family group viewing a set for the first time will often give widely differing opinions on the set's performance. To some it will appear to be perfect and to others the very opposite.

This was the problem which had to be solved and, as the lecturer explained, the factors causing these anomalies are many and may be broken up into those of light, optical

and visual ones. This presupposes, of course, that the t.v. set is functioning correctly and when this is so, any lack of clarity to the viewer is usually due to some deficiency in his eyesight. The reason why this can be said is that t.v. is, after all, only a picture and the t.v. we get in VK is very sound technically.

The light problem is usually associated with levels existing between the picture tube and the general room lighting. The ideal set-up to solve any problems which arise from this source is a picture of minimum brightness and a general level of light in the surrounding area of about the same intensity as the screen. This will give viewing free from flicker and a minimum of eye strain from glare and contrast.

Optical problems arise from eye imperfections which are long sight, short sight and astigmatism. Viewers who suffer from any of these complaints are almost sure to experience difficulty with their viewing and will need to see their eye man for the remedy. Symptoms are usually headaches, squinting or blurred vision, but there are plenty of others from all accounts. Although our t.v. is near perfect the abnormal eye is found out fairly quickly as viewing is indulged in to extremes by most and the eyes can't take it. Even perfect eyes will suffer from fatigue if viewing is not taken in moderation. This was one of the hints given by the lecturer.

Other hints on viewing given by Mr. Owens were, keep the viewing distance from the screen to within about 6 or 7 times the height of the screen, i.e. about 6 to 10 ft., otherwise fatigue will result, viewing periods should be kept to a minimum or again fatigue will develop, children to view from the same distance as adults, but not from the floor where they have to look up as this is unnatural and tiring to the eyes, the set should be kept at its best pitch of operation and in tune at all times.

Mr. Owens went to a great deal of trouble to highlight these problems together with the reasons behind the various solutions. He did this by explanation and with the assistance of slides and we are very grateful to him for reducing such an involved subject to a level which could be so readily understood.

The stereoscopic photographs presented were most realistic and were a sample of what lies ahead of the t.v. viewer, so the lecturer believes. He also maintains that t.v. must eventually be in colour to be entirely satisfactory. With all these things to come, present day sets should soon be out of date, so that gives me another excuse for putting off the evil day.

As was to be expected, Mr. Owens was deluged with questions after his lecture and these were handled in the same professional manner as was the lecture. A very good night was had by all. Len 3LN made a tape recording of the lecture for the benefit of those who may wish to avail themselves of this service.

At the general meeting which accompanied the lecture, the following items of interest were noted: New members admitted—Messrs. A. D. Pridgeon (SZCA), R. W. Badrock (SZGC), G. Wood (3AUU), I. D. Thomas, N. L. Jenkins and A. J. Brook.

W.I.A. VICTORIAN DIVISION NINTH ANNUAL STATE CONVENTION

will be held in
MELBOURNE
on

SAT., SUN., SEPT. 20-21, '58

Programme:

Saturday evening: Convention Dinner and Meeting.
Sunday: Various attractions such as Tx Hunts, Novelty Events, etc. Barbecue Lunch will be provided.

Listen to VK3WI Broadcasts for final programme details.

Accommodated will be arranged if required. Anyone wanting hotel accommodation must send a deposit of £1 to the Vic. Div., 191 Queen St., Melbourne, promptly.

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Sunday: All-Band Scramble, 144 Mc. Tx Hunt, Disposals, Blindfold Tx Hunt.

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At the recess, Sid 3ASC disposed of a box of wire oddments which he had donated. The money so raised was given to the I.T.U. Fund. A recommendation was also put to Council that Institute funds be made available for this fund. Council reports that the fund now stands at the very handsome total of £1,350. Don't let this deter you from sending that donation as we are not near the target of £2,500 yet. Don't forget, also, that our cause is going to be considerably strengthened if we can demonstrate that we have a use for our bands, so get on as often as possible and prove this point. If we don't make it abundantly clear that we need the bands for our purposes, then our representative at I.T.U. is going to find it difficult to substantiate our claims. Incidentally, the P.M.G. has given his blessing to the proposal for a VK Amateur to attend I.T.U. as an observer, so things are moving in all spheres of this project.

Steps have been taken to protest against the latest directive that only English may be used from VK stations.

The next State Convention is to be held in Melbourne on 20th and 21st September.

Owing to school holidays, the next general meeting will be held on the second Wednesday of the month instead of the first, that is on the 10th September, and the lecture will cover Fox and Transmitter Hunting, together with a demonstration of the gear in use on these activities.

MIDLANDS ZONE

Alteration to the zone hook-up night to Tuesday has not yet brought in those other calls we hoped to see, but when they remember that the second and fourth Tuesdays at 7.30 on 80 mx are the nights then we are hopeful of a greater roll-up. In the meantime, those who attend spend a pleasant hour or two in an entertaining discussion, and we hope this can be shared with others.

It appears that old age, or the law, has caught up with 3TG, as his car is off the road. He was seen hiking from Castlemaine to Maryborough to catch the train by 3IZ, who picked him up and prevented a few blisters on the toe. 3IZ is building a panadaptor, but is finding difficulty in obtaining 1600 Kc. i.f.s. After the meeting at Castlemaine last month, Peter drove home and arrived there without any feeling and little visibility through the wind screen. A heater has now been installed to cater for nights such as that, and we now have another happy operator on the air.

Neville 3ACN is re-building his s.s.b. rig and is highly jubilant at the moment, having finally made his balanced modulator balance. This was after changing the original four diodes, which on test had forward and back readings, within about 400 per cent. of each other. A visit to the local store, a box of diodes and a multi-meter eventually served up four diodes with reasonable tolerance. The rest of the rig has yet to be tested and it is hoped to report success next month.

When this zone was first formed it was advised that a frequency meter was allotted to it, but after a lot of enquiries and searching, it now appears that this frequency meter resembles the "oofoo" bird, in other words, it just doesn't exist. However, one or two are owned by members of the zone, and these can be made available should any member require one. 3ACN has volunteered to do any spot frequency checks for anyone interested, preferably during the hook-ups.

SOUTH WESTERN ZONE

Well the zone has woken up after a short spell; the hook-ups have been sadly let down, but on 31st July it was a terrific night as all or most zone stations were on. They included Brian 3ADU, Gordon 3AGV, Chris 3AXU, John 3AGD (Voice of the Gramplans), Kevin 3AKB, John 3ARJ, Jim 3ABT, Jack 3ALP who was 5-8 in Warrnambool and only using an 8 ft. whip, Bill 3XE, Gordon 3AGE, Leigh 3II, and Bob 3IC. Willie 3AWZ was missing; guess his bird family kept him busy.

I would like to remind all members not to forget the next Convention to be held in Ballarat in November. If anyone has the zone frequency meter could you please forward same to the Secretary, 3AGE.

EASTERN ZONE

Only four hounds attended our last 2 mx fox hunt held at Maffra. This number was very disappointing as it turned out to be a very nice afternoon. Ian 3AAV was the fox, with David 3DY, George 3ZCG, Fred 3ZEV and Ken Robertson as hounds.

Our next activities-day will be an all-band field day, held at Apex Park, along the Morwell River Road, near Boolarra, on Sept. 14. We would like to see all the Amateurs in the zone attend this field day, so bring along your wives and children, friends and portable rigs.

Meeting time will be at 10.30 a.m., having a picnic lunch beside the river at noon, a fishing rod and a camera would not go amiss, so hoping to see you all there.

NORTH EASTERN ZONE

Geo. 3ADZ now using lighting plant to drive 750 rx plus a new tx. Best DX George, Keith 3IC is back on the air working the DX on 20 mx only. Arthur 3AWL now operating 80, 40 and 20 mx. Henry 3HP working on 80 mx, look for you on zone hook-up Henry. Congratulations to 3FD and XYL—3rd harmonic putting out a strong signal. Welcome to Jack 3API, best of luck on all bands. Regards to all members from Mawson, Doug VK0IJ looking for VK QSOs on 20 mx.

WESTERN ZONE

Pleased to hear that Gordon 3NX, of War-racknabeal, is on the air again. He was very active before the war, but pressure of business in recent years has left little time for Ham Radio. However, he is using a Type 3 with a higher powered rig coming up in the near future. Chas 3IB, ex-3ACI, IAC, OAB, is now setting back to work at one of the metropolitan h.c. stations. He recently made a holiday tour of New South Wales and Victoria where he paid visits to some of his Radio cobbles, who have also spent their share of time on islands in the Antarctic.

Sorry to say that Jim 3DP is on the sick list and certainly hope that by the time these notes go to press he will be fit and well again. Gordon 3GW, of Rainbow, is building up a switch network to change power supply to different transmitters. Guess he has it finished by now.

GEELONG AMATEUR RADIO CLUB

The Club activities have reached a new time peak with 20 new members and a new set of officers for 1958-59. Our new President is Bob 3IC, Secretary Harry Michael, and Treasurer Vic Clarke. We attribute our outstanding burst of activity to the work of the officers of last year mainly, J. Barber, 3ABT, Vic. Clarke and Bob 3IC, and the energetic committee.

There has been a number of excellent lectures by various members. Vic. Clarke gave a talk and display on direction finding loops; Mr. J. Beckingham continued this theme with particular aspects of mobile equipment. A tx hunt was held recently for an evening mobile exercise and the members found the tx concealed near the railway station.

The local members are very pleased with the disposals allotment and hope to do bigger and better things with it this year.

A study group and morse code class are in capable hands and we hope to have some more QRM by the end of the year.

MOORABBIN AND DISTRICT RADIO CLUB

The blow has fallen at last! Our meeting place is down in the dust and we have to shift the scene of our activities, at least for the time being. One of our staunchest mem-

bers, Ed. Manifold, has kindly offered the use of his shack to tide us over until permanent accommodation can be obtained. Meetings will be reduced to once per month, on the third Friday of each month, at 267 Jasper Road, McKinnon.

At the last meeting, a sum of £5 was voted from Club funds as a contribution to the I.T.U. Delegate Fund.

Congratulations to our Vice-President, Jack Hudson, and member Max Dalton on gaining their two-letter call signs. There's going to be some mighty ear-bashing on 40 mx round Moorabbin and Highest in the near future!

QUEENSLAND

The Council meeting on July 11 saw a good roll-up of Councillors, which was possibly due to the fact that the meeting was conducted in the lavish surroundings of the Y.M.C.A. dining room. The President, John 4FP, thanked Ron 4RO for attending the meeting in the capacity of liaison officer for the T.V.I. Committee. The minutes having been read and confirmed, councillors noted with interest and with pleasure that the northern boys have set a good example by their generous donations to the I.T.U. Fund. It was also noted that quite a few non-members have responded to the circular sent out by F.E. The support of member and non-member is greatly appreciated, and Council commends the interest taken in such an important matter as this. Keep it up boys!

Arthur 4AW received signals from F.E. concerning the scarcity of tubes in India and the subsequent plight of the Indian Amateurs. Details of this have already been published in "A.R." Also, we were asked to remind Qld. Amateurs that a section will be devoted in "A.R." to a shack description with accompanying photographs. So what about it boys, spruce up the shack and have your pitcher took! (Photos with good contrast are required. The block will be donated to the Amateur for his use by the Publications Committee.—Ed.)

Ron 4RO announced to Council that the T.V.I. Committee was back on the job. The Committee now consists of Tibby 4HR as Chairman with 4RO, 4JE, 4SA, 4MO and Alan Smith, all raring to go. Council approved the purchase of several items of equipment and with t.v. just around the corner, members are earnestly requested to co-operate to the fullest and become t.v.i. conscious. A meeting of the T.V.I. Committee will be called in the near future to discuss proposed policy, etc. We wish them every success as they've taken on quite a job.

Members will note with interest (perhaps) that the policy book has not been forgotten as the President John 4FP and his sub-committee have arranged further meetings at which all past Institute minutes are carefully read and compiled.

Also the task of determining all the Institute's assets has come up for consideration and a committee formed to investigate the matter.



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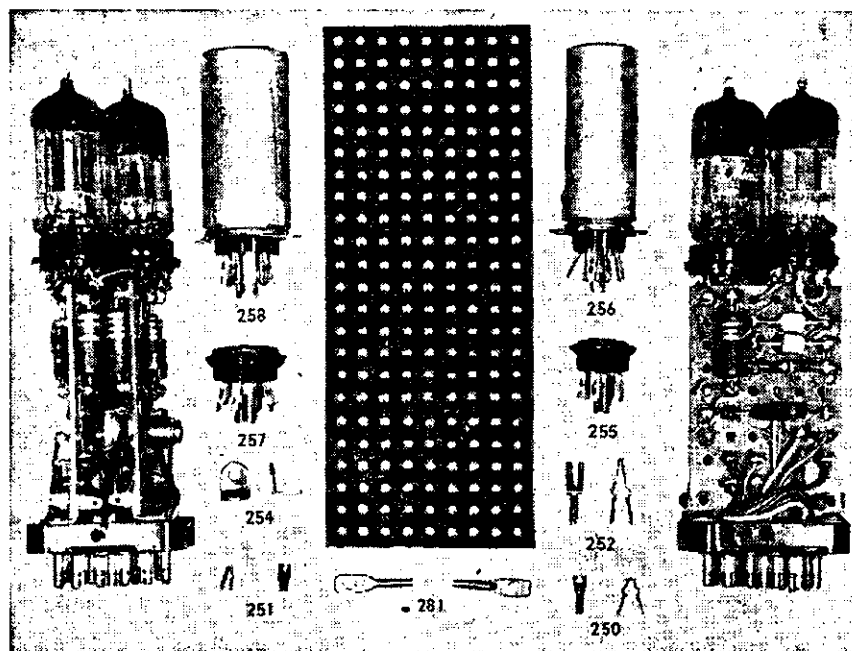
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Jim 4OB in tabling his monthly report as Treasurer announced that the Institute had, as a result of the Palm Beach Convention, a further £9 in kitty towards the 1958 Convention. It was proposed that Council attempt to secure the camp for an earlier date than the Queen's Birthday week-end. The bad weather experienced rather detracted from an otherwise very successful Convention. Let's all hope the weather is kind next time.

Unfortunately our Secretary, Jim 4PR, has been transferred to Townsville and things have, for the time being, been put out of gear. However, his vacation should make him feel more than ever ready to step back into harness. We all miss you Jim. Also headed north is our Station Manager, Bert 4AO, who, with his family, is motoring to Innisfail. Bert hopes to visit as many of the northern boys as practicable. Get your swap-boxes ready boys.

The last Convention showed us the need for stimulated interest in v.h.f. and civil defence. To this end, we now have a v.h.f. society which meets every third Friday at 430's QTH at 8 p.m. Bruce, as Chairman, has set the ball rolling and preparatory construction of W.L.C.E.N. communicators is under way. The sets are to be manufactured by a small group of Hams in assembly-line fashion. This is to ensure a standard of interchangeability. The frequency selected is 57.6 megacycles and the sets will be sold at cost to various Amateurs. The society also intends sending out a circular to all old and new v.h.f. licensees. It is hoped thereby to create greater interest and secure more members. Another method of running 2 mx tx hunts is still under discussion. The proposed method is to change firstly from 2 mx to 5 mx using loops instead of beams. Other alterations will consequently be necessary to suit local conditions.

Vince 4VJ and Ewan 4EF at the last general meeting showed how very effectively an Amateur's position could be pinpointed within a matter of seconds on a specially prepared map. This step is to become standard procedure and it is suggested that Brisbane Amateurs secure a copy of a map of Brisbane from the Emergency Committee or (for those who know the map) from the Lands Office. When Amateurs are sufficiently familiar with this Army type of simple map reading, a further exercise in Civil Defence will take place. This particular map is divided into 2 inch squares with co-ordinates suitably marked along and down the side of the map. The Dept. of Civil Aviation is to be the parent organisation for C.D.E.N. in Qld. and quite probably the next exercise will involve the noting and recording of aircraft flights in different parts of Qld. as well as determining the condition of any local aerodromes, etc. Information will be passed on to D.C.A. for checking, so be on your toes.

A very interesting film show was put on at the last general meeting by the film unit of the P.M.G. Dept. The films, although of a reasonably technical nature, were touched with patches of delightful humour and altogether the show was thoroughly enjoyed by quite a large body of Hams. Our thanks go to the Dept. for a pleasant evening's entertainment.

The last 2 mx tx hunt was hidden by Ross 4ZAT who had artfully concealed the tx in a vacant paddock near Chermiside. John 4FP once again located it first in 14 minutes. Mrs. 4ZAT supplied the boys with an on the spot supper which was really appreciated as the night was very cold. The next tx hunt will be hidden by John on the first Friday of September.

TOWNSVILLE

It was quite a change to see the extra roll up at the monthly meeting of the club, held on 31st July, to hear the lecture on "C.R.O. and its uses" by Allan 4PS. At the end, Allan was bombarded with questions which were duly answered. It was quite nice to see the animated discussion which took place, also the barrage of advice given to Ted 4EJ in answer to his question.

The T.A.R.C. has decided to forward £5 to the fund for a delegate to the I.T.U. Conference, this is in addition to the usual db. being forwarded by all members. This certainly shows how the boys here are alive to what might happen if no delegate is sent overseas.

Now that the 50 Mc. "rat race" has ended for a while, it is expected the local Z boys will concentrate on 144 Mc. and make the band popular in this district. Amongst the older members there is not much doing and only two or three heard on the various bands except for the country boys who certainly give 7 Mc. a hiding, the skip not being favourable to the other bands. The bands lately have been behaving irritably and no opening appears for two days running to the various DX countries.

Harry ex-8HO has now become 4OH and lives at Mossman, taking up a milk run—a far cry from his last job at Rabaul. Hopes to meet the boys on the various bands in the early evening and not in the morning, too busy. Visitor to the shack this month was Frank 4FC from Ingham and all gear carefully watched. Allan 4BE came out to help with building of new tx, guarantees no bugs in the finished article (hi). Bob 4TK sent along the doings for 7 Mc.

The past month has seen the passing of that grand old man, Andy 4BW, who, for many years, carried out the duties of maestro for the 7 a.m. hook-up on 7 Mc. each day. His passing has left a gap that cannot be filled in the group. It is understood the State W.I.A. will have a full statement to make on his passing as he had been a Ham since 1912.

Over the past month quite a large number of signals have been heard on 40 mx from the locals. Many came into the hook-up for news of the late Andy, and at times the sessions were crowded. Eric 4EL has been heard from time to time. Alex 4MA at Mt. Garnett has been busy getting a No. 19 to operate and needs a handbook on this set. Can anyone help him out? Don 4PW looking for dope on a Japanese tube (DZ510) he has, any help? Vern 4LK still manages to get a few JAs on 50; has been missing in the early morning hook-up, probably too cold. Herb 4JW likewise. Bazil 4ZW has had trouble with a power transformer, decided to rewind it when he heard the cost of a new replacement. He did excellent work for the gang during an unhappy occasion, in handling the wreaths at the funeral of Andy 4BW. Harry 4ZP and Eddie 5OW heard giving Bob 4RW pointers in making sauces and custards. Eric 4EC visiting the southern States very shortly, promises to stop at Orange Grove and see the old QRM, 2AJY.

Harry 4HK has been asked to write up notes of late Andy's radio history. This has been forwarded to the boys in Brisbane for collating. Bert 4BP, like Harry, is very busy, but makes time to come on now and then. John 4DK going high power, getting interested in 813; the humble 807 being pensioned off. Nick 4WT still has his rig at the airfield but intends shifting it to the new QTH. No excuse then to go out to see the boys. Edgar 4XF graces the band in the evening and has a nice signal. Claude 4ZW, one of the old-uns, has retired and is going to devote all his time to Ham Radio and lives at Cairns. Frank 9FN recently went up to Giroka in the highlands of N.G. Had to construct a special rig but not for Ham bands. Would not take any orders for Bird of Paradise plumes.

Bob 4TK has been appointed control for the 7 a.m. hook-up on 7 megs. Members are to be charged extensions if they go over 3 mins. Some members owe quite a few db. too. Bob 4RW can speak for himself but his cheery voice breaks in at times in the evening hook-up on 40 mx. Suffers a lot of line noise at his QTH. Can he make custard? Ask his harmonics!

SOUTH AUSTRALIA

A most topical subject, "Transistor Power Supplies and Silicon Diode Rectifiers", was presented to our last monthly meeting by Mr. Maurice Johnson, of T.C.A. Hendon, in a very lucid and learned manner. He dealt with the history of the development of application of the transistor to the switching circuitry required for converting low voltage d.c. to high voltage, and illustrated the various phases of the circuit function with diagrams from a good collection of slides.

Once or twice a formula or two was thrown in to demonstrate a point, or to "show how the circuit was conforming", which rocked a few of us. In fact as Gordon 5XU said on the session the following week, we then "picked ourselves up off the floor and brushed the dust off, then carried on."

As before, lectures like this one, as with others on these new "electron gates" are starting to change our thinking quite a lot, and now that cost is getting within reason, availability nearly normal, and frequency of usage climbing up, more and more interest is being shown in them. We are pleased then to be kept abreast of things in this regard by men of the calibre of Maurice who are prepared to share their knowledge with us.

Descriptions of equipment such as he described are appearing in current issues of overseas magazines, so now some of the terror has been removed for us, and in light of the very greatly increased efficiency they provide the mobile boys have something really worth while to try.

Whilst on the subject of mobile work, it is interesting to note that there is a new series of tubes becoming available here that have

6v. filis. and function normally with 12 volts on the plates. "QST" mentioned these some months ago, and now an Australian manufacturer of car radios is using them, so there is another approach to the same problem.

Eight more new members were accepted at the meeting, a good sign this continual growth of numbers, indicating first a healthy interest in our hobby and secondly an active "membership" committeeman—good on you, Norm.

The Publications Committee is still enquiring from amongst us for articles for the magazine. So far the response has not been great, that is in sending mss. here. Tom 5TL gave a couple of very good ones on mobile works, and it is possible some have been sent direct to VK3 in which case very good, but in any case keep them rolling. There is a lot of evidence in listening on the bands that a great deal of building is going on, so put it on paper chaps, let's hear of your successes, and of your problems and how you solved them. There are a couple of d.s.b. sigs around in VK3 these days which no doubt differ from the book's, so what about a description of how you did it, and what parts you used to do it.

The Sunday morning broadcasts recently have continued to be marred by the deliberate QRM, although it appears to go off when the post-session hook-up takes place. A recent survey by one of our members qualified to undertake such, is narrowing down the field, so let's hope it works out and the brainless offender is laid to heel. Collaboration of the mobile gang, as suggested by Les 5AK, who if fitted with "sniffers", would also help.

D'Arcy 5RJ, of Kadina, is reported as being a very busy boy changing from d.c. to a.c., that is other people's supply, so what about taking some time to do yours and your gear and let's hear the voice again?

An enquiry from Wal 5DF recently for some information regarding an obscure tube prompts the suggestion that if any such enquiry is made at a "post session" hook-up on a Sunday, then there is every possibility of an answer forthcoming, for there is usually such a gathering then that someone's library will yield an answer. Not only tubes either, so use the service the session opens up—it's a part of your show.

Doug 5DW not on full power yet (hi), but does very well with what he has (saw a VK3 pal of yours recently, Doug., so look out for he gave me some ideas). Chas 5ON and Keith 5KH heard in QSO recently, were you using the short or long path fellows? David 5AW amongst the "loud and clear" types still, with George 5EC coming on occasionally with a really smart signal and a model of operating technique.

Dave 3BF complaining that he was not able to load the final too well on 40 mx, and later found out he was using his 20 mx rhombic in error; 5 x 9 here all the same, Dave, so what do we do now? Lance 5XL continues to "photo" and hi fi on tape, very good. Bob 5RI heard mobile at Medindie not long ago but back home now and on 80 mx heard to tell of a 400 odd journey in a day that really rocked his GW3 listener.

John 5JC even graced 40 mx recently in order to clear a query; see what I mean fellows, you ask on Sunday and you don't know what talent you rouse. Reg 5RR has a d.s.b. signal that really puts the S meter asleep, or it does here, about twice the strength compared with the same input on a.m. Come on Reg, do an article on it, for by August 31 those forms will all be finished and I'm sure a lot of information would result from such an article.

Ron 5MK bobs up on 40 mx too, not always on 6 Ron? Ask Les 5AX some day what happened to his 50 meg. converter—or would it be better not to? Jack 5AM does fine from the "Bridge with a mighty signal. Tom 5TL still keeping his hand in with the 122 and must be surprising himself with the way he gets out.

Doc 5MD had a pre-lawn-mower session recently with Mike GW5LFM in attendance. (Mike was staying with Doc., on Doc's side please) and the subject matter was s.s.b., so who knows but that silent worker may come up all "Donaud Duck" some day.

Ron, Burnie and Co. at 5WC have had a sudden rush of members lately with all kinds of ex-call sigs amongst them. Remember recently it was said that a session from them sounded like an M.C.C. dressing room yarn? Well, it's progressed since then with some VK inclusions so we can't name the team now.

A recent note from them provided a photo of the shack with all its glory (the old one that is—shack, not glory) including the new 5FY transmitter which is plate and screen modulated (wonder why?). By the way, Ron built in a very smart keying arrangement on the 807 final that will appeal to many, so we are looking to you Ron for an article on it, it's a cathode keyer with a screen blocking arrangement which cuts the plate clean and

by the right combination of R and C gives that copy-book keying we all like. No excuses fellow, you have been named now.

A recent W.I.C.E.N. exercise with Mt. Lofly as the centre passed off with great success on both 80 and 6, the lessons learned at Salisbury being used to full advantage from both technical and message handling angles. Great credit must go to these boys who unselfishly fit themselves for this task and brave the very inclement weather we have had lately to keep practicing so that they and their equipment will be able to provide an emergency service worthy of the Institute.

WESTERN AUSTRALIA

Your scribe being off on a final fling before he goes back to work after eight months' holiday, no report on last meeting is forthcoming, this month. The matter of the membership club, the Short Wave Group, was finalised, and numbers have now been issued. These take the form of those issued in other States, e.g. WIA-L6001, etc. Financial members of the club are entitled to all privileges enjoyed by Associate members of the Division. We wish the listener boys (not to mention the YL) all the best of listening, and a very happy association with members of the Division.

During my travels I enjoyed the hospitality of 6CL and his XYL Roma. Ian was conducting tests with his vee beams. He started off in very wintry weather with a field strength meter hooked up to a loaded whip in his utility. This worked very well until the ute became bogged. I believe Ian has now attached his device to his tractor. Roma finds the vee beams very handy at times. When Ian is working South Africa, it is only necessary for her to connect the feeders of the 80 mx dipole to the kitchen stove and hey presto—dinner!

6ZBU, 6GB and company conduct round tables on the v.h.f. bands. Some of these "coast to ghost" hook-ups have to be heard to be believed. I have heard at times four stations all talking at once, and, what's more, being heard. Triple duplex or triplex? I have still to find out the strength of a "three jersey" breeze.

A new voice has appeared on 80 in the person of "old timer" Vic. 6NL. He says he has not worked 80 before, having concentrated on the higher bands. From reports he has really enjoyed his introduction to the band; so much so that I have heard him threatening to stay off for a night or two to make up for lost sleep. 6LG, 6BE and 6NL were conducting a round table on 80 at 0115 the other morning. At the same time, 6CL could be heard on 40

working ZS, ZD6, CR7 and quite a lot of other DX. That new dipole, 75 ft. high is paying off. Nice work Ian.

6WL has a beautiful signal these days—on 18 watts. Getting very nice reports from VK3 too. Shows what can be done on QRP when it is impossible to run higher power. 6CA has been busy getting his tower into the air. It is now in position—40 ft. in height—waiting for a beam. I believe the crane driver was not so lucky though, it took him two days to get home when the jib of the crane fell 45 ft. to the ground narrowly missing 6BO. Rollo would have done justice to the Olympic dash in his eagerness to get out of the way.

6SM has completed his new rig and is now running high power. 6WD is another who has increased power, and is now running 100 watts plus. Bob Glover has received his call at long last and has been working X band 50 Mc. with the Perth boys. He has also been heard working 6TF in Brunswick and 6MG in Manjimup. I think this last contact would put new heart into Mac, who has not had much luck with 6mx to date. 6EJ has appeared on the band after a long absence due to pressure of work on the properties. Jack is running a new modulator—a pair of TZ20s. 6KO was heard the other day for the first time for nearly two years. Kevyn has been working temporarily in Melbourne but has now returned and settled at Wembley. He has been busy setting up his gear and hopes to be fairly active again. Nice to see you back, Kevyn.

6MA has been busy building a new converter, which he hopes to have finished before the R.D. Contest. I had the pleasure of spending quite a few hours in his shack and note that Allan is getting things set up very nicely. Believe Allan has been getting among the 20 mx DX. Heard 6LG talking about sending 0 mx signals with a horizontally polarised bedstead. Think Len will be horizontally polarised by the time he gets on to sbx, though. (Midnight horror indeed!)

Arrangements for the R.D. Contest are well under way in VK6. By the time this appears in print we will be awaiting the result. Another record roll up is expected from VK6 again, and we expect to be hard to beat. It is believed that about thirty stations hope to work for at least 18 hours out of the 24, which should make things interesting.

Results of the I.T.U. Appeal are very encouraging so far. If you haven't made your donation yet, it's time you thought about it. It could be a good form of insurance.

That's about the lot for this time, so will sign off till next month, chaps, wishing you all the best.

TASMANIA

Alas! We have had to get a new zone correspondent and "yours truly" associate—Terry Tongs, was "dodged in" but will endeavour to carry on the good work done by Len ex-7LS, who, as he mentioned last month, has left us and gone to VK6 land. We all hope to hear you on the air again soon Len.

Yet another Annual Meeting was held at Ulverstone last month, in what we hope will be our permanent meeting place. The meeting proceeded after everybody was warmed or otherwise by the beautiful fire. The minutes of previous meetings and the various correspondence, etc., was speedily disposed of and our Past President's report was read (I believe it was made up on the spur of the moment), a great job, Syd. A new President was elected after a secret ballot and Ted TEJ was voted in with a good majority; congratulations, Ted. Our worthy Hon. Sec., Max 1-WS, was "ceremoniously" bundled into office once more and told he was good for another 20 years—afraid you've had it, Max. Vice-Presidents, Syd 7SF, George 7XL and Lee 7KC, were duly elected and told they were good for "at least a guinea. Dennis 7DR tried to push "yours truly" into the Treasurer's job but without success, so he will have to get out another balance sheet next year. Licensed Hams were threatened with dire things if they didn't work round the clock during the R.D. Contest—it's in the bag for VK7 if threats count for anything.

Jim 7JO and Athol 7LR have generously offered to help some of us associates to grasp a little more of the "know how" and quite a few intend having a crack at the exam in October. Therefore if the powers that be see fit, there'll soon be more dipoles on the coast than t.v. aeriels.

The efforts of some of our YLs and XYLs in preparing supper for us were greatly appreciated; no need for breakfast next morning. There's nothing better than cream cake and radio round a good fire.

The inevitable auction took place after supper and it was hard to believe that so much

junk existed in Tassie. The disposal of all the lots proved a marathon for our President/auctioneer, Associate John Lee got a beaut, aerial complete with insulators—just right for the xtal set, John. Someone bought a venetian blind for his car and of course Secretary Max bought several transformers. He simply loves "boiling them down" and winding new ones—kerosene will shift that goopy stuff off the kitchen table Max. Also, Max's XYL declares that a Morse key has now become standard equipment with the cutlery on the meal table—certainly one way to learn the code. Our Treasurer reported about 2 db. gain in zone funds, which gives some idea of the quantity of "valuable gear" that changed hands.

Ken 7AI, operating on s.s.b. (the only one here in VK7 I believe), reports that our American friends relish a good chin-wag before breakfast. He is also tidying up a new 150w. final using 6146s; hope it functioned OK for the contest. Ken, Roy TRN has his beam finished and working too, with all sorts of things coming in and going out on it. Is it any good as a scarecrow, Roy? Sam 7SM, with only three States to get, should soon achieve his W.A.S. certificate now that he has his cubical quad in operation. Our t.v. enthusiasts are still reporting good sound and pictures. Keep trying chaps, a new type of rx should result. The grape-vine, along with other things, is carrying whispers of several experiments with transistors. Best of luck.

PAPUA-NEW GUINEA

The VK9 Division was shocked to learn of the passing of our old friend Andy 4BW. The enquiries from distant Amateurs bore witness to the many sincere friendships Andy had made on the bands. We in VK9 join with all members of the Institute in extending our deepest sympathy to Mrs. Cooper.

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: English Minimitter Transmitter, 6 months old, as new, 150 watt c.w., 100 watt a.m., £120. B. & W. Electronic T-R Switch, Model 380B, for use with 52 or 75 Co-ax, £10. W. Hempel, Kyvalley R.-D., Victoria.

SELL: Frequency Meter LM-10, sim. BC221. 400 cycles mod. Calibration book. A.C. power supply. £30—offer. K. Bridger, 261 Wood Street, Preston, Vic.

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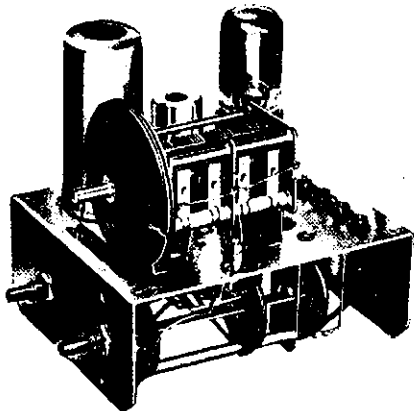
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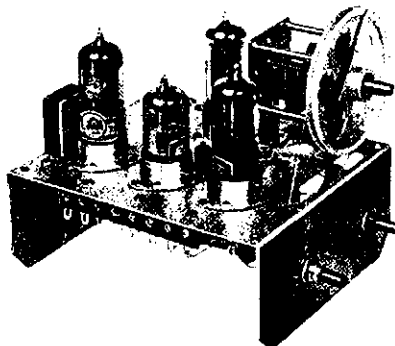
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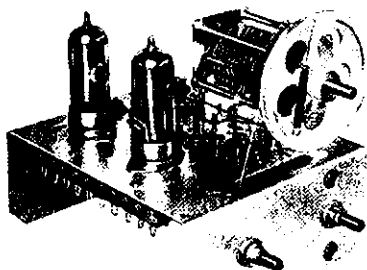
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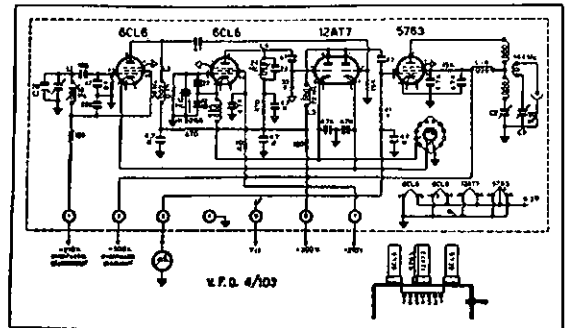
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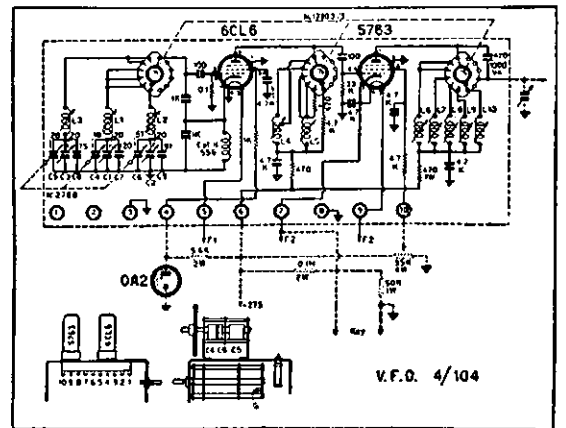


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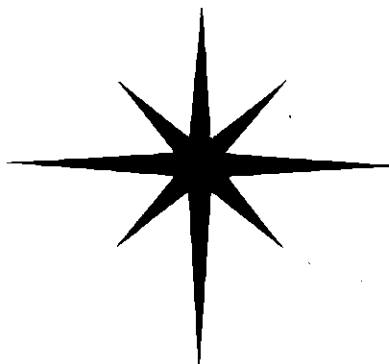
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AMATEUR RADIO

JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA

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EDITORIAL



TWENTY-FIVE YEARS OF AGE

On 1st October, 1933—twenty-five years ago—the first issue of "Amateur Radio", published by the Victorian Division of the Wireless Institute of Australia, went to press as the official organ of the Victorian Division of the Wireless Institute of Australia and the Royal Australian Air Force Wireless Reserve. Such was the enthusiasm with which it was received, that within two months it became the official organ of the Wireless Institute of Australia in all States in conjunction with the R.A.A.F. Wireless Reserve.

With the support of advertisers and its hard-working, far-sighted enthusiastic Committee, it continued in publication in octavo format up until the outbreak of World War II., bringing to the Australian Amateur a glossary of information pertinent to the hobby of Amateurs and providing a medium by which Amateurs could express their views and know what was going on in their unique field of communication.

During the years of the War, "Amateur Radio" continued in publication in a roneod form and at the conclusion of hostilities came into print again in its present quarto format.

Between the lines is history! History of the work of an ardent few who have zealously sacrificed their private time in an honorary capacity to maintain its publication. With the advancing years and increasing interest in Amateur transmitting, the magazine has increased its standard until today—its 25th birthday—is seen its finest issue.

Throughout its twenty-five years of publication can be found an historical record of the pursuits of Amateur Radio in Australia; the writings of Amateurs who became known the world over and who are

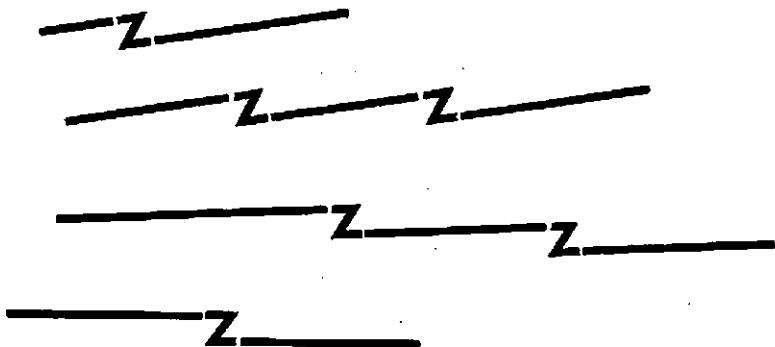
now "silent keys"; men whose activities made milestones in the glorious progress of communication by radio waves; and others who are still active Amateurs and whose names appear in its columns symbolising a never-dying interest in the continuation of the work done by those who went before.

It is not possible to list all those who have done so much to maintain the publication of "Amateur Radio" over the past twenty-five years. To each and every one goes due credit for the work he has done. But one outstanding Amateur known to many who has devoted twenty-five years to its cause is Jim Marsland, VK3NY. From participating in its work from the inaugural issue to editing it and looking after its finances throughout its history, Jim Marsland has unselfishly devoted a virtual life-time and has paved the way for those who will ultimately follow in his footsteps to maintain the only Amateur Radio publication in Australia to a standard undreamed of in its early years.

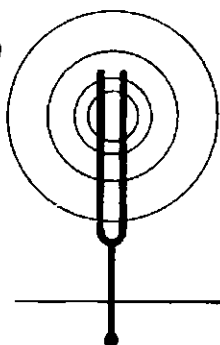
The Wireless Institute of Australia is proud of its publication. It takes this opportunity of thanking all those people—the Advertisers, the Committee, the correspondents, the technical article writers, the printers, and the Victorian Division of the W.I.A. which has provided the finance to maintain it in publication. "Amateur Radio" today is a well established journal, selling through all leading booksellers and reaching out through members of the W.I.A. to readers all over the world. With new ideas and modern processes the Wireless Institute of Australia looks forward to another twenty-five years of publication for and on behalf of the Amateur Service in Australia.

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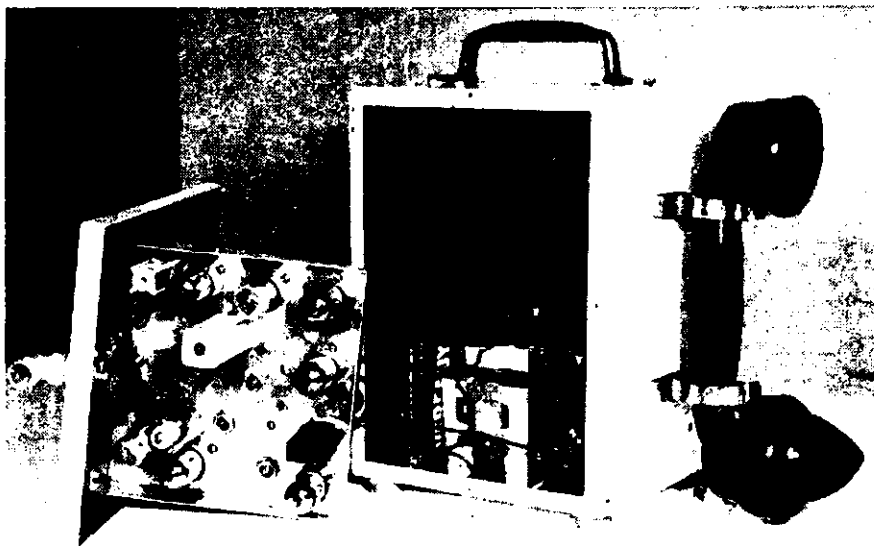
THE W.I.C.E.N. COMMUNICATOR

BY BOB GODSALL,* VK2ARG

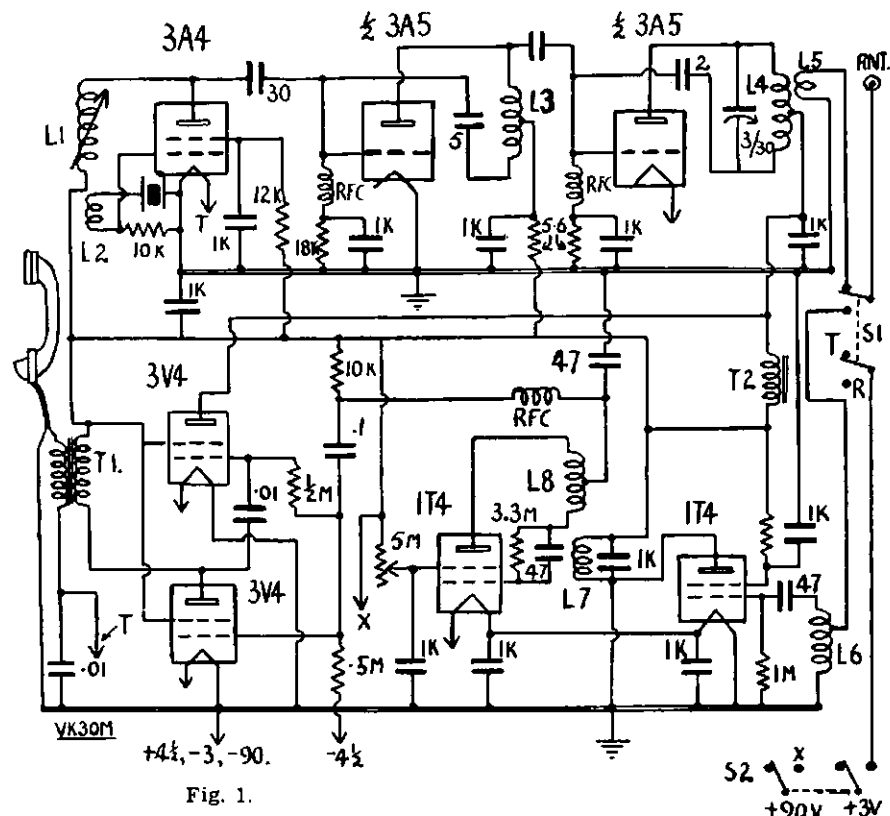
THE circuit and details of this equipment were arrived at after considerable experiment. While it is not claimed that this is the ultimate in design, tests have proved that this set-up will give a good account of itself. Early experiments using an acorn super-regenerative detector were disappointing, the addition of the r.f. stage making all the difference.

To be useful for the type of service envisaged, the Communicator had to satisfy the following demands:

- Simplicity of operation;
- Reasonable battery life;
- Minimum cost of battery replacement;
- Must use batteries which are easily available in country centres;
- Must be waterproof to the extent that it can be used in heavy rain;
- Robust to withstand hard usage and vibration;
- Use parts which can be procured, keeping disposals parts to a minimum.



* Pacific Road, Palm Beach, N.S.W.



- Fig. 1.
- L1—5 turns 26 g. enamel, ½ inch diameter.
 - L2—5 turns 26 g. enamel, wound over cold end of L1. (Note the connection of this coil.)
 - L3—10 turns 22 g. enamel, centre tapped, ½ inch diameter.
 - L4—10 turns 20 g. spaced wire diameter, ¾ inch diameter.
 - L5—2 turns wound tightly over centre of L4.
 - L6—10 turns 26 g. spaced three-wire diameter, tapped 3 turns from cold end, ¾ inch diameter.

- L7—5 turns 26 g. enamel, ½ inch diameter, iron dust slug.
 - L8—14 turns 26 g. enamel, centre tapped, see text.
- Resistors—½ watt as shown.
- Miniature potentiometer for the regeneration control should be 0.5 meg., not 5 meg. as shown in circuit above.
- RFC—330 microhenry t.v. type.

The frequency of 57.6 Mc. was chosen for the following reasons: This frequency falls in a band which is a permanent Amateur allocation in Australia; it can be reached by the following crystal multiplications: 9.6 Mc. × 6, 7.2 Mc. × 8, and 6.4 Mc. × 9. This frequency is high enough in the band to be free of Amateur interference on the low end where activity normally takes place. Antenna efficiency is high using a small antenna; a quarter-wave stub is only four feet long!

The Communicator gives best results when used as a mobile/portable station working to a base station having higher power, a good antenna, and a sensitive receiver.

Over average hilly terrain, reliable communication can be maintained up to 20 miles; if both stations are well situated, considerably greater distances can be covered. Box to box, 5 to 10 miles can be expected.

With the addition of four feet of co-ax cable, several fittings and a small clamp to fit the window of a car, the Communicator can sit on the car seat and its own antenna fitted outside the vehicle, permitting mobile operation in any car at a moment's notice.

The equipment, complete with the batteries, is housed in a steel box measuring 9" × 6½" × 5½". A P.M.G. type handset clips to the side of the box. Four rubber door stops permit sitting the Communicator on car or table without damage to paintwork.

There are only three controls: On/Off Switch, Send-Receive Switch, and the Regeneration Control. The transmitter is crystal controlled and the receiver fixed-tuned. The chassis and antenna are fitted to the removable panel, a gasket inside providing water-proofing.

The six batteries plug into the bottom of the box, and can be changed without a soldering iron. Two Type

482 45v. batteries connected in series provide the h.t.; the filaments run from three number 701 cycle lamp cells connected in parallel. The bias battery is a type 703.

THE CIRCUIT

The transmitter uses a 3A4 pentode in an overtone circuit, giving output at three times the crystal frequency of 9.6 Mc., half a 3A5 double triode doubles to 57.6 Mc., driving the other half as a straight amplifier. This is plate-modulated by a 3V4 pentode using a miniature power choke as the modulation transformer. The receiver has a 1T4 pentode r.f. stage into another 1T4 super-regen. detector. Regeneration is controlled by a pot. in the screen lead. A separate 3V4 audio tube connects to the common input-output transformer.

The change-over from transmit to receive is achieved by switching the antenna and filaments circuits only. Extra switching could combine the function of modulator and audio output, but the price, size, and complication of a multi-contact switch is greater than that of the extra tube, and only one of these tubes is alight at one time.

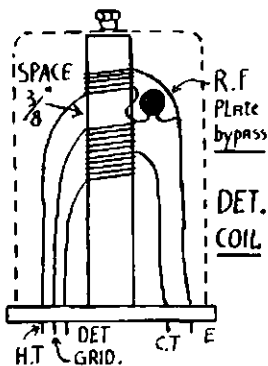


Fig. 2.

The combined transformer T1 can be either a microphone transformer (ex-AT5/AR8) or a midget speaker transformer, the former giving a better match to the handset, but the latter functions quite satisfactorily. The function of the transformer may need some explanation. The microphone and ear-piece are connected in series. One wire from the handset is grounded, the other is connected through the low impedance winding of T2 to the transmitter filament supply, being by-passed to ground with a 0.01 μ F. capacitor, which effectively earths this point at audio frequencies. When receiving, the audio tube (3V4) delivers power to the handset; when transmitting the 3V4 modulator grid is excited through the 0.01 μ F. coupling condenser. Bias to both tubes is supplied via the half-meg isolating resistors from the small "C" battery.

HINTS

The r.f. plate and the super-regen. coils are wound on a small shielded t.v. type i.f. former, with a slug for each coil. The frequency of L8 can be set with a grid-dipper before placing the can in position, withdrawing the r.f. tube so as not to mistake resonance of L7. The same procedure is used for L7, by removing the detector tube.

Both coils should be tuned to about 54 Mc., as placing the can in position increases the frequency to around 57.6 Mc. Final tuning can be done on a weak modulated signal.

The 5 pF. feedback capacitor in the doubler circuit of the transmitter is rather critical. If the stage oscillates, this value should be reduced, although if the layout shown is used, no change should be necessary. The same applies to the neutralising condenser shown as 2 pF. The wire is extended from the end of the tank coil down through the chassis, and brought near the grid pin of the final half of the 3A5.

Obtaining drive to the final is the real problem. Two milliamps is necessary for full output. Sometimes removing the by-pass from the r.f. choke in the p.a. grid return will increase drive. Drive can be increased at the expense of h.t. milliamps, by removing the

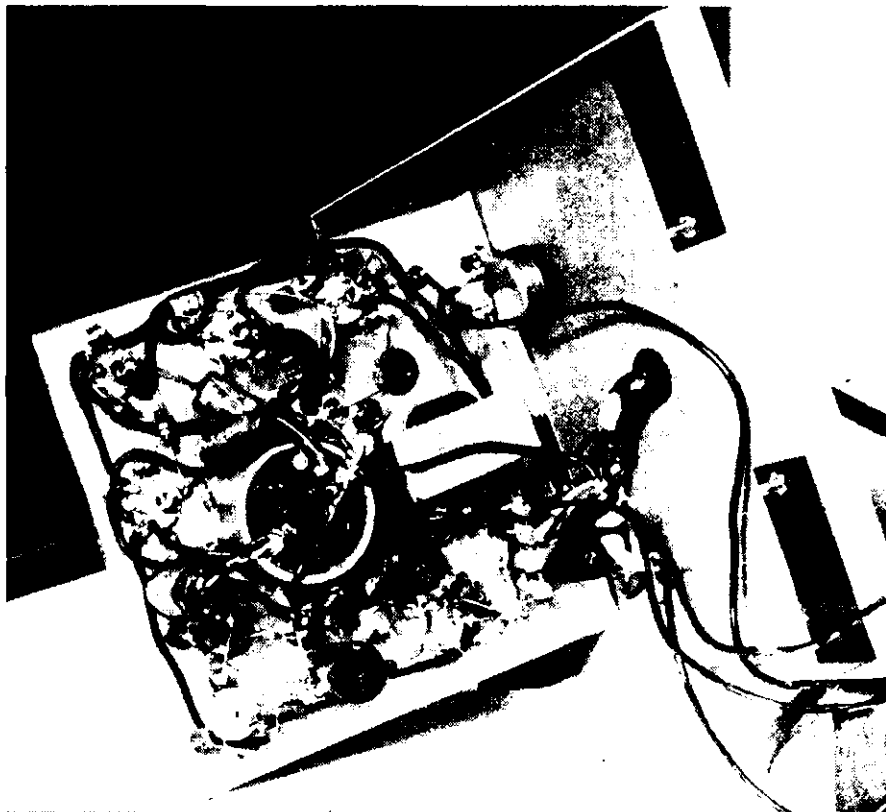
double-pole on/off switch before any soldering changes are made. Also, be careful with a voltmeter probe.

The crystal is an ordinary variety, fitted in an FT243 holder. It was commercially re-ground to the specified frequency. Mention should be made if getting a crystal ground that it is to oscillate at 28.8 Mc. in an overtone circuit.

A 6.4 Mc. crystal can be used, but it is extremely difficult to obtain the full drive to the p.a.

The steel box is obtainable in Sydney from the firm, R. H. Oxford & Son Pty. Ltd., 97 Marriot St., Redfern. It is known as the "W.I.C.E.N. Communicator" box. The handle can be bought at any hardware store.

The chassis is constructed from 20 gauge aluminium. The battery clips are constructed from brass strips and secured to the cabinet with $\frac{1}{2}$ " brass



Below chassis view of W.I.C.E.N. Communicator.

resistor in the lead to L3, and running this stage at 90 volts.

The only snag in the receiver likely to be encountered is poor regeneration control. A moderate hiss should be audible with the pot control about half-way advanced.

Of several receivers built to this layout, one gave better control with a 10 meg. resistor in place of the 3.3 meg. shown. The r.f. tube is prone to oscillation with no antenna connected; this silences the regen. tube, so it is desirable to remove the screen voltage from the r.f. stage while making preliminary adjustments to the detector stage.

Warning.—Remember these are filament tubes—one touch of the 90 volts, and you blow the lot! Turn off the

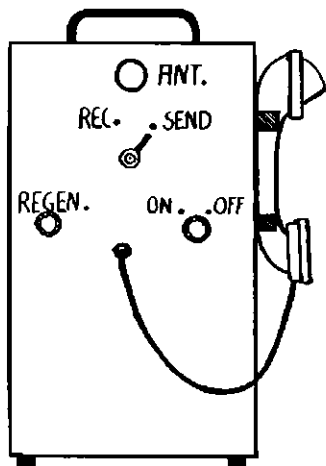
bolts and nuts. The front panel is secured with four self-tapping screws, with a gasket of cork or other suitable material to give water-proofing.

Two plugs are available from most dealers to fit the two h.t. batteries, which lie on their sides one at each lower side of the cabinet. It is necessary to secure some insulating material such as mica on the inside of the front panel where it bears against the battery plugs. The three cycle batteries stand upright between the h.t. batteries making their earth contact with upright strips of brass. The top positive strips make contact with another brass strip secured under a piece of Masonite which is held down on an $\frac{1}{8}$ " rod and also secures the batteries from move-

ment. The "C" battery can be soldered in—it will last for years!

It is not intended to give detailed comment on the overtone crystal oscillator as this has been well described in an article by Bob Winch, VK2OA, in "A.R." for Aug. '58. Also there is ample information on this in the Hand-book. Perhaps mention should be made here that this type of oscillator will only work on odd overtones, hence a 7 Mc. crystal cannot be used in the Communicator.

Since writing the original information on the Communicator, queries make it desirable to comment on the following: Many experiments were carried out using crystal multiplications of more than six times. While it is possible to obtain over one milliamp. drive, a great deal of fiddling is necessary and the crystal must be very active. It cannot be stressed too strongly that a 9.6 Mc. crystal be used. Any normal crystal (even in the FT243 holder) can be ground to the above frequency. The current charge to get this done is 35/-. Max Howden, VK3BQ, is one of our members who will do the job for you. (Another is Bright Star Radio,—Ed.) At least you don't have any further worries with the heart of the transmitter.



Front Panel Controls of Communicator.

The feedback on the doubler stage does increase the drive to the final a lot and, incidentally, does not help much if this stage triples. It is a help to be able to listen to the crystal and doubler stages during preliminary tests, on 28.8 Mc. or on 57.6 Mc. The doubler may oscillate with no drive, but the crystal holds it to the desired frequency. This is the idea of the regeneration.

In order to be certain that the crystal is controlling the frequency, bring a screwdriver near LI while listening to the signal on 28.8 or 57.6 Mc. If the crystal has control, no change in frequency will occur.

The transmitter will draw approximately 40 milliamps. when loaded and delivering about 1 watt output. Current to the various stages is: Oscillator 8 Ma., Doubler 10 Ma., Modulator 10 Ma., and Final 12 Ma.

On the receive position, the current is only 12 Ma., which is less than that used by a small broadcast portable.

ANTENNA

The most useful antenna is a centre-loaded 2 foot vertical. This can be made up from $\frac{1}{4}$ " brass rod, threaded to screw into a short length of poly. rod, using a loading coil of 14 turns close wound of No. 20 g. on a $\frac{1}{2}$ " poly. rod; the exact resonant frequency of the coil can be found with a g.d.o., but remember to remove the antenna from the box and stand it on a piece of metal sheet or grip the plug in a vice, making sure that it is connected electrically to the vice or metal sheet which acts as a ground plane.

A full quarter-wave whip is slightly more efficient and should be about 52 inches long. A cut-down b.c. car antenna can be reduced to one-third this length.

A small collapsible 50-inch whip can be supplied which can be secured by a suitable clip to the box when not in use.

An experimental dipole made from a tank type whip gave excellent results to a base station using a horizontal beam.

Polarisation is important over flat terrain but appears to be less so over rough country, but it is naturally desirable to use either vertical or horizontal at each end. A suitable vertical "J" or ground plane for the base station will be described later, with a base station rig at present under construction.

The Hand-set complete with wire can be purchased from Keep's, Elizabeth Street, Sydney, at a cost of 22/6. Clips to secure same to the box are made from spring steel but cost 8/- a pair.

COILS

The formers for LI, L2 and L3 are those from an SCR522 receiver. There

appears to be no available slug-tuned former of this type available. These coils can be wound on $\frac{1}{4}$ " poly. rod or pill tubes, LI and L3 being tuned by Philips type 3-30 pF. trimmers.

The input and output coils (L4 and L6) were wound on small ceramic formers. It is suggested that they be either air-wound or wound on a suitable former such as poly. rod, poly. pill tube containers, or any material having low r.f. loss. The original formers were $\frac{3}{4}$ " diameter. L4 has 10 turns of No. 20 gauge, spaced wire diameter. L5 (the link) is two turns of P.V.C. hook-up wire wound tightly over the turns of L4 at the centre, one turn either side of the centre tap.

L6 is also 10 turns but uses 26 gauge spaced three-wire diameters. The antenna tap is three turns from the earthed end. It was found that this coil resonated at the frequency and that no tuning was therefore necessary.

L7 and L8 are wound on a $\frac{1}{4}$ " diam. t.l.v. former tuned with two iron dust slugs, details are shown in Fig. 2.

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Telephone: BW 3718

An Experimental High Frequency Transistor Portable Superhet. Receiver

Coverage: 12 Mc. to 2.2 Mc. and 1600 Kc. to 550 Kc.

BY S. L. SKINNER,* VK3AFL

THE receiver about to be described is a double conversion superhet with a tuning range from 12 Mc. to 2.2 Mc. plus 1600 Kc. to 550 Kc. in four bands. It uses eleven junction type transistors and one diode.

The first section of the receiver consists of an OC44 mixer and an OC44 local oscillator. The mixer is an earth emitter type amplifier stage.

A signal from the low impedance winding on the aerial tuning coil is fed to the base of the mixer transistor, along with a small amount of r.f. from the local oscillator. The r.f. from the local oscillator is picked up by returning the bottom of the low impedance winding to earth via a few turns around the earth end of the oscillator coil. The OC44 local oscillator has its emitter earth returned, and the base is tapped towards the earth end of the tuning coil in order to match into the low impedance of the base. Generally speaking, the feedback coil winding to the collector requires a few more turns than would normally be used for valve circuitry, but if the base tap to the coil has too many turns, squeeging will take place.

As this receiver was built mainly for high frequency work, the problem of second image was overcome by using a 2 Mc. first i.f. At this frequency, the stage gain of the second mixer is not greatly effected. Further more, with the local oscillator on 2.150 Mc., the harmonics do not fall into the tuning range of the Amateur bands.

The second stage. As already stated the input to the second mixer is at 2 Mc. Both the mixer and local oscillator use 2N112 transistors. Operation of the second converter is the same as for the first converter, the output frequency from the second mixer being 150 Kc.

The third stage. This stage is the main intermediate frequency stage at a frequency of 150 Kc. Various types of transistor intermediate amplifiers were tried, until it was decided to again use the grounded emitter type of circuitry, and feed the low impedance winding into the base of the transistor.

The frequency of 150 Kc. was selected in an attempt to obtain a reasonable amount of selectivity. By using a low gain transistor, either an OC71 or OC73, in the first position followed by a high gain transistor, either an OC44 or 2N112, it provided plenty of gain and remained stable without neutralisation.

Diode detection was selected for simplicity, but gain and a.v.c. action could be improved by using an OC71 transistor as a detector.

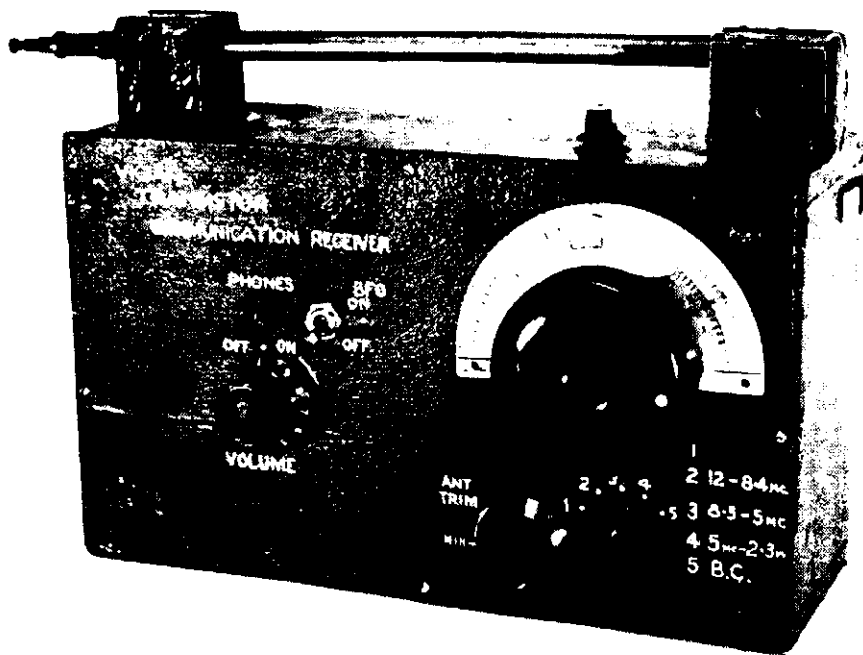
The beat frequency oscillator circuit is very simple and was copied from Philips' Transistor Manual. No attempt was made to couple the b.f.o. to any stage of the i.f., stray coupling being sufficient.

The fourth stage. This is the audio stage and was also copied from the Philips' manual, but with the following modification. In place of an OC71 transistor a high gain transistor 2N138 was used to compensate for the loss due to the use of the OA70 diode detector.

capitors and resistors identical with those used in the local oscillator of the receiver being built.

(f) Multimeter.

The test oscillator was constructed first, and was used to check the h.f. transistors to be used in the receiver and for checking the frequency coverage of the oscillator coils to determine the capacity values to be used in the padding capacitors.



TESTING

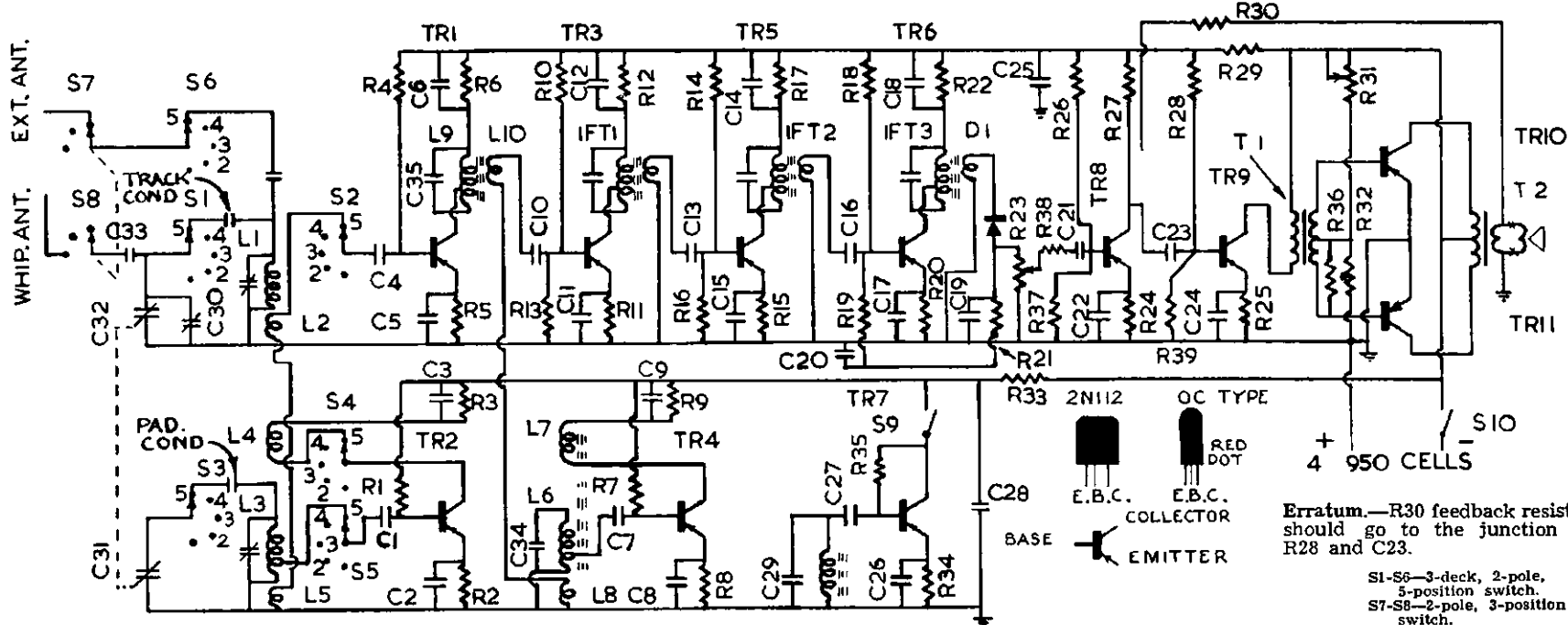
For testing during construction of the receiver, the following equipment was used:

- Receiver CR300, tuning range 15 Kc. to 25 Mc. Used to check the frequency of the oscillator.
- Signal Generator covering 150 Kc. to 30 Mc.
- Grid Dip Oscillator, for checking frequency of coil windings.
- A second h.f. receiver with a calibrated S meter, used mainly to compare the output of various transistors used in the oscillator test set.
- Oscillator Test Unit, constructed breadboard style. This unit was constructed with values of cap-

On completion of the test set a coil was wound with 8 turns 18 g. primary, 4½ turns 24 g. feed-back winding close wound to the primary, base tap 2 turns at earth end of coil. The tuning capacitor was rotated minimum to maximum and with the aid of the g.d.o., frequency coverage determined as 15 Mc. to 6.5 Mc. An OC44 transistor was inserted in the socket and the battery supply (-6v.) connected.

This transistor oscillated from 6.5 Mc. to 7.2 Mc. Alteration to the feed-back winding and base tap made no difference, it would not oscillate any higher in frequency. The current drawn was approximately 300 microamps. A second OC44 was tried. This one oscillated freely from 6.5 Mc. to 11.8 Mc., then from 11.8 Mc. to 12.5 Mc. the note of oscillation became very rough, and beyond 12.5 Mc. would not oscillate.

* Lot 316 Aurum Crescent, Ringwood, Vic.



- C1—0.001 μ F. silver mica.
- C2—0.001 μ F. silver mica.
- C3—0.01 μ F. mica.
- C4—0.01 μ F. silver mica.
- C5—0.01 μ F. mica.
- C6—0.01 μ F. mica.
- C7—0.001 μ F. silver mica.
- C8—0.001 μ F. silver mica.
- C9—0.01 μ F. mica.
- C10—0.01 μ F. silver mica.
- C11—0.01 μ F. mica.
- C12—0.01 μ F. mica.
- C13—0.01 μ F. disc ceramic.
- C14—0.04 μ F. tubular.
- C15—0.04 μ F. tubular.
- C16—0.01 μ F. disc ceramic.

- C17—0.04 μ F. tubular.
- C18—0.04 μ F. tubular.
- C19—0.05 μ F. tubular.
- C20—6 μ F. low voltage.
- C21—10 μ F. low voltage.
- C22—32 μ F. low voltage.
- C23—32 μ F. low voltage.
- C24—100 μ F. low voltage.
- C25—100 μ F. low voltage.
- C26—390 pF. silver mica.
- C27—0.1 μ F. tubular.
- C28—100 μ F.
- C29—820 pF. silver mica.
- C30—25 pF. midget variable.
- C31, C32—10-415 pF. 2-gang midget variable cond.

- C33—500 pF. mica.
- C34—120 pF. silver mica.
- C35—200 pF. silver mica.
- R1—1 megohm, $\frac{1}{2}$ w.
- R2—1K, $\frac{1}{2}$ w.
- R3—2K, $\frac{1}{2}$ w.
- R4—470K, $\frac{1}{2}$ w.
- R5—1K, $\frac{1}{2}$ w.
- R6—2K, $\frac{1}{2}$ w.
- R7—1 megohm, $\frac{1}{2}$ w.
- R8—1K, $\frac{1}{2}$ w.
- R9—2K, $\frac{1}{2}$ w.
- R10—470K, $\frac{1}{2}$ w.
- R11—1K, $\frac{1}{2}$ w.
- R12—2K, $\frac{1}{2}$ w.
- R13—100K, $\frac{1}{2}$ w.

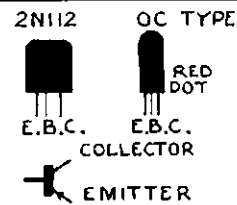
- R14—82K, $\frac{1}{2}$ w.
- R15—330 ohms, $\frac{1}{2}$ w.
- R16—10K, $\frac{1}{2}$ w.
- R17—2K, $\frac{1}{2}$ w.
- R18—82K, $\frac{1}{2}$ w.
- R19—10K, $\frac{1}{2}$ w.
- R20—470 ohms, $\frac{1}{2}$ w.
- R21—2.7K, $\frac{1}{2}$ w.
- R22—2K, $\frac{1}{2}$ w.
- R23—50K pot. with switch.
- R24—1.6K, $\frac{1}{2}$ w.
- R25—470 ohms, $\frac{1}{2}$ w.
- R26—82K, $\frac{1}{2}$ w.
- R27—5.6K, $\frac{1}{2}$ w.
- R28—39K, $\frac{1}{2}$ w.
- R29—100 ohms, 2w.

- R30—100K, $\frac{1}{2}$ w.
- R31—5K pot.
- R32—Thermistor (Philips).
- R33—100 ohms, 2w.
- R34—3.9K, $\frac{1}{2}$ w.
- R35—220K, $\frac{1}{2}$ w.
- R36—82 ohms, $\frac{1}{2}$ w.
- R37—15K, $\frac{1}{2}$ w.
- R38—8K, $\frac{1}{2}$ w.
- R39—18K, $\frac{1}{2}$ w.
- T1—Rola DR2, Primary 3K, Secondary 1330 ohms.
- T2—Rola TR7, Primary 420 ohms, Secondary 3.5 ohms.
- Speaker—Rola C3, 3 inch.

Erratum.—R30 feedback resistor should go to the junction of R28 and C23.

S1-S6—3-deck, 2-pole, 5-position switch.
S7-S8—2-pole, 3-position switch.

TR1—OC44 transistor.
TR2—OC44 transistor.
TR3—2N112 transistor.
TR4—2N112 transistor.
TR5—OC73 transistor.
TR6—2N112 transistor.
TR7—OC71 or TSS transistor.
TR8—2N138 transistor.
TR9—OC71 transistor.
TR10—OC72 } Matched pair
TR11—OC72 } transistors.
D1—OA70 diode.



1 ST CONVERTER-MIXER COILS						1 ST CONVERTER OSC. COILS						2 ND CONVERTER 2 ND MIXER COIL			ORIGINAL COIL TYPE NO. 358-1696 FREQ. 400 KCS.		AMENDED COIL FOR 150 KCS I.F.		AMENDED COIL FOR B.F.O. 150 KCS.	
SWITCH POSITION	COVERAGE	L1	L2	TRACK COND.	ANT. CAP.	COVERAGE	L3	L4	L5	TAP	PAD. COND.	L9	L10	TAP						
5	1600-550KC	36T 26GW	4T 28GW	NIL	10 PF	3.6-2.55	36T 26GW	12T 26GW	2T 28GW	10T	150	50T 26GW	5T 26GW	25T						
4	5-22MC	36T 22GW	4T 26GW	NIL	200	7-4-1	30T 22GW	10T 26GW	3T 26GW	10T	220	2 ND OSC. 2-150 KCS.								
3	8.4-5.5MC	26T 22GW	3T 21GW	150	75	6.4-3	22GW	10T 22GW	2 1/2T 22GW	10T	580	L6	L7	L8	TAP					
2	12-8.5MC	8T 16G	2T 22G	470	50	10-6.5	10T 16GW	4 1/2T 22GW	1 1/2T 22GW	2T	680	50T 26GW	20T 26GW	2T 28GW	16T					

ALL COIL TRIMMERS 3-30 PF	

COIL FORMERS TYPE 358-1696	

H.F. TRANSISTOR RECEIVER DRAWN BY S.L. SKINNER	

The current drawn was 150 microamps. A third OC44 was tried, this one stopped oscillating at 9.7 Mc. The current drawn was 230 microamps.

The second OC44 had the greatest output, so it was used as the local oscillator, the third OC44 being used as the mixer. From the tests made it will be noted that it is necessary to select transistors to be used in h.f. applications. Do not expect transistors of the same type number to have the same performance.

CONSTRUCTION

The first section of the receiver to be constructed was the first converter. The layout and size of the complete receiver was worked out at this time.

The tuning capacitor and switch were mounted on the sub-chassis and the slow motion dial fitted. The OC44 mixer and OC44 local oscillator were wired up, coils for the switch position No. 2 were wound, checked, mounted in position and wired to the switch. A temporary 2 Mc. coil was wound and

connected to the collector of the OC44 mixer. The output of the 2 Mc. coil was fed into the CR300 receiver which was tuned to 2 Mc. The converter was checked and adjusted. Satisfied the converter would work, it was put aside till later. Next the audio stage was wired and tested and the OA70 diode wired in, in readiness for the attempt on the intermediate frequency amplifiers.

cans and modify the coils to suit. There are two coils in each can. One coil is removed and the second modified as follows:

Two pies of the coil are used with a 500 pF. capacitor, which with the aid of the tuning slug, will tune to 150 Kc. From the top pie, 80 turns were unwound, about an inch of the wire twisted together and tinned, then the 80 turns scramble wound back on top of the pie. The tap at 80 turns is the connection for the collector. The third pie, which was cut away, now becomes the secondary or base coil. For IFT1 and IFT2 unwind approximately 60 turns, leaving not under 35 and not over 40 turns. For the secondary of IFT3 leave approximately 60 turns. The wax is then heated and the base winding pushed up close to the primary winding.

The component parts associated with each stage are mounted on tag strips screwed to the base plate inside the coil can.

the multimeter to measure the output of the audio amplifier. The alignment of the i.f. coils was made by adjusting the iron slugs.

The second mixer coil, along with the second oscillator coil were mounted alongside each other in another coil can. (For details of coils, see drawing.) Inside the same can, the 2N112 oscillator transistor and component parts C6, C7, C8, C9, C34, C35, R6, R7, R8 and R9 were mounted. When wired, the stage was coupled up ready for alignment. Firstly, the local oscillator was checked for correct frequency of 2.150 Mc., using the CR300 receiver as a wave meter. Frequency adjustment was made by adjusting the slug in the oscillator coil. The signal generator was then set at 2 Mc. and the second mixer coil adjusted. The receiver was at this stage a single conversion superhet. Had the coils been altered, good performance would have been available on the b.c. band.

Beat Frequency Oscillator

The b.f.o. was next wired and all components fitted into a coil can. The b.f.o. frequency was located on the CR300 receiver and adjusted with the iron slug.

First Mixer and Oscillator

The next step was to couple the first mixer output to the 2 Mc. coil.

The test set, using the OC44 oscillator transistor from the receiver, was now used to check the frequency of the local oscillator coils. For example, the b.c. band frequency coverage of 1600 Kc. to 550 Kc. plus i.f. frequency of 2 Mc. = local oscillator frequency, 3.6 Mc. to 2.55 Mc.

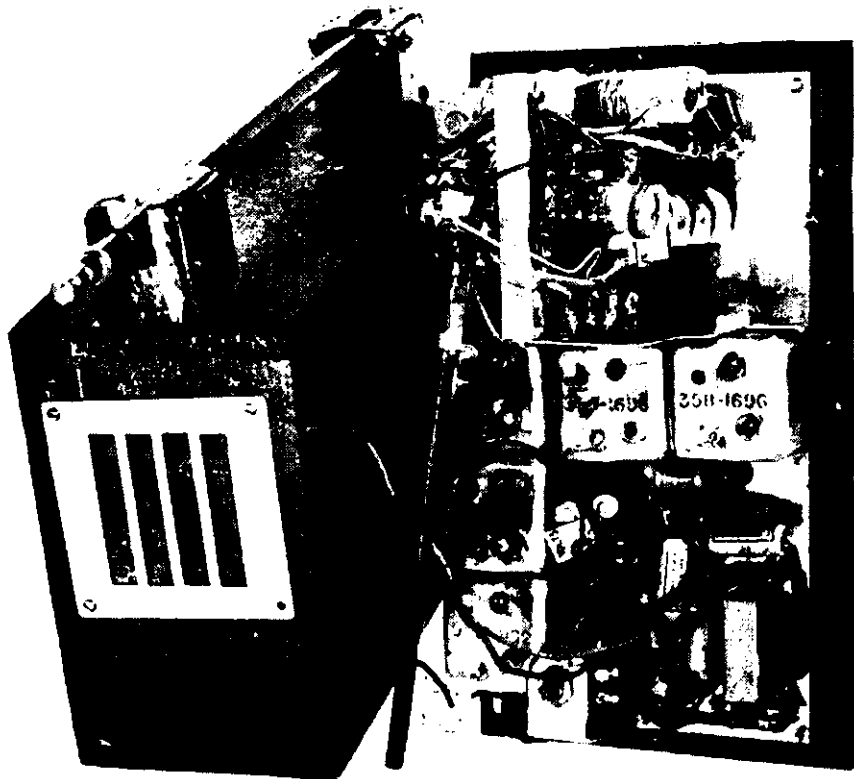
The oscillator coil was wound and wired into the test set and frequency checked. The coverage was from 1.5 Mc. to 3.6 Mc., so a 150 pF. padding capacitor was wired between the tuning capacitor and coil to slow the oscillator frequency to the desired coverage of 3.6 Mc. to 2.55 Mc. All the oscillator coils were wound and the padding capacitors selected by the same means. The link coil was made adjustable in order to vary the amount of r.f. injection to the mixer.

The oscillator coils were then mounted and wired to their switch positions, the OC44 oscillator transistor replaced in the receiver, and each coil again checked for correct frequency coverage.

The mixer coils were the next problem. The test set was again used in conjunction with the g.d.o. to adjust these coils. The b.c. band coil is a Q Plus loop stick with 4 turns of 28 g. enamelled wire wound over the earth end of the loop stick winding for base input to the mixer. No tracking capacitor was required. The next band, 5 Mc. to 2.2 Mc. (switch position 4), as can be seen from the coil table, consists of 36 turns of 22 g. wire on a 3" diameter former, with 4 turns of 26 g. wire for the base winding. The base winding is interwound at the cold end of the primary. No tracking capacity was required, any adjustment required being made with the trimmer. The antenna is tapped half way down the primary coil through a 200 pF. capacitor.

The following band, 8.5 Mc. to 5 Mc. (switch position 3), was then wound

(Continued on Page 42)



connected to the collector of the OC44 mixer. The output of the 2 Mc. coil was fed into the CR300 receiver which was tuned to 2 Mc. The converter was checked and adjusted. Satisfied the converter would work, it was put aside till later. Next the audio stage was wired and tested and the OA70 diode wired in, in readiness for the attempt on the intermediate frequency amplifiers.

I.F. Amplifiers

After carrying out tests on various types of standard i.f. coils, it was found practical to use a disposal type coil can No. 358-1696 out of the BC966A I.F.F. equipment. The decision was made to build each i.f. amplifier in these coil

The first i.f. amplifier component parts are C13, C14, C15, R14, R15, R16, R17, IFT2 coil, transistor OC73 and socket. The second i.f. amplifier components are C16, C17, C18, R18, R19, R20, R22, IFT3 coil, the 2N112 transistor and socket.

Second Mixer and Local Oscillator

The next section to be constructed was the second mixer and local oscillator. The second mixer transistor 2N112, together with IFT1 coil and components C10, C11, C12, R10, R11, R12 and R13 are mounted in the coil can in the same manner as already described. Before attempting the local oscillator, the 150 Kc. amplifier strip was aligned with the aid of the signal generator using

25 Years of AMATEUR RADIO

WITH the publication of this issue AMATEUR RADIO celebrates the 25th Anniversary of its publication as the official journal of the Wireless Institute of Australia.

In attempting to produce what might be termed a history of the magazine it has been found that many of the early records have been mislaid and consequently it has not been possible to adequately cover the stage dealing with the initial work which led up to the publication of the first issue of AMATEUR RADIO on 1st October, 1933.

Although the Victorian Division of the Wireless Institute of Australia had been founded in 1910, it was not until 1925 that the Division was incorporated. Radio, as we know it today, was still in its infancy and it was not until broadcasting commenced that any commercial magazines were produced. These were designed primarily to cater for the broadcast listener with most of the technical articles being written for the broadcast receiver builder and with large sections devoted to the programs of all stations.

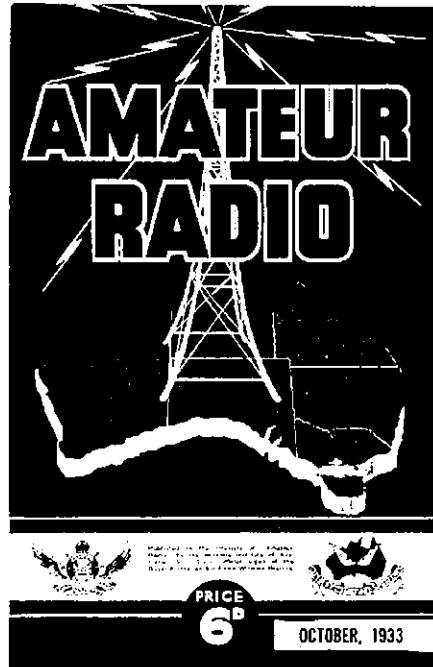
Most of these journals, some of which were on the market for a short time only, did devote some space to news of Amateur activity, but it would have been unreasonable to expect that technical articles for the transmitting Amateur should be printed. It must be remembered that, in those days, the Amateur represented an extremely small percentage of the total population of Australia, and less than 700 Amateur Operator's Certificates of Proficiency had been issued up until the end of 1930.

Such news of happenings of interest to the Amateur were contributed by Amateurs acting on behalf of the various Divisions of the W.I.A. or Radio Clubs and, in some cases, by Amateurs acting in a private capacity. It had long been realised by the different Divisions of the W.I.A. that, whilst this system of a few pages in a commercial magazine was undoubtedly of value to members, it was far from ideal and in so far as the Victorian Division was concerned, it had been agreed that only by producing a magazine of our own which would be devoted entirely to Amateur interests, would it be possible to attempt to cover the interests of all members, and in particular those members who lived in country areas and were therefore unable to attend meetings and lectures.

It would appear to have been about the middle of 1933 that a sub-committee was formed by the Council of the Victorian Division to investigate the possibility of publishing an Institute magazine. This committee consisted of Harry Kinnear (VK3KN), Bill Gronow (VK3WG), Vaughan Marshall (VK3UK) and Bill Sones. No record is available

of the deliberations of this committee, but their enthusiasm convinced the Council that a magazine could be produced and that the Radio Trade would contribute by way of advertisements.

The first issue of AMATEUR RADIO appeared on 1st October, 1933. This issue ran to 20 pages and cover with a page size of 8½ inches by 5½ inches, just half the size of the present page. Three pages and portion of the covers were devoted to paid advertisements. The only technical article, "Simple Crystal Control," by Max Howden (VK3BQ), occupied two pages and the remainder of the journal was taken up with notes from the different sections of the Victorian Division, from affiliated clubs and from the R.A.A.F. Wireless Reserve.



Reproduction of the Cover of the First Issue of AMATEUR RADIO

Rules for the 1933 Australian Five-Point Relay Contest were included, together with results of the 1933 A.R.R.L. Contest, the first two places in Australia being filled by R. H. Cunninghamham (VK3ML) and R. E. Jones (VK3RJ).

This first issue of AMATEUR RADIO was solely a Victorian one, but the November issue saw the inclusion of notes from New South Wales, Queensland, South Australia and Western Australia. To quote from the N.S.W. notes, "We are solidly behind this attempt to firmly establish a really 100 per cent. Amateur journal for the Commonwealth." This statement reflected the true Amateur spirit, as it later transpired that the Association of Radio Amateurs (N.S.W.) had also been in-

vestigating the possibilities of publishing an Amateur journal and abandoned their proposal when it was found that Victoria had already produced a magazine.

During November 1933, Bill Sones retired from the committee and Jim Marsland (VK3NY) became Secretary with Harry Kinnear (VK3KN) as Editor, and Bill Gronow (VK3WG) and Vaughan Marshall (VK3UK) as Sub-Editors. The latter two with Jim VK3NY formed the nucleus of the committee for over seven years and Jim VK3NY is still a member of the committee. In March 1934 Bob Cunninghamham (VK3ML) became Technical Editor and Len Moncur (VK3LN) took over the distribution of the magazine.

For the first year of publication the advertising salesmen were the Editor, Harry Kinnear (VK3KN) and Sub-Editor Bill Gronow (VK3WG), and some amusing stories are told of their efforts to sell space in the journal. It is reliably reported that, on one occasion, when a particularly hard-hearted member of the trade offered to pay 10/- for a full page instead of the £4 being asked, VK3KN somewhat tersely replied that the day would come when the same man would be glad to pay £10 a page. That rate has been reached but the prospective advertiser is no longer catering for Amateurs. However, our Amateur salesmen must have convinced the members of the trade generally that it was good business to advertise in AMATEUR RADIO as they continued to support the magazine with their advertisements and many of those early advertisers are still solidly behind AMATEUR RADIO as an advertising medium.

After twelve months the printing of the magazine was transferred from Messrs. Wilke & Co. to the Elsum Printing Company and Mr. Elsum, Snr., became the Advertising Representative. In June 1936, both Harry Kinnear (VK3KN) and Len Moncur (VK3LN) retired from the committee and Cedric Serle (VK3RX, now VK3ARX) and the late Ernie Kilborn (VK3KE) were co-opted. Bill Gronow (VK3WG) became Editor at this stage and continued to act in this capacity until January 1941. Ern Kilborn (VK3KE) died suddenly in June 1937 and the existing committee carried on until February 1938 when Thorburn Powers (VK3PS, now VK3APS) joined the committee and in July 1939 Herb Stevens (VK3JO) took over the distribution of the magazine.

With the outbreak of war in September 1939 both Vaughan Marshall (VK3UK) and Bob Cunninghamham (VK3ML) were called up for service with the Royal Australian Air Force. Vaughan and Bob had both played a leading part in the formation of the R.A.A.F. Wireless Reserve and at the outbreak of war, Bob VK3ML held the rank of Flying Officer and was Federal Commander of the Reserve. Vaughan VK3UK, with the rank of Pilot Officer,

ERRATA: Should read: "Continued on Page 46."

was Divisional Commander for Victoria. Bill Gronow (VK3WG) also enlisted in the R.A.A.F. in July 1940. All three served with distinction. Vaughan Marshall (VK3UK) rose to the rank of Group Captain and became Director of Telecommunications for the R.A.A.F. Bob Cunningham (VK3ML) held the rank of Wing Commander and served as Chief Signals Officer in various areas in both Australia and the Pacific. Bill Gronow (VK3WG) also became a Wing Commander and officer in charge of Technical Development of Signals and Radar Equipment, and its production in Australia.

All three continued to act on the Editorial Committee until, with the publication of January 1941 issue, the Victorian Division was no longer in a position to continue to print the magazine. However, AMATEUR RADIO

was not destined to disappear "for the duration" as so many other Amateur publications were forced to do. It was realised that, with so many members of the W.I.A. serving with all branches of the Defence Forces and scattered all over the world, something would have to be done to keep them in touch with one another, and it was decided that a duplicated version of AMATEUR RADIO should be produced.

After missing only one month, the committee was reorganised with Tom Hogan (VK3HX) as Editor, and Jim Marsland (VK3NY), Herb Stevens (VK3JO), Charlie Quin (VK3WQ, now VK2AWQ), Alec Clyne (VK3VX), Ken Ridgway (now VK3CR) and the late Bert Burdekin as members of the committee. A hand-operated rotary duplicator was purchased and from March 1941 until September 1945 the war-time version of the magazine appeared each month. The amount of work that went into this production was colossal as the magazine grew from 10 pages to 16 pages quarto size and over 600 copies were being produced for most of the time. When it is realised that every page represented one turn of the duplicator and that allowance had also to be made for "spoils", some idea of the magnitude of the task can be obtained. The duplicator was most temperamental, quality of paper available left much to be desired, and while two men operated the duplicator the others were busy checking and counting the printed pages. The pages had then to be collated, inserted in the cover which had been printed and then stapled together, also with a hand-operated machine. Finally, copies had to be wrapped, addressed and posted.

For the whole of this period, every member of the committee gave up two full Saturday afternoons every month to cope with the printing alone as well as hours of spare time in keeping the routine work up to date.

Although technical articles were included in the war-time issues, the main purpose, of course, was to keep members in touch with one another and, as no transmitting was permitted, any notes published were in the main personal items. With increasing numbers serving with the Defence Forces, one of the main features was "Slouch Hats and Forage Caps." This section was conducted by Jim Corbin (VK2YC) from November 1941 until September 1945 and involved a considerable amount of work, mainly by correspondence.

Throughout the whole of the four and a half years of production of the duplicated magazine, the "printing office" was located at the home of Jim Marsland (VK3NY) and the committee were indebted to Mrs. Marsland for her co-operation. She not only assisted with the sorting and collating of pages, but supplied innumerable cups of tea, biscuits and cakes throughout the whole period.

With the cessation of hostilities in August 1945, it was immediately decided that printing of AMATEUR RADIO should re-commence. The services of Mr. W. J. Lewis were obtained as Advertising Representative and arrangements were made for Messrs. H. Hearne & Co. to print the magazine and in October 1945 publication was

resumed in the present form. It was immediately apparent that the goodwill which had been fostered, firstly by Harry Kinnear (VK3KN) and Bill Gronow (VK3WG), and built up by our Advertising Representatives during the pre-war period was still existent and our advertisers again came to our assistance with their support.

Tom Hogan (VK3HX) continued to act as Editor, Ken Ridgway (VK3CR) became Technical Editor, Herb Stevens (VK3JO) Distribution Officer, and Jim Marsland (VK3NY) continued as Business Manager. In March 1947 Ron Higginbotham (VK3RN) joined the committee as Notes Editor and in March 1948 Jack Duncan (VK3VZ) became Technical Editor when Ken Ridgway (VK3CR) resigned through pressure of private business. Alan Head (VK3AKZ) joined the committee as Assistant Technical Editor in July 1947 and Jim Irvine (VK3TU) took over the distribution from Herb Stevens (VK3JO) in September 1948. During the past ten years circulation has been in the hands of Stan Zeunert (VK3SZ), Ian Sewell (VK3IK) and Bill Tregear (VK3TX).

After serving as Editor for over fifteen years, Tom Hogan (VK3HX) resigned in May 1956 and Jim Marsland (VK3NY) took over as Editor with Ron Higginbotham (VK3RN) as Associate Editor, Ken Pincott (VK3AFJ), who had been recruited to the committee in February 1954, became Technical Editor in August 1955 when Jack Duncan (VK3VZ) vacated the position, although he continued to assist on the committee.

During the post-war years the Technical Editors have been assisted by Jock Fisher (VK3AFF), Doug Norman (VK3UC), Ron Fisher (VK3OM) and Alec Morrison (VK4MA), all of whom have contributed many hours of work in the preparation of circuit diagrams.

With the expansion of AMATEUR RADIO it was necessary to completely re-organise the Editorial staff in May of this year and Ron Higginbotham (VK3RN) became Editor with Ken Pincott (VK3AFJ) continuing as Technical Editor. The committee has been considerably enlarged and now consists of George Baty (VK3AOM), George Bills-Thompson (VK3AHN), Sid Clark (VK3ASC), Jack Duncan (VK3VZ), Ron Fisher (VK3OM), Vern Jones (VK3YE) and Jim Marsland (VK3NY).

Since June 1949 the printing of AMATEUR RADIO has been in the hands of the "Richmond Chronicle" and the co-operation of Mr. Roberts and his staff cannot be spoken of too highly. Our Advertising Representative, Miss Peatrice Touzeau, has also done a sterling job and our relations with the trade have never been better.

Notwithstanding the work which has been put in to the production of AMATEUR RADIO over the past 25 years by members of the Editorial Committee, we must not lose sight of the fact that a magazine cannot be produced without an army of contributors. Many hundreds of technical articles have been written for the magazine and it would be impracticable to name the writers, all of whom have contributed in an honorary capacity. To them, and also to the writers of regular features such as DX Notes, V.h.f. Notes, Federal and Divisional News, the Editors are indebted for their support and co-operation at all times.

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THE TA2 SPECIAL

BY CDR. C. M. STURKEY, JR., U.S.N., W7TNA

THE reason for the title will remain obscure for the present. Primarily, it is a device to encourage you to read further. My interest in preparing this little article resulted from a recent round table with VK3JK and W7IAA. These two were using s.s.b.s.c. and I was using d.s.b.s.c. (double sideband suppressed carrier). After giving a brief run down on my "home brew" d.s.b. rig, pointing out its simplicity, both from the standpoint of construction and adjustment, and taking several deep bows as a result of the compliments passed on the sharpness and quality of my signal, the subject of the conversation got around to a discussion of the difficulties confronting the average Ham who wishes to get started in s.s.b.

Because of the ample availability of excellent "store bought" Amateur s.s.b. transmitters in this country, well-heeled U.S. Hams have no problem. However, it might come somewhat as a shock to some VKs who have heard the many KWS-1's, KWM-1's, HT-32's, etc., on the bands, that the average U.S. Ham cannot afford this kind of equipment. The dwindling group of "home brew" artists also have their problems with s.s.b. Assuming that they have a better grasp of technical know-how than the average, the cost of acquiring the necessary test equipment is often prohibitive. For the VK Ham and most outside of the U.S., the problem of getting started in s.s.b. is a much more serious one. Do not misunderstand me—I am not running down s.s.b. or discouraging you from giving it a try, but only pointing out why there are not more on the bands, particularly outside the U.S. and Canada, who are taking advantage of this wonderful medium of communication.

All you physiologically maladjusted Hams who are obsessed with a suppressed desire to talk back to the "Donald Ducks" should not be discouraged. The "TA2 Special" is the solution to your problem. Not only can you work the s.s.b. boys without a word of apology for your signal, with this transmitter it will not even be necessary for you to sever social intercourse with your old friends on the c.w. and a.m.

If I have not lost your interest by now, it should be safe for me to clue you on the name chosen for this rig. It all started in Turkey in 1952 during my tour of duty as U.S. Naval Advisor at a Turkish shipyard near Izmit. A few VKs may still have my QSL card (TA2EFA) around the shack. Since the first prototype of this transmitter was built and operated in Turkey, it has been dubbed the "TA2 Special". Using this rig, I had the doubtful honor of turning in the top Turkish score in the DX contest. It would only be honest to tell you that I was the only TA entered that year.

If there is anything original about the "TA2 Special" it is that it combines the features of d.s.b.s.c. transmission which has recently received much attention by our U.S. publication "CQ

Magazine" and d.s.b.r.c. (double sideband reduced carrier) which was covered in "QST" by a two-part classic by George Grammer in 1951. Fig. 1 is a simplified circuit of a proposed medium-powered version of the "TA2 Special". Most will notice immediately that basically it consists of a balanced modulator plus a grounded grid linear amplifier. While the grounded grid linear provides a very efficient and fool-proof way of increasing power output, it is not a "must" as a balanced modulator can go directly to the antenna. By using heavy duty pentodes or tetrodes with proper characteristics (ones requiring relatively low screen grid voltage would be preferable), it is possible to get a high-level output without the linear amplifier.

used. From this it may be seen that the amount of carrier developed depends on the screen grid voltage applied, always keeping an opposite and approximately equal voltage on the other screen grid.

Up to the point of 100% modulation this stage performs like a conventional single-ended screen grid modulated transmitter. When 100% modulation is exceeded, the tube with a negative d.c. voltage on the screen grid starts to work. Assuming theoretically perfect tubes, if we use 50 volts positive on the screen grid of V1, 50 volts of audio would give 100% modulation. Even though we also are applying this audio to the screen grid of V2, nothing happens because on the positive swing the 50 volts of audio subtracts from the

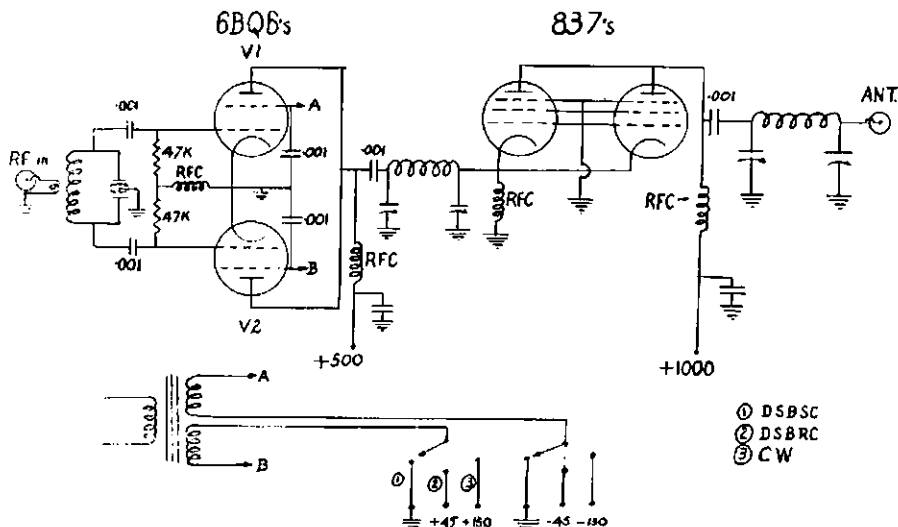


Fig. 1.—Simplified circuit of "TA2 Special".

Looking at Fig. 1 again, it will be noticed that the modulation transformer has a split secondary. This makes it possible to apply separate screen grid voltages to the two tubes. In position 1, both screen grids are at d.c. ground potential. With approximately balanced components and tubes a carrier suppression of about 40 db. will result. When audio is applied to the screen grids, d.s.b.s.c. is produced. In position 2, a positive voltage is applied to one screen grid and an equal negative voltage is applied to the other, this gives d.s.b.r.c.

I will not go into too much detail on d.s.b.r.c. here because those interested should check their back files of "QST" or visit the library to read George Grammer's articles in "QST". However, here is a somewhat oversimplified explanation. In the absence of audio, the tube with the negative screen grid voltage is effectively removed from the circuit except for the fact that it continues to act as an excellent neutralizing condenser for this stage. The tube with the positive screen grid voltage operates as a class C amplifier at reduced efficiency. This is because of the relatively low screen grid voltage being

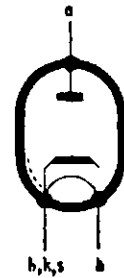
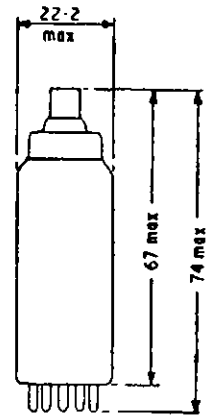
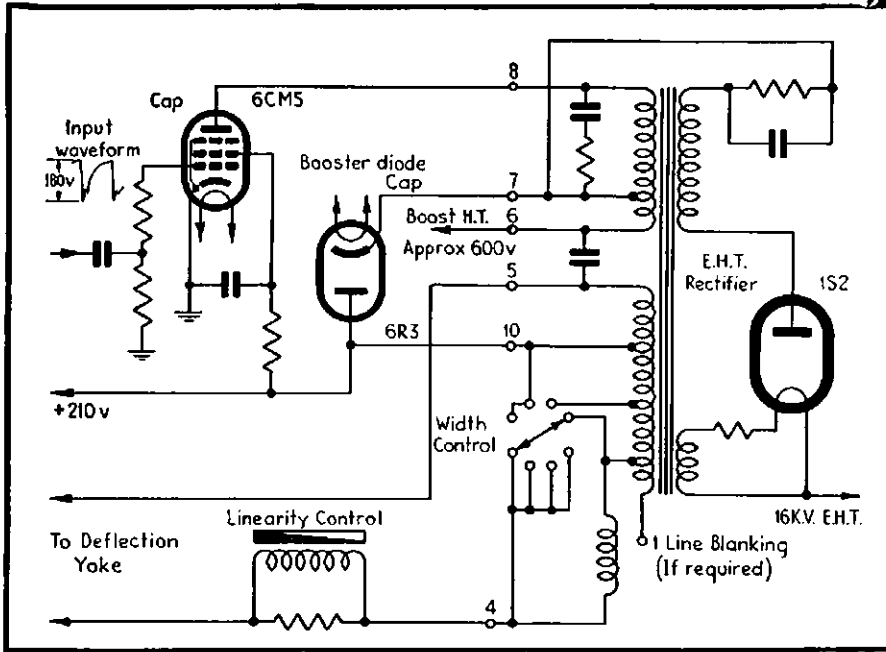
minus 50 volts of fixed d.c. giving us zero voltage. Now, consider what happens when we increase our audio—say 100 volts of audio is being used. On the positive swing, the V1 has +150 volts and V2 has -150 volts. When the audio voltage reaches the peak at the opposite swing of the cycle, V1 will have -50 volts and V2 +50 volts. At the point when V1 stops working, V2 picks up the load. Fig. 2a shows 100% modulation using the 50 volts of audio as per example above. Fig. 2b shows the over-modulation that would result with a single-ended stage under the same conditions with 100 volts of audio. Fig. 2c shows the results of 100 volts of audio with two tubes operating in a "balanced modulator".

While we are on the subject of oscilloscope patterns, we might take a look at the presentation resulting from d.s.b.s.c. signals. It is interesting to note that with single sideband transmission it is necessary to use two tones to get this presentation, but only a single audio tone is necessary to make this check with d.s.b.s.c. Fig. 2d shows what you will see with good carrier

(Continued on Page 16)

Mullard TELEVISION VALVES

1S2 EHT RECTIFIER



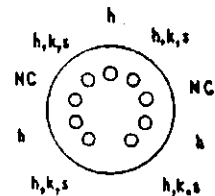
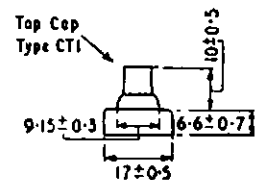
TYPICAL OPERATING CONDITIONS

D.C. output voltage	18 kV
D.C. output current	150 μ A

MAXIMUM RATINGS

P.I.V.	22 kV
D.C. output current	0.8 mA

The 1S2 is a half-wave rectifier designed for use in television EHT supply units deriving their input from the line time-base fly-back pulse. The peak inverse rating of 22 kV enables an EHT of 18 kV to be obtained with an adequate safety margin. The heater requirements of 1.4V at 0.53A may be supplied by a winding on one limb of the line output transformer. Additional data is available to design engineers on request.



B9A
Novol Base

All dimensions in mm

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M64

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THE IMPROVED DIPPER*

Here is a new model streamlined so the instrument can be manipulated in one hand

WILFRED M. SCHERER, W2AEF

THE IMPROVED DIPPER includes several refinements over the original instrument described by the author.¹ It is a more compact design, greatly facilitating handling and operation.

The new model is a.c. operated and entirely self-contained in one small case. The grid meter is located directly in the same line with the tuning dial and the probe coil, so it may be easily observed.

The line cord is connected by means of a plug for easy removal for substitution of a separate cable when battery operation is desired. [Here in Australia, we will have to use a separate power supply.—Ed.] Self-contained battery operation was at first planned, but was abandoned because available tubes having small filament drain were not found rugged enough for general portable operation. The use of batteries, in most cases, is not required except under some conditions of antenna measurements where it may be more convenient. And batteries too often have a habit of running down at just the psychological moment.

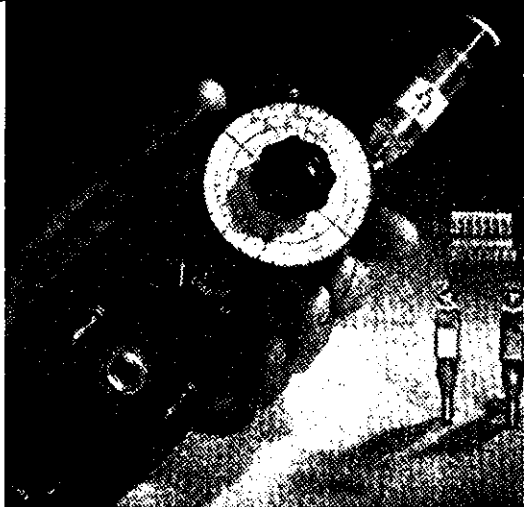
The tuning dial is arranged so that the instrument may be held and tuned at the same time by one hand. The frequency range, 1.7 to 275 Mc., is

covered using seven coils, each having a tuning ratio of 2.5 to 1. The Amateur bands are located at the low frequency end of each scale where there is slightly greater spread (the variable capacitor is one of straight line wavelength). Considerable overlap between ranges is also included so the second harmonic of each band may be read directly on its same scale. All the scales up to that covering 65 Mc. may be checked directly with WWV.

The entire range of the instrument could be covered using only six coils, but with a sacrifice of overlap and spread on each Amateur band. The range may be extended up to 350 Mc. or below 1.7 Mc. with additional coils for which an eighth dial scale, reading from 0 to 10, is provided for reference calibration. Each coil is protected by an insulated sleeve.

CIRCUIT

The circuit is shown in Fig. 1. With the exception of the power supply, it is basically the same as that of the original instrument. The oscillator itself is the Split-Colpitts. Power is obtained directly from the 117-volt a.c. line; however, complete isolation is included in order to eliminate the hazard of shock. This is accomplished by bypassing the negative of the power supply to the metal shield case with a



The Improved Dipper, having a range of 1.7 to 275 Mc. The toggle at the lower left is the filament switch, the one at the right is the plate switch. The Jones power receptacle is at lower centre bottom.

0.002 μ F. capacitor (C7). At first a 0.02 μ F. capacitor was used and, although its reactance at 60 cycles was sufficiently high to limit the current below the minimum safe value, enough "tickle" was experienced between case and ground to scare one into dropping the instrument. No sensation is experienced using the 0.002 μ F. capacitor, even with wet hands.

Although headphones are usually completely insulated, an additional precaution has been included for their use. When the phones are plugged into the jack, a 50,000 ohm resistor (R4) is automatically inserted in the grid return to reduce the maximum possible current below the minimum safe value. The sleeve end of the jack is also connected to the case through a 0.002 μ F. capacitor (C8). The resistor could be left in the circuit at all times and the phone jack could then be connected across the resistor through a small capacitor, but the grid current would then be too low when utilizing a 0-1 mA. meter. (A 0-200 μ A. meter would be the obvious solution, but a 0-1 mA. meter costs less.)

Plate power is obtained through a half-wave selenium rectifier and RC filter. A resistor line cord of the correct value to operate 6.3v. 0.15 amp. tube was not obtainable; therefore, a resistor (R5) is connected in parallel with the tube filament to enable the use of a standard 390-ohm line cord. In the event of the line cord becoming defective, it may be easily replaced at the Jones power plug instead of requiring internal soldering of connections. When 117 volts a.c. is to be used, a jumper must be connected between terminals 1 and 4 of the line plug to connect the internal parallel filament resistor. When battery operation is to be employed, the jumper is omitted, removing the resistor and thereby reducing the filament battery drain.

The original Dipper utilised a 955 acorn tube which was soldered in place to eliminate socket inductance and thus increase the upper frequency limit. From a practical standpoint, it was deemed advisable to employ a tube with a socket. The 9002 was chosen because, compared with the 955-plus-socket, it

* Reprinted from "CQ", Feb. 1949.
1 Scherer, "The Dipper", "CQ", May 1947.

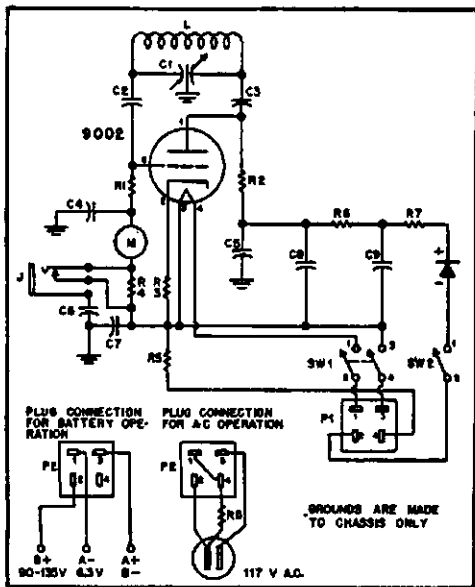


Fig. 1.—Circuit diagram of the Improved Dipper.

- C1—100-100 pF. miniature split-stator.
- C2, C3—60 pF. silver mica button.
- C4, C5—500 pF. silver mica button.
- C6, C7—0.002 μ F., 800 volts.
- C8, C9—Dual 20-20 μ F., 150 volts.
- R1—15K, 1/2 watt.
- R2—10K, 1/2 watt.
- R3—200 ohms, 1/2 watt.
- R4—50, 1/2 watt.
- R5—39 ohms, 1 watt.
- R6—2250 ohms, 1/2 watt.
- R7—400 ohms, 1/2 watt.
- R8—390 ohms, line cord resistor.
- J1—Closed single circuit midget.
- M—0-1 mA. meter, 1 1/2 inch.
- P1—Jones receptacle.
- P2—Jones plug.
- SW1—DPST toggle.
- SW2—SPST toggle.
- Rect.—100 mA. selenium rectifier.
- L—A: 110-275 Mc.—see Fig. 4.
- B: 48-130 Mc.—2 1/4 turns of No. 22 enamel, 1/2 inch between turns.
- C: 26-65 Mc.—8 1/4 turns of No. 22 enamel, space wound.
- D: 13-32 Mc.—15 1/4 turns of No. 26 enamel, close wound.
- E: 6.4-16 Mc.—30 1/4 turns of No. 32 enamel, close wound.
- F: 3-7.5 Mc.—67 1/4 turns of No. 38 enamel, close wound.
- G: 1.7-4.5 Mc.—160 1/4 turns of No. 38 enamel, close wound, undercut on coil form must be 1/2 inch long instead of 1/2 inch.

takes up less over-all space and with a given high frequency coil it will oscillate at about the same frequency.

CONSTRUCTION

The material used for the case is 0.040 inch No. 2S half-hard aluminium. Other material such as copper may be used. The bending can be done easily in the home workshop as follows: Using a pair of "C" clamps, secure the material between a pair of steel bars, or right angle stock, aligned with a scribed line where the bend is to be made. The bars should have a smooth and clean right angle edge. Place the bars securely in a vise and bend the material, using a heavy wood block for leverage. This will make a bend that is slightly round at the edge. To true up the edges, place a flat piece of steel on top of the bend and hammer the steel piece until the bent edge is clean and sharp. The "C" clamps are used only to keep the bars aligned with the scribed line until they are placed in the jaws of the vise. When making the scribed lines, allowance must be made in the dimensions for a slight loss in the bend. Before making the final bends, it may be wise to make a few practice operations with scrap metal.

Dimensions of the case are: Length 5½", width 2¼", depth 2¾". The depth will depend on the size of the condenser (C1) used.

The case is made in the shape of a long "U", with a side plate measuring 5½" x 2¾" with two flanges along the long edges. The bottom plate is 2¼" x 2¾" with flanges round all edges.

The top of the case is a piece of polystyrene, ¼" thick. The coil mounting posts are located in the polystyrene, but they should not be drilled until the variable capacitor is installed and their location is determined, bearing in mind that the length of the leads from the coil socket to the condenser must be as short as possible.

The meter shown in the photograph is a surplus 1½" meter and should be mounted from the rear of the hole in the case with the flange on the rear side so only the round lip of the meter face protrudes through the case.

The coils are wound on ¼" polystyrene rod. Dimensions are given in Fig. 2. Each coil must be undercut approximately 1/32" where the wire is to be wound to allow passage of the polystyrene sleeve over the coil. If a lathe or machine shop is not available for this work, the sleeve may be omitted. In this case, if protection and insulation are desired, the coil should be coated with coil dope and then wrapped with scotch tape.

At the top of the coil-form a hole (No. 48) is drilled through its diameter. A slot is then cut with a hack saw, about 1/16" deep from this hole lengthwise down the side of the rod. This will make it possible to bring the lead from the top of the coil through the hole and down under the coil to one of the banana plugs on the base. The other lead from the coil is then brought through a hole drilled at the bottom edge of the coil and at right angles to the top hole. Another slot is cut from the lower hole so the sleeve will clear the lead running from this hole to the base. Each coil should be coated with coil dope.

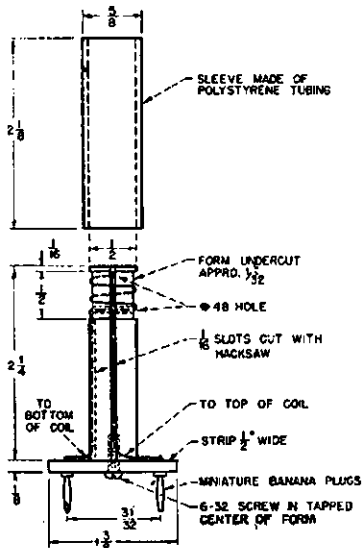


Fig. 2.—Dimensions for the Dipper plug-in coil forms.

When selecting the material for the coil forms and the sleeves, be sure the sleeve will slide snugly over the rod. Before installing the sleeve, the coil dope must be dry to prevent smearing of the sleeve. Slide all but ¼" of the sleeve over the coil form and, to cement it in place, put a drop of coil dope on either side of the form at the base of the sleeve. Slide the sleeve on until the top is flush with the top of the coil form. Place a coat of coil dope over both the edge of the sleeve and the coil form at the top.

The coil form is screwed to the plug-in base; however, coil dope should also be used as cement at this point to prevent accidental twisting of the rod and subsequent breaking of the leads running to the banana plugs. The banana plugs shown are those used in the ARC5 series of surplus equipment and are press fit and peaned in the plug-in strip. Other types of banana plugs may be used.

Dimensions of spacing for the banana plugs are given, but these should be first checked against the actual spacing between the receptacle holes after the coil posts are mounted.

The dial for the instrument is made of 1/16" thick lucite and is 2¼" in diameter. The fiducial line is scribed across the diameter and is then filled with black wax crayon. The dial is screwed to a standard 1½" knob which is supplied with three screw holes for this purpose. Before the regular dial is permanently mounted, a substitute

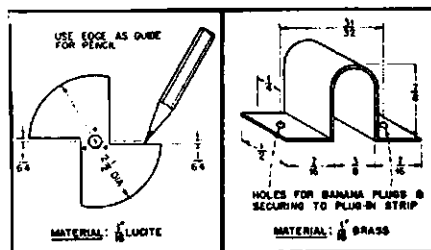


Fig. 3 (left).—Substitute calibration dial to enable marking of the permanent scale. Fig. 4 (right).—Dimensions and method of construction for 110 to 275 Mc. inductance.

calibration dial is first installed. This is shown in Fig. 3. It is cut out along its diameter to permit marking of the scale during calibration, using this edge as a guide for a hard pencil. The scale is made of white Bristol drawing board and is cemented to the case.

TESTING

Before testing the Dipper, connect an ohmmeter to the two terminals on the 117v. a.c. plug. Turn on the filament switch, and without the 9002 in its socket, the ohmmeter should read 430 ohms. This is the total series resistance of the line cord resistor and the parallel filament resistor. If this reading is not obtained, the filament resistor is not connected across the filament terminals. This should be checked to prevent damage to the tube. If the ohmmeter reads around 40 ohms, the resistor leg of the line cord is most likely incorrectly connected.

If the filament circuit is properly hooked up, insert the tube in the socket, plug the line cord into the 117v. a.c. line and turn on the filament switch. The 9002 filament should light. Measure the filament voltage at the socket terminals. It should be 6 to 6.3 volts.

As a personal safety measure, connect a 1000 ohm-per-volt a.c. voltmeter between the instrument case and ground (water pipe, radiator, etc.). If no reading is indicated on the meter, reverse the a.c. plug. The voltmeter reading should be no more than 10 volts. If the voltage is higher than this, either there is a short between the case and one side of the 117 volt line, or the isolating bypass C7 is incorrectly wired or of the wrong value.

Insert the lowest frequency coil into the posts and turn on the plate switch. Grid current should be indicated on the meter and should vary between 0.6 mA. and 0.9 mA. over the tuning range of the variable condenser. The other coils should be checked in order. It will be noticed that the grid current will be higher with the next lower frequency coil and then will drop off as each higher frequency coil is used. The highest frequency coil will vary between 0.1 and 0.3 mA. In all cases the grid current variation should be gradual.

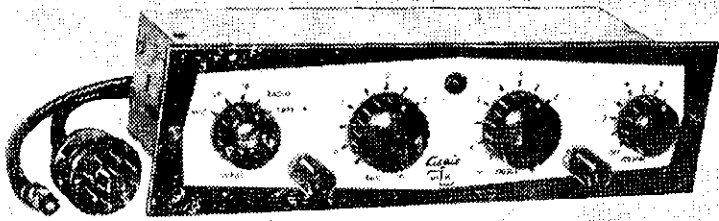
The plate voltage should be measured between the B+ terminal on C5 and the negative side of C8-C9. This should be approximately 117 volts. If the grid meter reading is too high (off scale) when using the lower frequency coils, it may be reduced by increasing the value of the grid resistor R1.

CALIBRATION

Calibration may be made using either an absorption-type frequency meter, a calibrated receiver, or a receiver in conjunction with a secondary frequency standard.

The following method is employed with the absorption meter. First, to check the range of each coil, set the Dipper capacitor at minimum and, with the absorption meter loosely coupled to the Dipper coil, adjust the absorption meter to the point where the Dipper's meter shows a marked dip. This then indicates the highest frequency attainable with the particular coil in use. The same procedure is followed for checking the low frequency

(Continued on Page 45)

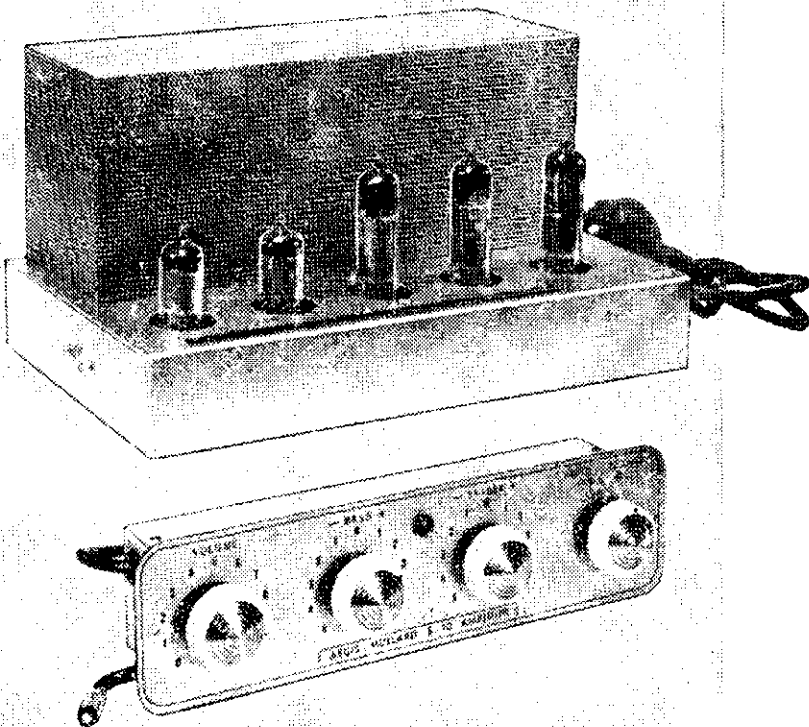


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THE TA2 SPECIAL

(Continued from Page 11)

suppression (approximately 40 db.). The presence of excessive carrier shows on the wave-envelope pattern as a difference in height on two adjacent peaks, with the "bow tie" or trapezoidal pattern an unbalance in height will be noted.

The above explanation is only an effort to help you understand what happens in this circuit. Even though you may not understand all of this or may not have even seen an oscilloscope, there is no reason why, by following a few simple ground rules, your end product can not be good.

It has always been a source of amazement to me that following the articles in "QST" in 1951 on d.s.b.c. there was not an immediate interest developed in this new technique. On paper it looks like the answer to the phone man's prayers. At this late date, however, I believe that I know the answer. Those few of us that tried d.s.b.c. in an effort to obtain peak efficiency operated in the 300-400% modulation range. At this level, except when the fellow receiving the signal uses a crystal filter or Q multiplier in a sharp position (this exalted carrier's reception restores the unbalance between the carrier and sidebands) the audio distortion is quite pronounced.

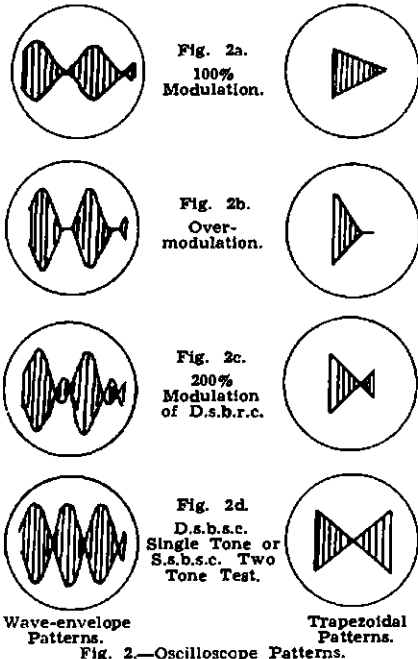


Fig. 2.—Oscilloscope Patterns.

Recently I have accepted a reduction in over-all efficiency and have operated mostly in the 200-300% modulation range. At this level, even with the usual i.f.s. (6-12 Kc. bandwidth), distortion is negligible, or at the worst, acceptable. I should add here that the use of speech clipping is an important factor in reducing distortion.

When using d.s.b.c. most stations worked, even before being given information on my rig, remarked on the audio level being high in comparison with the carrier. One station said recently, "My S meter shows S3 but your audio sounds like 20 db. over 9". Others remarked that my signal stands

out like a "sore thumb". This is, in part, because the a.v.c. action in the normal superheterodyne receiver is controlled by the carrier level and since the carrier level is reduced in d.s.b.c., the a.v.c. action does not fully compensate for the strength of the signal. Others have noted that my audio completely swamps other interfering a.m. signals with equal carrier strength.

I do not want to go into detail on d.s.b.c. except to say that the results have exceeded my expectations. Anyone familiar with the technique of receiving s.s.b. has little or no trouble

receiver for best audio. The b.f.o. pitch control can be trimmed slightly for best results. A few minor adjustments to tuning is not too bad, but if you are continually adjusting because of poor receiver stability it is quite objectionable. You will find that being off a little may make voices sound unnatural but it is not too serious as far as the intelligibility is concerned.

The v.f.o. exciter used in my case is a re-built Command Transmitter (BC 457) with 1-3 watts output on 40, 20, 15 and 10 metres. The only requirement to remember here is that the

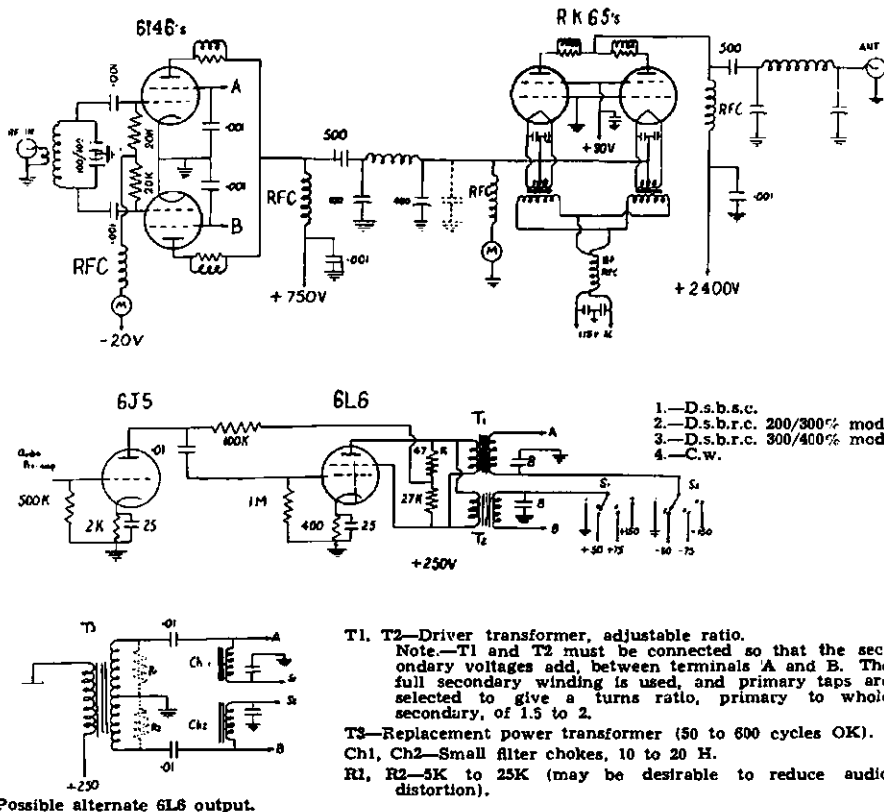


Fig. 3.—"TA2 Special"

Possible alternate 6L6 output.

with d.s.b.c. By using the crystal filter or Q multiplier to sharpen the bandwidth, most of the unwanted sideband is eliminated and phase distortion caused by being slightly off in tuning is relatively small. Reports on my signal, with reference to the audio and cleanness, have in almost every case been most complimentary. Most s.s.b. "types" say that they are all for anything that eliminates the carrier.

Now on the practical side of things. I will try to give sufficient information so that without test equipment you can duplicate my results. For best results your receiver should have good frequency stability and should have at least a crystal filter, Q multiplier, or some other method of giving you sharp band-pass. Two or three kc's. is about optimum. If you would like to check your receiver on some s.s.b. signals, back off the r.f. gain, open up the audio gain wide and turn on the b.f.o. For best results I tune my b.f.o. pitch control approximately 1000-1500 cycles plus or minus depending on the sideband (upper or lower) and tune the

oscillator should have good frequency stability. Crystal control would beat the stability problem but since most s.s.b. contacts take place on the same frequency, sooner or later you will want to go v.f.o. Fig. 3 is a simplified circuit of my "TA2 Special". The comments here in reference to this transmitter, except for the differences in specific voltages and currents, should generally apply to the proposed medium-power version in Fig. 1.

In general, standard procedure can be used in building the transmitter except in locating parts an effort should be made to keep the r.f. lead lengths symmetrical in the push-pull input of the balanced modulator. Experience has shown that better carrier suppression on d.s.b.c. is obtained by using separate grid resistors. The two I used were checked with a volt-ohm-meter to be sure that they were the same resistance. If satisfactory carrier suppression does not result, a little trial and error may be in order; however, with this circuit it should not be necessary.

The pi-network between the balanced modulator and the grounded grid linear was used to make possible a good impedance match and to permit adjusting the load of the balanced modulator. The proper loading of both the balanced modulator and the linear amplifier is the real key to success in this transmitter.

There are a number of ways to isolate the filament of the grounded grid final from r.f. ground. My method is a compromise to make it possible to use existing parts. A bifilar wound choke in the secondary might be better (commercial units are available in the U.S. from Barker and Williamson, Inc.). My filament transformer was a high voltage rated open-frame type with two 24 volt windings in series. The capacity between the secondary and primary was approximately 100 pF. This gave satisfactory results on 40 and 20 without the r.f. choke in the primary. However, the additional choke was necessary to reduce losses on 15 and 10 metres.

When the linear was first tried, both the control grids and the screen grids were directly grounded, which gave a static plate current of only 20 Ma. at 2,400 volts (others have reported static plate currents as high as 40 Ma.). As I found the linear somewhat hard to drive, I tried using positive voltage on the screen grids and found 90 volts to be optimum. In my case this gives me 100 Ma. standing plate current on the two RK65s. It was easy to drive the linear to a full kw. peak input under these conditions and having a meter to read screen grid current was a real boon to loading and resonating the final. Unless some method is available to indicate r.f. power out, tuning for maximum screen grid current is the only way to be sure the final is at resonance.

TUNING UP

Now we are ready to tune up the rig. I hope, for the sake of your fellow Hams, that you have a dummy load for this purpose. If you are fortunate enough to get hold of some "Globar" non-inductive resistors, or the equivalent, you will find that it is worthwhile to duplicate the simple unit (Fig. 4) that I used. Electric light bulbs are a last resort as their resistance varies with input.

In any case, start off with the balanced modulator coupled to a dummy load or antenna. Approximately 50 ohms is best as that is close to the input impedance of the grounded grid linear. Use Position 3 for tuning up, adjust the drive to the grid circuit for approximately 5 to 6 Ma., dip the final and increase loading by reducing the output capacity of the pi-network while keeping the final in resonance until the power output no longer increases with an increase in loading. At this point you should have approximately 45 Ma. plate current. There is only a relatively small increase in plate current from the no-load conditions.

Now, slowly increase the audio gain until the plate current is kicking up to about 75 Ma. on voice peaks. To be sure you are not "flat topping", a sharp whistle should drive the plate current to approximately 150 Ma. If the plate current does not go up high enough on

a whistle, a further increase in loading should do the trick. This setting should give you approximately 250% modulation.

A word of warning here if you do not want your tubes (6146s) to go soft as my first pair did. In spite of the relatively low plate current, it is easy to exceed the safe plate dissipation of the 6146 with positive s.g. voltage operating as it is at relatively low efficiency. In an effort to get more output from my balanced modulator on d.s.b.r.c. I tried operating at 900-1000 volts. The slight show of red on the plate should have been warning enough, however, it was not until my tubes started to go soft after about three months of operation that I decided that 800 volts was my limit on Position 3. 900 volts was found to be safe on Position 2. With d.s.b.s.c. (Position 1) I have found that my full 1100 volts is quite safe. When going to Positions 1 and 2 from Position 3 a slight reduction in audio is necessary. In Position 2 the standing plate current will be approximately 38 Ma. with 900 volts and voice peaks will hit between 60 and 90 Ma., depending on the percentage of modulation desired. In Position 1 a standing plate current is about 30 Ma. at 1100 volts and the plate meter hits approximately 100 Ma. on voice peaks.

approximately 40 db. on the S meter of my HRO-60, and down to about S5 or 60 db. down on the seventh order products. This was almost too good to be true as 25 db. down on the second and third order is not considered too bad. Rough on-the-air checks showed very low distortion products but I doubt if it is as good as the -40 db. indicated by my tests. The adjustment that did the most in reducing my distortion productions (from 20 to 40 db. down) was the reduction of the fixed bias on my balanced modulator from -60 to -20 volts. I do not know exactly why this should have made so much difference.

We are now ready to load the grounded grid amplifier. When connected to the final, the loading of the balanced modulator should be re-adjusted using the same procedure as outlined above. This is necessary because the input impedance of the grounded grid linear will probably be different from your antenna or dummy load used in the previous test. Using Position 3 again, load your final much the same way as you did the balanced modulator. It will be necessary to increase the loading up to or past the point of maximum output. When properly loaded in Position 3, speech audio will result in the p.a. plate current kicking up from approximately 160

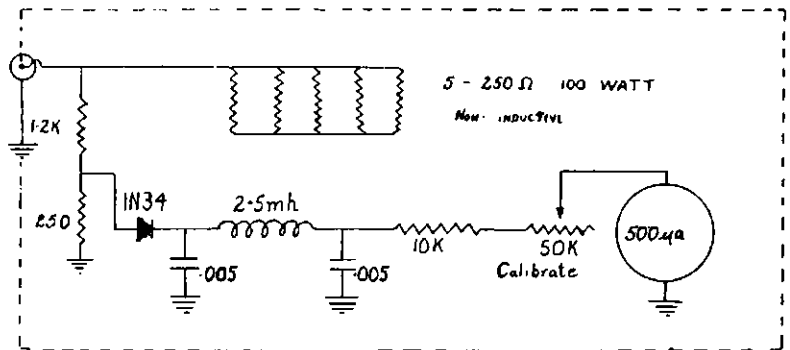


Fig. 4.—Dummy load with output meter. Meter calibrated for 150 r.f. volts at full scale.

At this point some "on-the-air" checks, using the balanced modulator, is in order, or better still, check your own signal as I did. With the rig loaded into a dummy antenna and the antenna removed from your receiver check for distortion products (splatter). If you happen to have a sharp receiver with an S meter and a 1000 cycle signal audio tone to excite the transmitter, switch to Position 1 and increase the audio until the plate current is approximately 100 Ma. With the crystal filter or Q multiplier in a sharp position, locate one of your fundamental sidebands and adjust your r.f. gain so the S meter reads approximately 40 db. over 9. Now tune slowly away from the carrier frequency. One kc. off you will find your second order distortion product. One kc. further you will find your third order distortion product, and on down the band you will hit fourth, fifth, sixth, etc., distortion products.

Being careful not to damage your tubes, this test should be repeated with 150 Ma. plate current. In my case, with 150 Ma. plate current, I found the second and third order products down

Ma. to 275 Ma. and whistles up to approximately 400 Ma. These, and other current figures, are for 15 metres and somewhat higher but proportional readings will be found on lower frequencies. The check for distortion should be repeated as before. If the final amplifier is operated properly, little or no increase in distortion products will result. In my case, I do not find it necessary to make any adjustments in loading between Positions 1, 2, and 3. A reduction in loading of the balanced modulator and grounded grid linear will probably be necessary in Position 4 for best efficiency on c.w.

Although my versions of the "TA2 Special" may be too much power for most, for those who wish a simpler and lower power version, I would suggest a pair of 6BQ6s or 6DQ6s for the balanced modulator with two or three 837s for a grounded grid linear, as shown in Fig. 1. This would give something in the order of 200-500 watts input. The 837s are "tried and true" in grounded grid service, and the 6BQ6s worked well in d.s.b.s.c. and should be okay for d.s.b.r.c.

(Continued on Page 46)



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		2N413	-18	2.5	25	12	70
		2N414	-15	6	40	12	80
		2N416	-12	10	60	12	90
		2N417	-10	20	80	12	100

PNP GERMANIUM GENERAL PURPOSE AUDIO TRANSISTORS Temperature Range -65° C to +85° C		JETEC-30 Type	V _{ce} max. volts	Beta ave. small signal	Power Gain Class A ave. db	I _{co} ave. μa	Noise Factor ave. db
		2N422	-20	90	40	6	6 max.
		2N464	-40	22	40	6	12
		2N465	-30	45	42	6	12
		2N466	-20	90	44	6	12
2N467	-15	180	45	6	12		

PNP GERMANIUM AUDIO RADIO RECEIVER TRANSISTORS Temperature Range -65° C to +85° C		Type	Circuit Usage	Supply Voltage max. volts	Power Gain		BASE DIAGRAM KEY 1. EMITTER 2. BASES 3. COLLECTOR
					Class A db	Class B db	
		2N359	Output	-16	40*	37‡	
		2N360	Output	-16	37*	34‡	
		2N361	Output	-16	34*	31‡	
2N362	Driver	-16	41*	—			
2N363	Driver	-16	37*	—			

* @ 50 mw, 9 volt supply † @ 250 mw, 9 volt supply ‡ @ 1 mw, 9 volt supply

PNP GERMANIUM IF AND RF RADIO RECEIVER TRANSISTORS Temperature Range -65° C to +85° C		Type	Circuit Usage	V _{ce} max. volts	I _{co} max. μA	r _b ^o ave. ohms	C _{ob} μf	Gain 455Kc db	Conv Gain db
		2N481	Osc.	-12	10	70	12 ave.	—	—
		2N482	IF	-12	10	80	12 ± 2	31	—
		2N483	IF	-12	10	90	12 ± 2	35	—
		2N484	IF	-12	10	100	12 ± 2	39	—
		2N485	Conv.	-12	10	80	12 ave.	—	26
		2N486	Conv.	-12	10	90	12 ave.	—	30

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AMATEUR TELEVISION

PART EIGHT

BY E. E. CORNELIUS,* VK6EC/T

A VIDEO OSCILLOGRAPH

During early experiments with a flying spot scanner on 245 lines and a 1 Mc. bandwidth, a Dumont c.r.o., with a bandwidth 3 db. down at 100 Kc. was used. This proved a severe limitation, and over a period, a number of requirements for a c.r.o. suitable for this work, were formulated. These were:—

1. Y bandwidth flat to 5 or 6 Mc., calibrated in volts per inch.
2. Sweep—a hard valve time base for reliable triggering, calibrated in frequency, and a triggered sweep for pulse measurement, calibrated in time, with calibrated trigger time delay.
3. Z axis modulation facility.
4. Direct on plates shift controls.
5. "Earth free" operation facility.
6. Zero line insertion.
7. Remote power supply.

These features were all incorporated, but each had its price, either in complexity or cost.

1. A 6 Mc. bandwidth involved low gain video amplifiers, with power tubes as deflection amplifiers, to obtain adequate deflection. This called for a sizeable power supply, about 250 mA. Using push-pull 6CL6s with 400 volts h.t., only 2" undistorted Y deflection could be obtained at 6 Mc. bandwidth.

This is adequate, but for greater deflection, the anode loads are switched in steps to permit up to 6" deflection, with a 2 Mc. bandwidth. To maintain 6 Mc. bandwidth, with high input impedance, at all levels, a compensated step attenuator was introduced at the input socket, at the front panel. It is switched on a 1, 3, 10, 30 . . . basis, feeding a cathode follower. This enables a low impedance co-axial to be used to take the signals to the rear, where the main amplifier is situated. It also permits the use of a potentiometer type gain control, also calibrated in voltage, as a vernier, near the main amplifier.

This amplifier is a 6AU6, 6CK6 to push-pull 6CL6s, all using standard video techniques. The 6CL6s are a "long tailed pair" push-pull circuit, with signal injected to the grid of one. This leaves the grid of the other unused, which permits a useful facility outlined in 3 below.

At full bandwidth, the maximum sensitivity is 0.4 volt per inch, and 0.13 volt per inch on the 2 Mc. bandwidth. It was not considered worthwhile to add another video stage for greater sensitivity. For gain stability, and a stable display, regulated h.t. was now essential.

2. X Deflection.—A reliable hard tube time base was incorporated using a Miller circuit, with a range from 10 c.p.s. to 200 Kc. The deflection amplifier is a 6SN7, also in a "long tailed pair" circuit. The Miller transistor readily lends itself to triggered operation, but this, together with the trigger delay facility, is costly in tubes, nine being required, counting the sync. amplifier.

This could be simplified considerably, by a diligent search of the literature and considerable thought and experiment, but as it has worked well for three years, I have not as yet made time to attempt simplification.

The beauty of the Miller circuit is that the sawtooth is remarkably linear and almost completely independent of tube parameters, and provided regulated h.t. is used, with stable components, can be calibrated accurately in frequency, time, and time delay.

As the fastest triggered sweep is 20 μ sec. and must be linear, the deflection amplifier has to be reasonably wide-band. This limits the X amplitude to about 7". This has been no disadvantage. On triggered sweep, the sweep width is adjusted by the components always to be 4", and the width control bypassed. The trigger delay is also directly calibrated in time from 5 μ sec. to 17.5 msec., by a calibrated potentiometer, and multiplier.

3. Z axis modulation (c.r.t. grid) was considered to be a desirable feature, but has hardly ever been used. But it was seen on design, that it would be easy to switch the Z amplifier to the otherwise unused grid of the Y deflection amplifier, and effectively have two independent Y channels.

This amplifier is a single 6AC7 with about 1 Mc. bandwidth, and has proved invaluable for a type of "double beam" display for waveform superimposition, but without any separation of the two traces. No compensated input attenuator is provided, the high impedance input being direct to the grid of a cathode follower and then via co-axial cable to a low impedance gain control to the amplifier input at the rear. This circuit limits the input voltage to the effective grid base of the cathode follower, about 25 volts peak to peak.

4. Direct on plate shift controls mean that the shift potentials are fed direct to the c.r.t. plates, independently of the amplifiers. This avoids the probability of distortion on extreme shifts, when the shift potentials are fed through the amplifiers, but involves dual potentiometers and slight sluggishness of the shift.

5. In t.v. it is often desired to observe a waveform of low amplitude at a circuit point at high d.c. potential, possibly with ripple superposed. This is particularly so when measuring the current in line and frame deflection circuits. The normal power supply ripple, or ripple caused by the line or frame time bases themselves, can completely mask the waveform to be seen, when measured against earth.

It is advisable therefore to be able to lift the whole c.r.o. circuit above earth potential and operate the earthy terminal at (say) h.t. potential (complete with ripple). This leaves the desired waveform clean for observation. The practice can be highly dangerous, of course, unless precautions are taken.

The whole of the power supply circuit, and c.r.o. "innards" are left free of earth and the c.r.o. chassis assemblies

insulated from the main case, which is earthed. A 0.1, 600v. capacitor is connected between the c.r.o. earth and true earth, with a panel-mounted switch across it.

Throwing the switch to "FREE" (open) allows the low potential connection of the c.r.o. to be connected to points up to 600 volts "hot", the only hazard then being the c.r.o. input terminals themselves, in this case co-axial connectors, which are insulated from the case and as protected from accidental contact as possible. A worthwhile refinement would be to have a conspicuous red panel lamp to light under "EARTH FREE" conditions.

This facility has proved invaluable, and is in use continuously. Note that many of the test points (t.p.) shown in earlier circuits have been at high potential, and in these cases the c.r.o. is clipped across the measuring resistor under "free" conditions.

6. Zero Line insertion was discussed in Part Seven last month. The vibrator is plugged into its socket which is close to the Y₂ (Z) input (the narrow bandwidth channel) and short circuits the co-axial input socket for dotting in the baseline. It was included in this channel to avoid adding extra capacitance to the wide band Y₁ channel. Not that this vibrator must be connected directly across the input connector, as any point after a coupling capacitor loses the d.c. component it is designed to show.

7. By the time all these facilities were included, the total of tubes was considerable and power supply requirements in proportion. The proximity of a 5BP1 to a power transformer always raises the problem of shielding the tube, so it was decided to use a separate unit for the power pack and mount it remotely, on the floor for instance. This minimised trouble from magnetic deflection of the c.r.t. and made two units of reasonable weight, easier to handle than one very heavy unit.

CIRCUIT

The circuit is shown in Fig. 40.

Y Amplifier

VIA and B, mounted on the Y attenuator shield, are the two input cathode followers, co-axial cables leading to the rear panel, where the video amplifiers are located. The Y₁ channel is V2, V3, feeding the grid of V4, which with V5 is the deflection amplifier. V2 and V3 use I.R.C. 1000 ohm 3w. wire wound resistors for anode loads, which provides excellent compensation in this layout, flat to 6 Mc. Pure chance of course! V4 and V5 also use the same resistors for anode loads, 2000 ohms for 6 Mc. bandwidth, 4000 ohms for 3 Mc., and 6000 ohms for 2 Mc. Additional shunt inductors are switched in for the narrower bandwidths. The 20 ohm cathode resistor provides bias, and the 1000 ohms the "long tail" for cathode drive to the second tube.

The grid of V5 is normally earthed to signal by a 0.5 μ F. capacitor, but via

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S4 can accept signal from V6, as the 1 Mc. bandwidth Y_2 channel, for that second input. The arithmetic sum of the waveforms is displayed, the two traces not being separable on a true double beam basis, but very useful for all that. The other position of S4 allows grid modulation from V6, for marker pips, or switched free for convenience. The Z (Y_2) input co-axial connector has the zero line vibrator across it, as mentioned earlier.

Time Base

The time base can run either under continuous or triggered conditions. Under continuous sweep, V7, 16, 17 and 18 are used. V7 is a sync. amplifier, reasonably wide band, with either internal sync. (from the cathodes of V4, 5) or external sync. from the sync. input socket. It feeds to V16, a Miller integrator, followed by V17, a cathode follower. The cathode follower is in series with the Miller capacitor, selected by S9. It has a number of advantages, among them a considerable improvement in fly back time, and its low impedance output.

On continuous sweep, a 0.047 μ F. capacitor is switched between screen and suppressor of V16, by S10A and S10C. This provides a transitron circuit for free running, sync. being injected at the screen. The sawtooth frequency is controlled by the time base fine and coarse controls, arranged to multiply each other, and is taken from the cathode of V17 via a co-axial cable and width control to V18. This is another "long tail" circuit, with unequal plate loads for equal plate voltage swings and unequal bias on the grids, for optimum grid base for each tube half.

Triggered Sweep

On "Trigger", V16 is no longer free running, the screen being bypassed, and a "gate" pulse is applied to the suppressor through a diode biasing circuit (V15B). The Miller tube is cut off, with high anode potential, until arrival of the trigger, when the suppressor goes positive, and the anode potential falls linearly until the gate is again closed, by suppressor cutoff, the anode flies positive, until the next trigger. A negative going sawtooth, of duration fixed by the gate pulse width and amplitude fixed by the Miller capacitor (selected by S8B), is available from the cathode of V17.

The generation and control of the gate pulse is the job of the circuitry of tubes V8 to V15 inclusive. The trigger signal is amplified as before by V7 and fed to V8 via S5B. The two diodes are poled and biased to conduct at a specific voltage, preset by the potentiometers under S6B, and polarity selected by S6.

On conduction of the diode, V9 cycles. This tube is a flipflop, emitting a negative pulse of duration about 4 μ secs., on receipt of a trigger. Switch S6 selects either the positive going or negative going component of the triggering pulse, and switches other circuits to maintain correct polarity throughout. S6A selects the appropriate input polarity. S6B alters the bias on V9A so that this stage is cutoff before a positive pulse, or conducting before a negative. S6C and S6D select the negative going anode of V9 for either

polarity input, feeding it to the delay circuit V10, 11, or undelayed to V13.

Trigger Delay.—This is another flip-flop whose cycle duration is under control from the panel by the switched delay capacitors in S7A and the fine control, a 2 megohm potentiometer designated "MICROSECONDS". V12A acts as a clamp for the suppressor of V10, to ensure the suppressor always returns to earth potential, preventing random variations in pulse length and hence the delay, causing "jitter".

V13 accepts the delayed or undelayed pulse, it being differentiated to a spike by the 14 pF., 47K circuit in its grid. The tube amplifies and inverts the pulse, and the spike, now positive, is fed via V12B to the gate flip-flop V14. This cycles on each spike, emitting a square gate pulse, positive going, from the anode of V14B.

Two outputs are taken from the anode, one clamped by V15B to cut off the suppressor of the Miller tube, and the other clamped to +110 volts, to the c.r.t. grid, as a "brightup" pulse for brightening the trace for the duration of the sweep.

The tricky parts of this circuit are:— (1) The trigger flipflop V9, where some juggling of the values of the cathode resistor and the grid resistor of V9B (shown as 33K) may be needed. (2) The gate flipflop, where similar juggling is necessary for the grid resistor of V14B, shown as 220K and 1M in parallel.

On triggered sweep, the X gain control is bypassed, as it can distort the short duration sawtooth. The width of the trace is adjusted as close to 4" as possible by adjustment of the value of the capacitors switched by S8B. Then, with 4" of sweep for each duration, the graticule will measure specific times. For instance, on 20 μ secs., it will be 5 μ secs. per inch.

With triggered sweep, the beam is undeflected till a trigger pulse is received, then sweeps across the screen at the predetermined rate and then awaits the next trigger pulse. No trigger, no sweep. The sweep delay acts as a very fine and flexible sweep expansion, as varying the delay moves the whole display bodily across the screen. A delay of 1000 μ secs. on a sweep of 20 μ secs. is possible, and equal to an expansion of 50 times—17 feet!

Power Supply

No circuit of this is given as it conforms closely to the other power units described. It supplied +400 volts unregulated at 100 mA., +260 volts regulated at 120 mA., +110 volts regulated at 20 mA., -2000 volts from an r.f. e.h.t. supply, and -70 volts for bias of V13. This last is obtained by having the whole of the filter system in the negative leg, using it as a back bias resistor. With the components used, this gives -70 volts, and the components of V13 were adjusted to suit. As in the c.r.o. proper, the earth bus floats and is connected through to the c.r.o. cabinet for earthing there via the "EARTH FREE" switch.

The filament supplies are similar to other circuits, allowing adequate insulation for the 5BP1 filament, and a separate winding for V4, 5, 11 and 18, this being kept at +110 volts, to reduce heater cathode potential in these tubes. The +110 supply is derived from a

series regulator tube which has its grid held at +105 volts from the OC3 reference tube used for the main regulator, similar to the +150 supply in the c.c.u. power pack.

Mechanical

To provide the "earth free" facility, the whole of the c.r.o. circuitry was mounted on a separate inner carcass, mounted within and insulated from, the metal outer case, which measures 14" x 10" x 8". See Fig. 41.

The inner carcass was therefore constructed as follows:—A set of 5 vertical panels, all to the same outside dimensions of 13 $\frac{1}{4}$ " by 9", with $\frac{3}{8}$ " flanges all round, are used as chassis and mounting panels. They are spaced at intervals shown in the sketch and held in place by angle pieces at each corner from front to back. Each panel is drilled to suit the tubes and components that are to mount on it, with clearance holes for the extension shafts running forward to the front panel.

The carcass has four transverse bakelite bearers 9 $\frac{3}{4}$ " x 1 $\frac{1}{2}$ " x 3/16" which are in turn screwed to it at top and bottom, front and rear. These bearers are later screwed to the outer metal cabinet, thus serving to support the carcass inside and insulating it from the case proper. Clearance is provided between the front panel and the front of the case, this last having rubber grommets in $\frac{3}{8}$ " holes, to support and insulate the shafts projecting through it.

The front panel mounts:

1. The Y_1 attenuator and cathode follower.
2. All co-axial input sockets.
3. The zero line switch and vibrator.

Panel (2) mounts:

1. The c.r.t. shield, and hence the tube itself.

Panel (3) mounts:

1. All the time base circuits, tubes and panel controls.
2. The trigger plus and minus threshold preset controls.

On panel (4) we have:

1. The Y_1 amplifier, deflection amp. and controls.
2. The Z- Y_2 amplifier, access switch and controls.
3. The shift, focus and intensity pots.
4. The astigmatism preset control.

Panel (5), rear, carries the two power receptacles (chassis male) for connection to the external power pack and is back about $\frac{3}{4}$ " from the rear of the case, which has large clearance holes for inserting the plugs.

Fig. 41 shows the major details of each of panels 1 to 4. Fig. 42 shows the front panel as designated. Note that the front panel of the case has clearance holes for the four co-axial inputs, these being the only danger points under "earth free" conditions.

The first panel has the Y_1 attenuator in a shield case shown dotted, which encloses the Y and Z inputs, and mounts the 12AU7 cathode followers on its rear. The 3 to 30 pF. trimmers on the attenuator are placed so that they are accessible for adjustment via the side doors of the case, for adjustment in situ. The vibrator socket, on standoffs, is immediately above the attenuator box. A cutout at extreme left allows

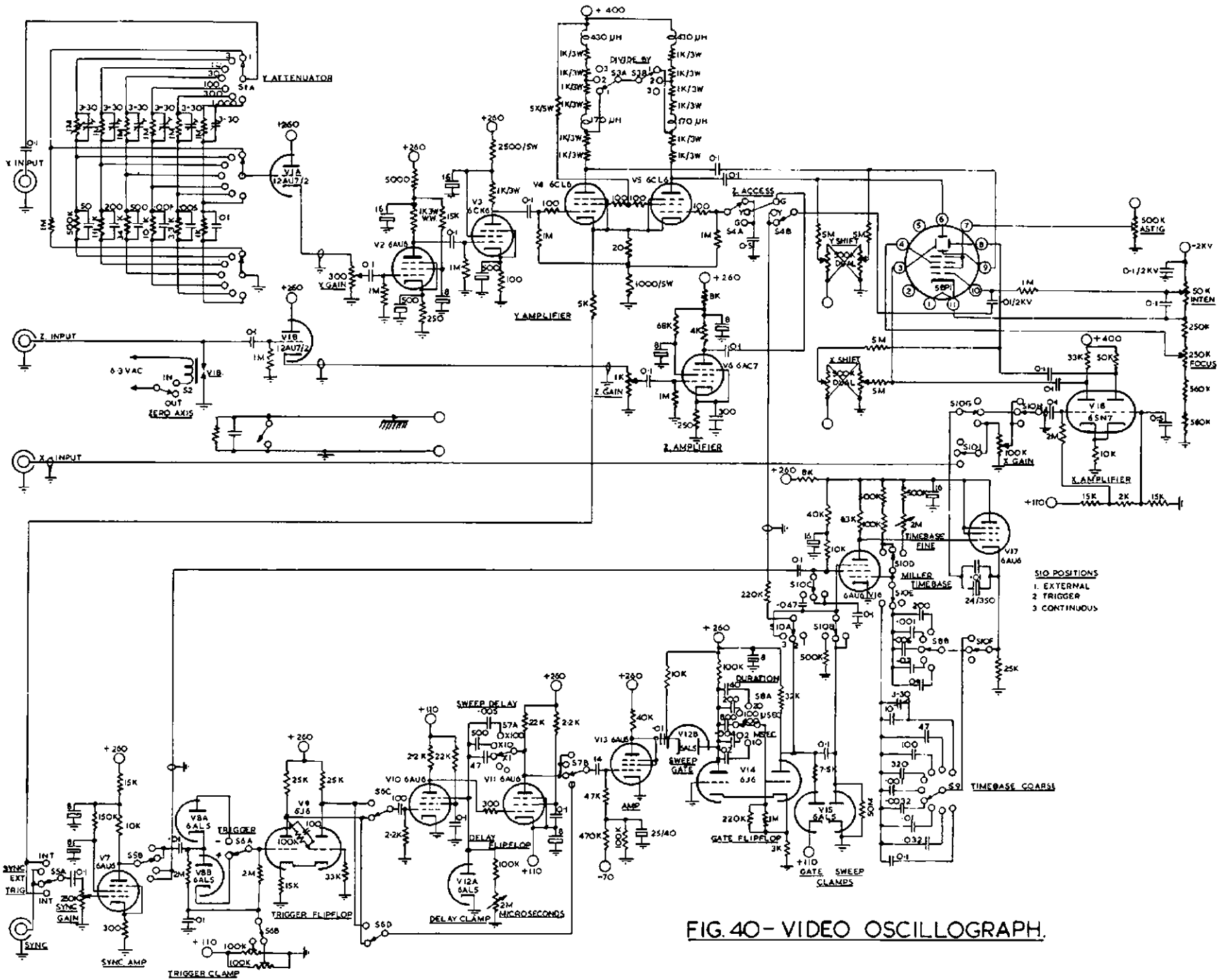


FIG. 40- VIDEO OSCILLOGRAPH.

- S10 POSITIONS
1. EXTERNAL TRIGGER
 2. TRIGGER
 3. CONTINUOUS

clearance for the "earth free" switch, which is the only component mounted on the front of the case proper.

Panel 2 has no components and is mainly used for support of the front of the c.r.t. shield, and the tube. The shield, fixed by brackets to this panel is made of two concentric funnels of 20 gauge galvanized iron, the inner conforming to the shape of the c.r.t. and lined with table baize. The outer slides firmly over it, spaced by a piece of felt. This provides a shockproof mount and grips the tube lightly but firmly.

Panel 3 is for the time bases, with all tubes and electrolytics (coded C on the sketch) projecting forward from the panel, potentiometers and switches being on the rear. The layout is not critical, but that shown allows reasonable access. The wiring of these panels

can be done on the panel as a unit, enabling testing to be done in the clear before assembly. For the time base coarse switch S9 and the trigger duration switch S8, an extra dummy wafer was used as a convenient tag plate for the capacitors. Holes coded X, Y, S, on the sketches, are for the co-axial cables from panel to panel.

Panel 4 has the deflection and e.h.t. circuitry, with the e.h.t. network at the top right hand corner, behind the focus potentiometer. The switched anode loads of the 6CL6s are on narrow horizontal tag strips supported by the tube sockets and the "DIVIDE BY" switch. Decoupling and screen dropping components are mounted remote from the tubes on a strip behind the X shift potentiometer. A full length strip across the bottom is used for termination of

the power leads and for power distribution. Each of the three active panels 1, 3 and 4 have captive power plugs and free sockets on short cords, to carry power forward between panels.

Cathode Ray Tube

A calibrated graticule for this c.r.o. is easy to make and invaluable. The front panel of the instrument has a $5\frac{1}{2}$ " hole, through which the tube may be inserted or removed. It is arranged such that the front of the tube is just flush with the inside of the panel. A circular disk of 1/16" perspex fits neatly into the hole and rests firmly against the front of the tube.

A cast brass c.r.o. bezel from a radar indicator (using a 5FP7) is screwed to the front panel, retaining the perspex

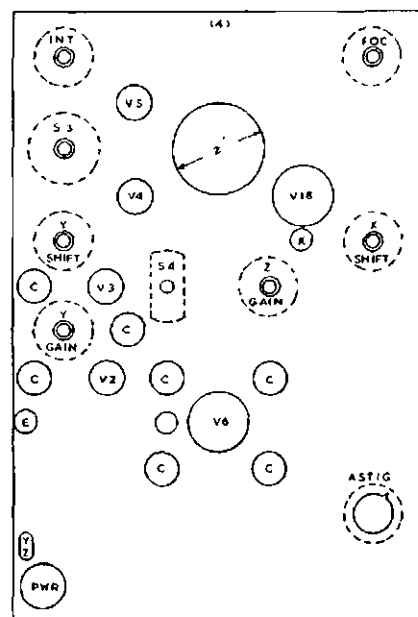
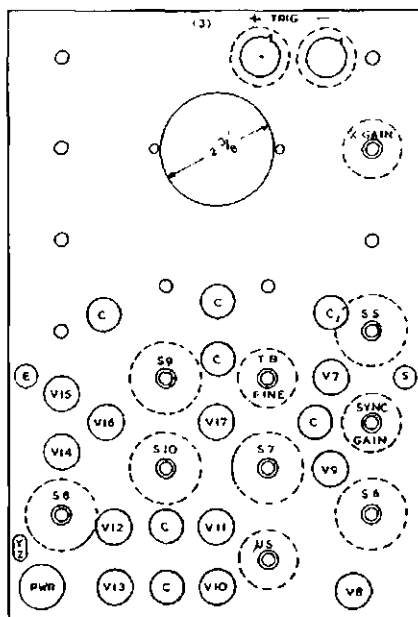
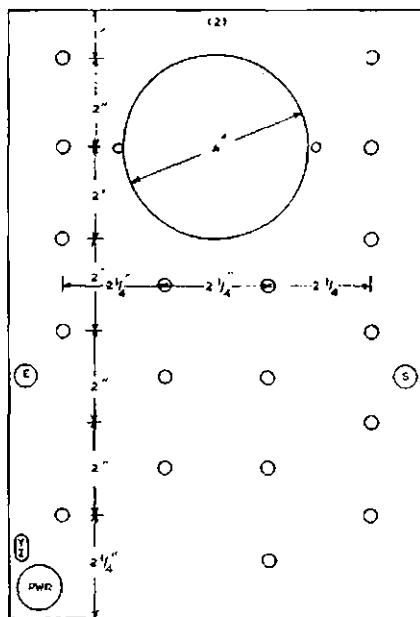
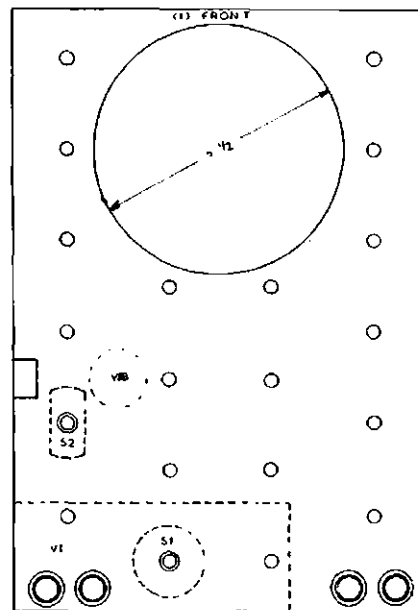
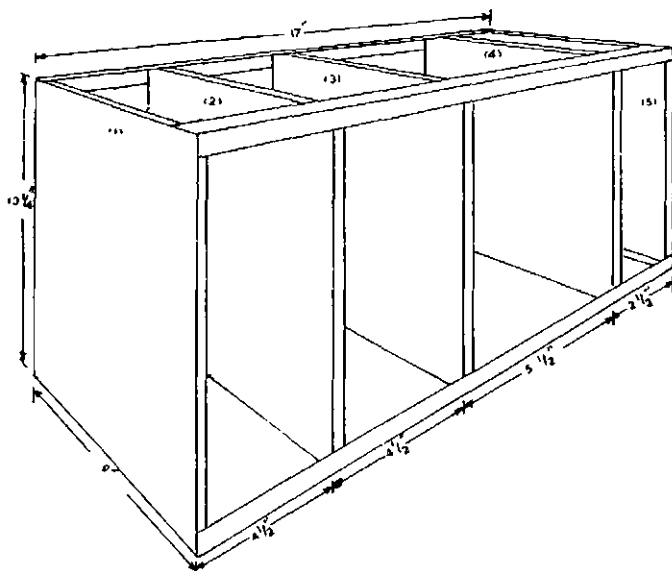


FIG. 41—CONSTRUCTION.

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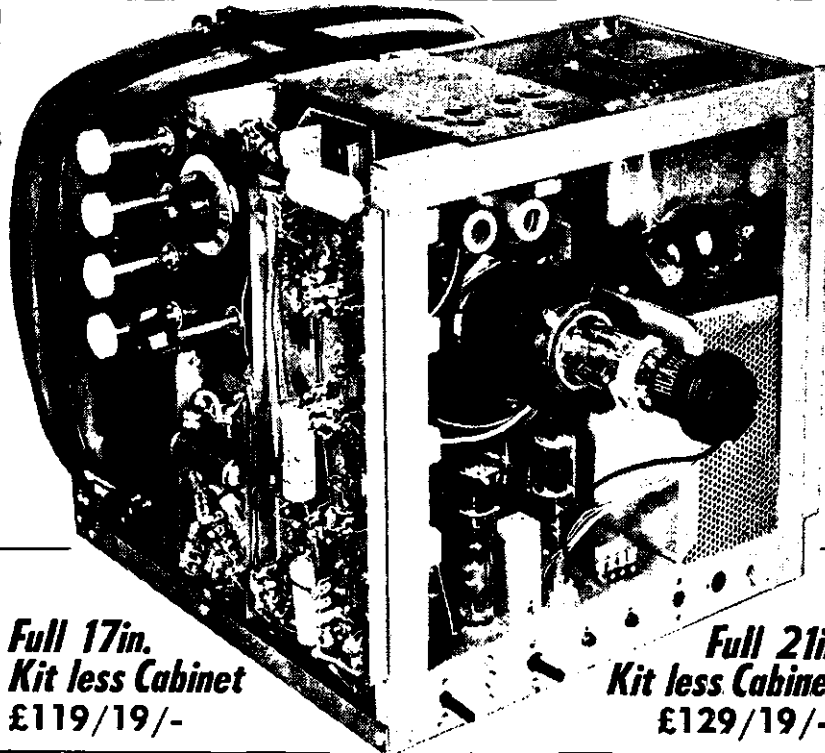
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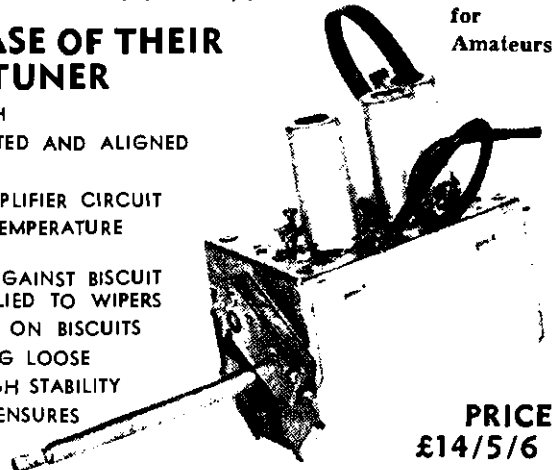
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in place, but allowing rotation with the tips of the fingers for alignment with the trace. The perspex is engraved on the inside, using a sharp scribe, with 1" and 1/10" calibration lines, the 1" marks being deeper than the others. These scribed grooves are filled in black, using a finger moistened with Indian ink, the surplus being polished off when dry.

To improve contrast, a light filter of dark green cellophane is fixed to the tube face itself as described in Part Two for the camera viewfinder, but due to tube face curvature, rather more care is necessary to stretch the cellophane without tearing it. The filter reduces incident light considerably, but passes the green trace almost without loss, enabling the c.r.o. to be used in quite high light levels.

CALIBRATION

After a functional test to ensure that all parts function normally, calibration of the measuring circuits can be done as follows.

The Y Attenuator

The resistor values for this unit should be accurately measured, and while absolute values are unimportant, the ratio of each pair should be accurate, 1:2 for the 3 range, 1:9 for the 10 range, and so on. The attenuator is frequency independent if the series arm R₁C₁ is equal to the shunt arm R₂C₂, this last absorbing strays. For h.f. compensation, the series trimmer C₃ is adjusted as follows:

Apply a square wave to the input, from the square wave generator described last month, at between 5 Kc. and 15 Kc. If the square wave is obtained from any other source, it must be above suspicion and without overshoot, or rounding. Display the square wave on the one volt per inch range, on 6 Mc. bandwidth, via an attenuator pad made up with resistors of 100 ohms or less, thus ensuring that there is no frequency discrimination there. Use short leads and low capacitance cable. The square wave should be perfect, with no overshoot, under-shoot, or rounding.

Set the attenuator to the 3 volt range and adjust the series trimmer to give no overshoot or rounding. The transition will be quite clear and sharp. Check the 10 volt and 30 volt ranges similarly, removing the pad to obtain 1/2" or more deflection. On the 300 and 1000 volt ranges, compensation is difficult due to the low voltage available, but with the Y gain control full on, and 1/2" on the screen, accurate setting of the compensation is possible. The "DIVIDE BY 3" range may be used, if need be, on the higher ranges to obtain greater sensitivity.

Y Gain Control

Inject a 50 cycle a.c. signal of say 5.0 volts r.m.s., measured on an accurate a.c. voltmeter. This is $5.0 \times 2.8 = 14$ volts peak to peak. Set the Y attenuator to the 10 volts/inch range. Set Y gain to give 1.4" deflection (DIVIDE BY 1 position), and mark Y attenuator setting 1.0.

Using a potentiometer, reduce input to 1 inch (10 volts). Increase Y gain to give 2" deflection and calibrate this point as 0.5. Follow this pattern similarly to give other convenient calibration points.

Time Base (Continuous)

This assumes that all time base capacitors have been checked on a bridge before fitting. Check points on one range will then agree on all other ranges. Set coarse range to 1. Inject 50 cycles per second and display two sine waves, with the absolute minimum of sync. gain to hold the pattern, using the time base fine potentiometer. Calibrate this point 25. Display 3, and calibrate this point 17, 4 for 12 1/2, and 5 for 10. Using other known frequencies, or the more complex Lissajous figures, find the other calibration points on the fine pot., between 10 and 40.

Trigger Adjustment

Inject a low level pulse signal such as line pulses, at about 4 volts level to both Y and SYNC. inputs. Adjust sel-

ector to + polarity, and adjust positive trigger threshold selector to give a stable display, with minimum sync. gain. Keep backing off the sync. gain and readjusting the trigger threshold for a stable display until the trigger loses control. Repeat for the negative triggering position. These settings, once found, will not need major adjustment, although an occasional touch up for very low level or very high level signals may be necessary.

On high speed sweep—20 microseconds for instance—the triggering signal itself must have a sharp leading edge. A stable 20 μsecs. sweep from a 50 c.p.s. sine wave trigger is not possible, but is quite feasible from the good sharp 50 cycle driving pulses from your sync. generator.

(Continued on Page 45)

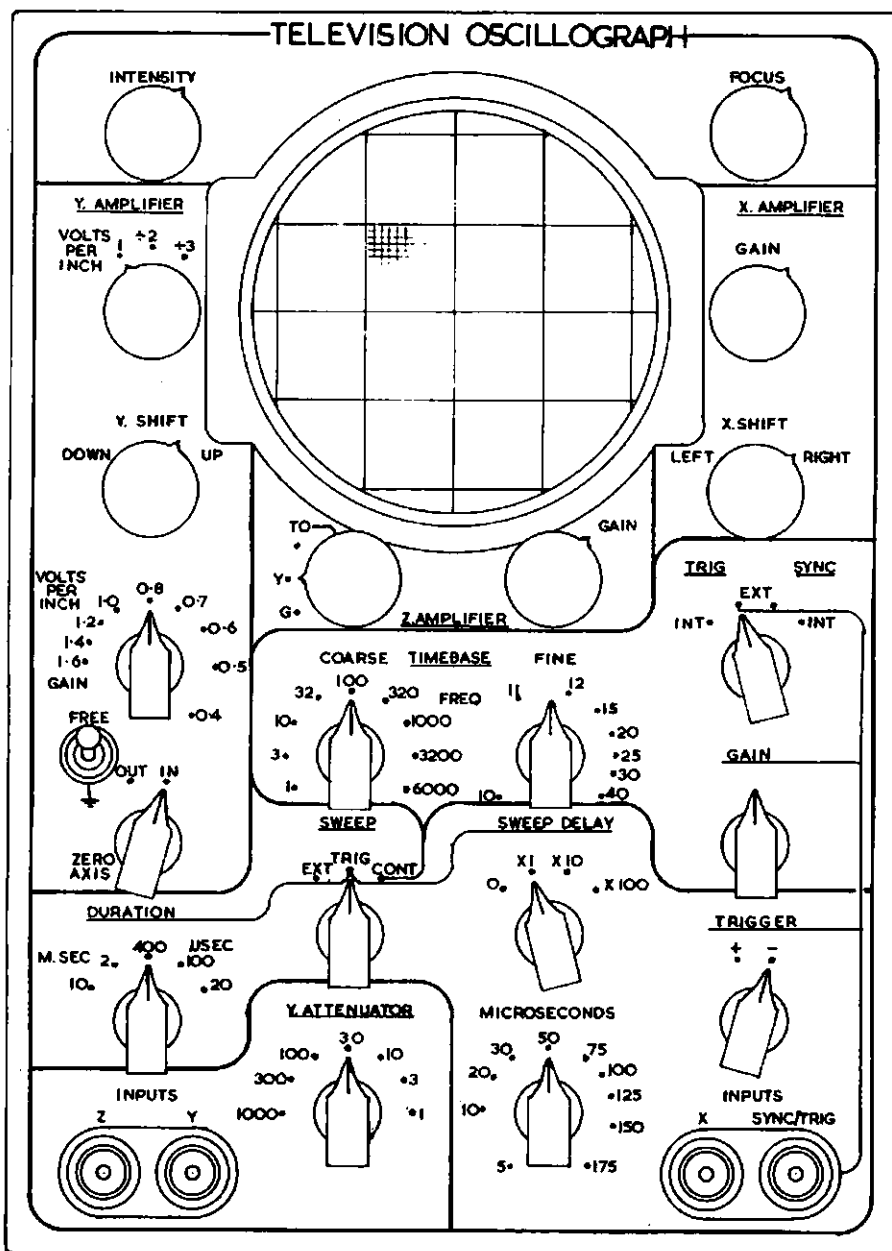
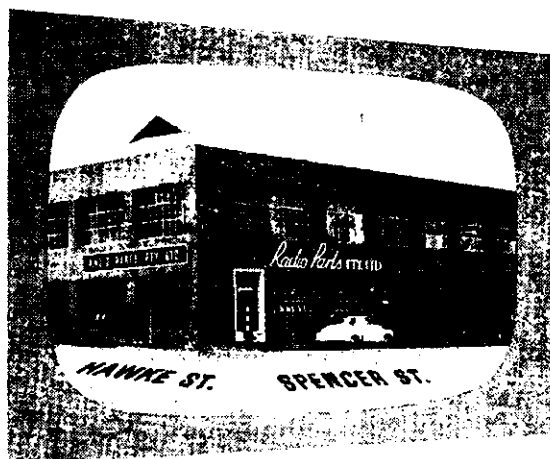


FIG. 42—FRONT PANEL

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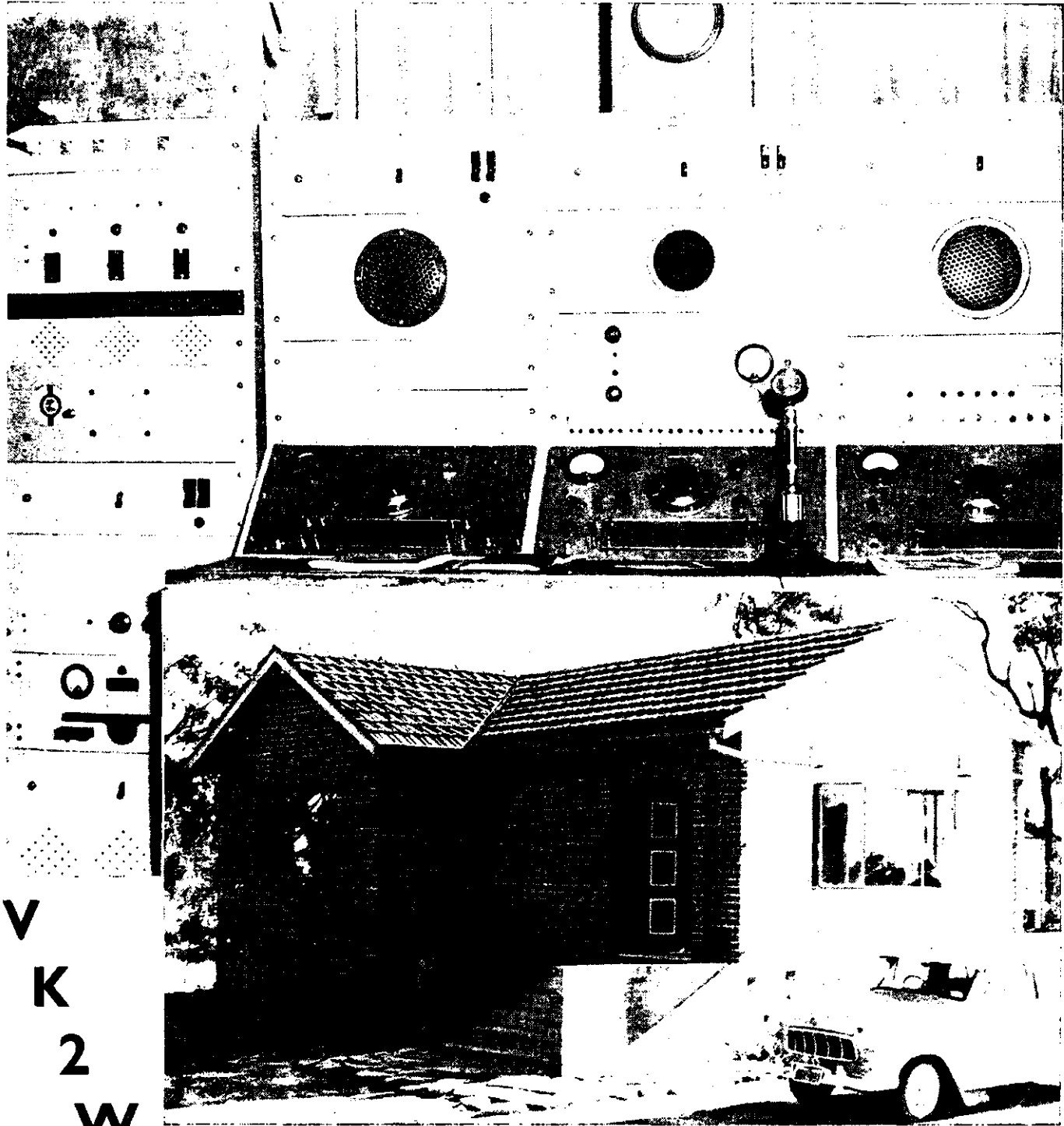
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The Official Station of the New South Wales Division and Central Control Station of the W.I.C.E.N. organisation in that State. Top: Operating Console in the VK2WI Control Room. Bottom: Main Building housing Divisional transmitting and receiving equipment, together with library and other facilities.

V K 2 W I

Headquarters Station of the VK2 Division and Central Control Station of W.I.C.E.N. in New South Wales

IN Clause 3 of the Memorandum and Articles of Association dated 26th May, 1922, setting out the aims and objects of the New South Wales Division of the Wireless Institute of Australia, Paragraph (g) deals with the establishment of Club Houses and Workshops for use by Members.

It is thirty-six years since these thoughts were put on record. Since then through the efforts of Members in recent years, these thoughts have become an actual fact.

The N.S.W. Division now has an official central focal point located on a five-acre property in Quarry Road, Dural, at the top of a ridge 750 feet above sea level, twenty miles north-west from the heart of Sydney.

The main building is brick tee-shaped construction of 500 sq. ft.; provision has been made to extend to 1,000 sq. ft. This building houses all the transmitting and receiving equipment

together with the library and kitchen facilities.

Situated 150 feet to the rear of the main building is a 25 x 14 ft. steel frame building housing a 25 kva. three-phase emergency power plant, work benches and general storage area; underground cables connect the power plant to the main building.

ANTENNAE

Placed in suitable positions well clear of the main building are six 60 ft. tubular steel masts carrying 80, 40, and 20 metre dipole antennae.

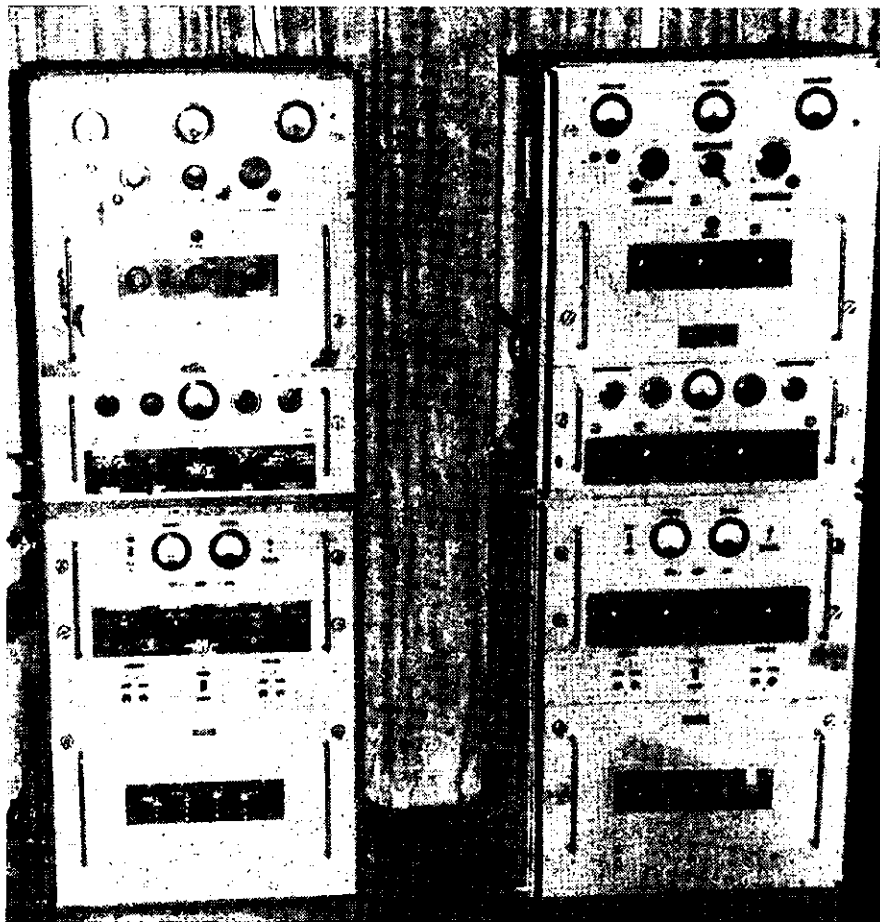
Separate receiving and transmitting antennae are used on these bands, feeders to the transmitting antennae are co-axial cable, run underground to junction boxes on 8 ft. steel poles directly underneath the antennae. From these boxes to the antenna any suitable type of feeder can be used and matched to the co-axial cable.

The v.h.f. antennae consists of a 144 Mc. four-bay turnstile on a 60 ft. pipe mast, for general coverage. A sixteen element phased-array and a five element yagi on 56 Mc., fully rotatable, on top of a 45 ft. pole are close to the main building. The phased array and yagi have been constructed from standard t.v. antenna fittings and, like the turnstile, are fed with co-axial cable, terminating on an Antennae Patch Panel in the Control Room.

BUILDING

The main building is divided into three sections. The section immediately inside the entrance has the library, kitchen and dining facilities and is furnished with modern chromed steel framed chairs and tables.

The second section contains five operating positions for h.f. and v.h.f. bands and are being fitted out for general use by Members, also multi-



★
Looking through the control room doorway at the two AT14 350-watt h.f. transmitters.
★

★
Not shown on the left is a BC610E 500-watt h.f. transmitter. To the right of the AT14's is the v.h.f. transmitter rack.
★

band call-backs after Divisional Broadcasts and W.I.C.E.N. activities, when a number of channels are operated simultaneously.

The transmitters, together with their modulators and power supplies, will be mounted in standard 6 ft. racks, while the receivers and operating controls will be mounted on the operating desks.

The third section is partitioned off from the other sections by double glass and acoustic wall board and is the VK2WI Control Room. The walls are draped from ceiling to floor with green floral-patterned tapestry, with a matching floor covering.

EQUIPMENT

The equipment consists of a BC610E 500-watt plate modulated transmitter, two AT14 350-watt grid-cathode modulated transmitters for the high frequency bands, and 100-watt 144 Mc. transmitter.

The operating console has three AR7 receivers, together with operating controls for all transmitters, patching panel from audio splitting amplifiers for modulators and public address system, speakers for each receiver,

mounted in this rack and is used for remote control of the VK2WI transmitters during W.I.C.E.N. exercises and broadcast relays.

Alongside the AT14 h.f. transmitters is a 6 ft. standard rack containing the 100-watt 144 Mc. transmitter together with its power supply and class AB1 807s modulator. Provision has been made for the installation of a 56 Mc. 100-watt transmitter which is in the course of construction.

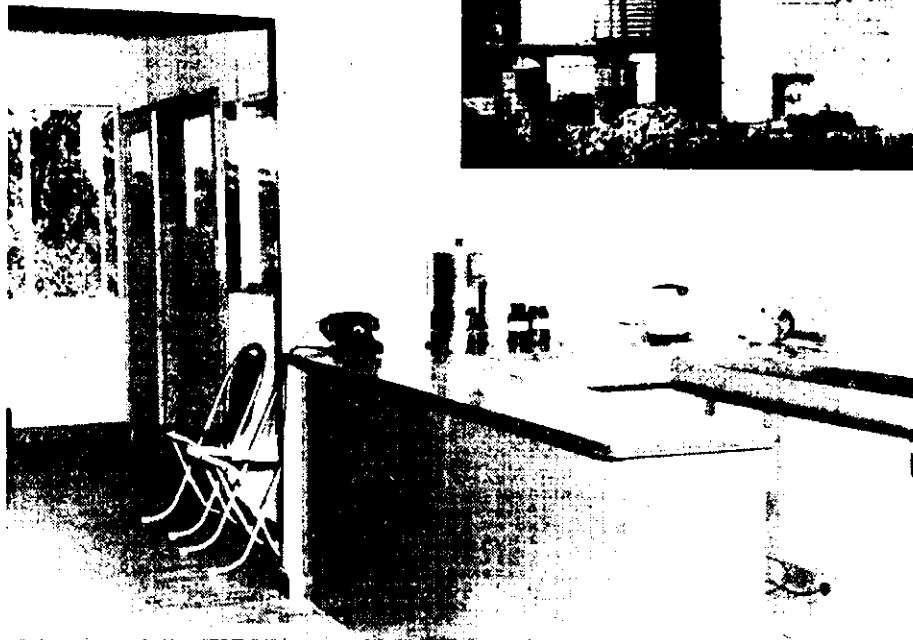
Each Tuesday night at 8 p.m. a W.I.C.E.N. Exercise is carried out when Stations throughout N.S.W. discuss problems associated with emergency work and practice message handling. The frequency used is 3525 Kc.

The purchase of the property and the construction of the building has been made possible by cash donations from Members, while a very large percentage of the equipment has been donated to the Station by Members. The



Above: View of the rear of the main building where the control room is. The open window is one shown on left of the kitchen view.

Left: Interior view showing kitchen corner and on left the partition and doorway to the VK2WI control room.



work involved in modifying and re-building equipment, together with the major portion of the construction of the building, has been carried out by Members on an entirely voluntary basis.

This is VK2WI as it is at the present time, the accompanying pictures show various sections of the station and the installations. With these facilities already available and the continued interest by Members, there seems little doubt that progress will continue to be made.

The surrounding grounds are ideal for the holding of Conventions and similar Divisional activities and provide an excellent place for Members to bring families and friends for a picnic in the bush, or a location where country Members or Members of other Divisions touring by caravan could visit during their way through Sydney.

Visitors are always welcome at VK2WI and arrangements can be made for overseas Amateurs to inspect the Station at times most convenient to them. The Station is open all day each Sunday and generally Tuesday evenings. A phone call to Dural 289 will ascertain if anyone is in attendance.

Members of the VK2 Division are proud of VK2WI and its place in Amateur Radio activities.

New South Wales Division,
Wireless Institute of Australia,
Box 1734, G.P.O., Sydney.

microphone and tape recorder input controls.

Mounted on the rear of the console are power supplies for the receivers and audio amplifiers, together with supplies for relay-controlled circuits for the transmitters.

A standard 7 ft. rack adjacent to the operating console contains the antenna patching panel for the h.f. receivers and the v.h.f. transmitters and receivers, also the 144 Mc. and 56 Mc. converters together with their associated power supplies. Provision has been made for patching the output of v.h.f. converters to the antenna input of the AR7 receivers. A complete 5 metre receiver, which is interconnected with the relays controlling the h.f. transmitters, is

Test equipment includes a Bendix frequency meter, 5 inch cathode ray modulation checker, monitors, crystal calibrator, multimeters, modulated oscillator, and grid dip oscillators.

ACTIVITIES

The main activities connected with VK2WI are the Divisional Broadcast each Sunday morning at 11 a.m. when simultaneous transmissions are made on 7146 Kc., 3573 Kc. and 144.89 Mc., followed by transmission on 7050 Kc. for the purpose of taking reports from Members and giving information requested by those reporting in. Also the V.h.f. Broadcast each Sunday night at 7.30 p.m. on the 144 Mc. band.

THE NEW SOUTH WALES DIVISION, W.I.A.

The New South Wales Division of the Wireless Institute of Australia was incorporated as a Company in May 1922 to cover the whole of New South Wales, Australian Capital Territory, and Lord Howe Island.

The Division is governed by a Council of seven, elected annually by Members.

Within the Divisional Organisation there is the:

Hunter Branch,
V.h.f. and T.v. Group,
Central Coast Section,
Blue Mountains Section,
Short Wave Listeners' Section.
Also several Zones, the most active being the South West and North Coast Zones.

Each of these are controlled by their individually-elected Committee in liaison with the Divisional Council through one of their officers, while the Australian Capital Territory (VK1) is catered for by the Canberra Radio Society.

The objects and aims of the Division, as set out in the Memorandum and Articles of Association, is to encourage and assist all persons interested in any or all aspects of Amateur Radio and Allied Techniques.

Membership is divided into two grades:

Grade "A" ("Full Members")—
Those who have obtained their Amateur Operator's Certificate of Proficiency or the Limited Amateur Operator's Certificate of Proficiency, and

Grade "B" ("Associate Members")
—Those studying for their Certificates or who are interested in some aspect of Radio Science.

While Honorary Life Membership has been bestowed on those who have rendered valuable assistance to the Division or to Radio Science.

Services which are available to Members are:

- Divisional Broadcast each Sunday from VK2WI at 11 a.m. on 7146 Kc., 3573 Kc., and 144.89 Mc. Also at 7.30 p.m. on 144.89 Mc.

- Lectures: Divisional Meeting on the fourth Friday of each month at 7.45 p.m. in Science House, Gloucester Street, Sydney.

V.h.f. and T.v. Group Meeting 8 p.m. on the first Friday of each month at the North Sydney Technical College, Gore Hill.

Shortwave Listeners' Section Meeting 7.30 p.m. on the second Friday each month at the Railway Institute Rooms, Castlereagh St., Sydney.

Hunter Branch Meeting second Friday each month, 8 p.m., University of Technology, Tighs Hill.

Central Coast Section, Gosford, third Friday each month, 8 p.m., School of Arts, Gosford.

Blue Mountains Section third Friday each month, 8 p.m., R.S.L. Hall, Springwood.

- Magazine "Amateur Radio" each month.

- Divisional Monthly Bulletin.
- QSL Bureau—Inward and Outward Cards.
- Procurement of Disposal Equipment for sale to Members.
- Library of current magazines, overseas publications and text books.
- Facilities at Divisional Headquarters Station, Quarry Road, Dural.

For those requiring Educational assistance for the A.O.C.P. examination, a lecture course of 48 lectures over a period of 24 weeks is available and is completed twice each year. For those unable to attend the lectures and may be resident in any part of the Commonwealth and Territories, there is a correspondence course covering the same syllabus as the lecture course. This course can be started at any time and rate of progress is dependent on the individual. Participation in either of these courses does not require becoming a Member of the Division.

Should it be necessary as a service to the community, in the case of emergency, and in co-operation with the State Civil Defence Organisation, Members of the Division's Wireless Institute Civil Emergency Network are participating in weekly exercises on a State-wide basis with the Divisional Station VK2WI as Central Control. Also the use of Mobile Stations in conjunction with home-based stations is being organised and further exercises planned.

During the year, apart from local functions organised by the various sections, there are six main Divisional functions:

- (1) The Annual Convention held on the Australia Day week-end in January (Eighth Annual was held at VK2WI Dural on Jan. 25, 1958. Attendance was close to 250.)
- (2) The North Coast Convention at Urunga at Easter.
- (3) The Hunter Branch Annual Dinner and Field Day held on the Six-Hour Day week-end, in October.
- (4) South-West Zone Convention, generally held on the Six-Hour Day week-end and is held in various places in the Zone.
- (5) Blue Mountains Section's Field Day, late October at Katoomba.
- (6) Central Coast Section at Gosford during November.

The Membership of the Division at the time of going to press was nearing the 1,000 and it is anticipated that by now that figure has been exceeded as the average monthly rate of increase from March to the end of August was 28.

Membership Fees:
Full Member, £2/2/0.
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Full details of any of the Division's activities can be obtained from the Secretary, Box 1734, G.P.O., Sydney.

Members holding office in the various sections of the Divisional organisation in 1958 are listed, but there are many more who, through their efforts, both in the past and at present time, have helped to make the VK2 Division what it is today.

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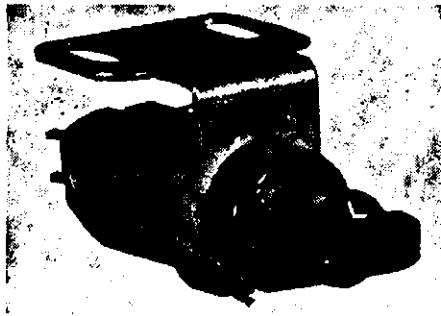
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Applications of the Grid Dip Oscillator*

By E. MILES BROWN, W2PAU, in collaboration with W. M. SCHERER, W2AEF

WHEN, in the course of Hamming events, it becomes necessary to seek out the cause of t.v.i., parasitic oscillations and off-frequency warnings; when that new antenna won't load the rig; when you need an r.f. signal to test out the new pre-amp.; when your home workshop special does not work the way the article said it should; when by-passes just don't by-pass—then brother, you reach for the "grid dip oscillator"! Small wonder that this simple device has won a place near the top of the list of test equipment necessary for proper operation of a Ham Station.

The fields of application of the grid dip oscillator are apparently limitless. Several articles on this subject have already appeared in periodicals and a wealth of information is available in the instruction books supplied with the commercial and amateur versions of the instrument. But, despite this thorough coverage of the subject, "CQ" still receives many requests for additional information on how to use the "dipper". It is also surprising to see how often we note a fellow Amateur struggling to get an answer to his particular r.f. measuring problem, using a grid dip oscillator under conditions where it could not possibly do a good job.

The purpose of this article is to review some of the previously published material on the use of grid dip oscillators, and to attempt to point out some of the possibilities for confusion that might be encountered in their use.

GENERAL CIRCUIT DESCRIPTION

In order to operate a device properly one must understand what it is and why it works (women drivers notwithstanding!). So let's spend a little time on the general subject of grid dip oscillator design.

It is certainly safe to assume that all grid dip meters include a tuned circuit. This usually consists of a variable capacitor and a series of plug-in coils which provide a wide-range frequency coverage. The tuning dial should be calibrated—preferably direct reading in terms of frequency. The readability and ease of dial adjustment are important design factors. The accuracy of the dial determines the potential precision of frequency measurements made with the unit. The most expensive commercial jobs are hand calibrated and can usually be relied upon to have a dial accuracy of better than $\pm 2\%$. Somewhat poorer results might be expected from a unit with a pre-calibrated dial, although the grid dip meters examined by the authors were fairly good in this respect. The accuracy of a home-made device depends on the care taken with the initial calibration and the inherent stability of the components. No instrument of this type will remain accurate under conditions of extreme abuse, so don't expect precision from a unit which has been dropped on the floor hard enough to deform the case or con-

denser frame, or from a coil that has been too intimate with a hot soldering iron! Lastly, keep in mind that the grid dip meter is not designed to be a frequency standard.

The tuned circuit section of the grid dipper may be used as a passive absorption wavemeter. This possibility is noted here because it is often convenient to use the unit without plugging it into a power source.

The tuned circuit must be used in connection with some form of oscillator. Almost any type of oscillator circuit may be used. The most popular one for this application seems to be the Colpitts, using a split-stator tuning condenser connected between the grid and plate of a triode oscillator tube. This circuit offers possibilities for good high-frequency performance, as the tube capacitances are effectively in series. It also provides reasonably uniform feedback across the tuning range. By using resistors, rather than chokes, in the grid and plate leads, the number of stray resonances may be minimised.

The Colpitts circuit is not too well suited for very low frequency operation, but fortunately it can be converted into a form of Hartley oscillator by the addition of a coil centre tap.¹ The Colpitts has another advantage for dipper applications—both sides of the coil are "hot" with respect to ground. This implies that r.f. energy may be coupled from either end of the coil using loose capacitive coupling.

It is worthy of note that the sensitivity of the meter has some bearing on the ultimate sensitivity of the instrument when used as an r.f. voltmeter (more on this point later). In general, it is desirable to use a sensitive meter to provide good up-scale indications of grid current without the necessity of running excessive power in the oscillator circuit.

With a tuned circuit, a tube, and a meter, we have the makings of a tuned r.f. voltmeter. Fortunately, the circuit changes necessary to adapt the oscillator to this function are very minor. The grid and cathode of the oscillator tube can act as a diode rectifier, to measure the r.f. voltage developed across half the tuned circuit. This is accomplished by simply removing the plate voltage from the oscillator. The sensitivity of this type of r.f. voltmeter will depend to a certain extent on the meter used. However, there is a definite limit to the sensitivity that can be realised, since in any simple vacuum tube diode detector, the phenomena of "emission potential" produces a small meter reading even under no-signal conditions. Signals which are small compared to this "emission potential" will generally be masked by it. This is the chief reason why most conventional grid dip meters are limited in their ability to detect weak r.f. signals. Secondly, the relatively high grid-leak resistance required for good oscillator operation tends to limit the sensitivity.

SENSITIVITY CONTROLS

To enable the r.f. meter to handle a wide range of input voltages, some sort of sensitivity control is desirable. This control is also of value in setting the indication of oscillator grid circuit to a mid-scale value. (Despite the best efforts of expert designers there is bound to be some variation of activity across any given tuning range, with the oscillator usually becoming least ambitious on the higher frequency ranges.) A variable resistor, connected as a shunt across the d.c. meter, or as a multiplier in series with it, will serve the purpose. This type of control reduces the meter sensitivity.

Given the basic tuned-circuit/r.f. voltmeter/oscillator combination described above, certain refinements practically suggest themselves. If we're going to use the unit as an r.f. detector, it might be nice to arrange a system for plugging a pair of headphones into the detector circuit to provide a means of listening to the signal being detected. This converts our instrument into a passable phone transmitter monitor. If the headphones are left in the circuit when it is switched to the oscillating condition, we have the equivalent of a regenerative receiver, which can be used for monitoring the frequency and tone of c.w. signals.

Since the oscillator generates an r.f. signal which may be used for testing receivers, etc., it might be desirable to provide some system for applying modulation to the signal. Though a modulated oscillator probably won't produce the highest quality type of a.m. signal, it still might be useful for tests involving the receiver audio system, or for detecting and identifying the grid dipper signal.

AS FIVE BASIC INSTRUMENTS

Summarising the material outlined above, we have shown that the grid dipper is a device capable of serving as five basic instruments:

1. Grid Dip Oscillator (g.d.o.)

A calibrated r.f. oscillator equipped with a meter indicating the oscillator activity.

2. Oscillating Detector

Equivalent to a simple regenerative receiver for detecting r.f. signals by the heterodyne method using headphones.

3. Non-oscillating Detector

For the detection of r.f. signals using the built-in meter to measure relative signal strengths, or using headphones to detect the presence of a.m. on the signal.

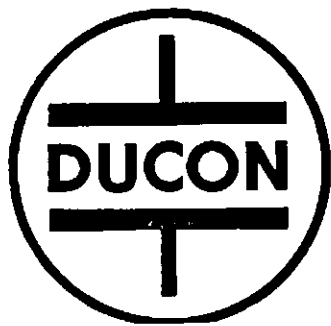
4. Signal Generator

To generate strong r.f. signals of known frequency. Modulation, if provided, will probably be a combination of a.m. and f.m.

5. Absorption Wavemeter

A passive calibrated tuned wavemeter.

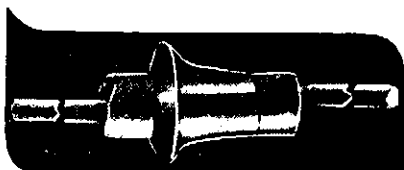
¹ "Extending the Range of the Grid-Dipper," Scherer, "CQ", April 1950.



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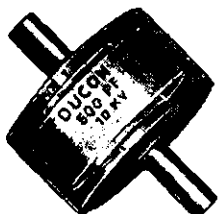


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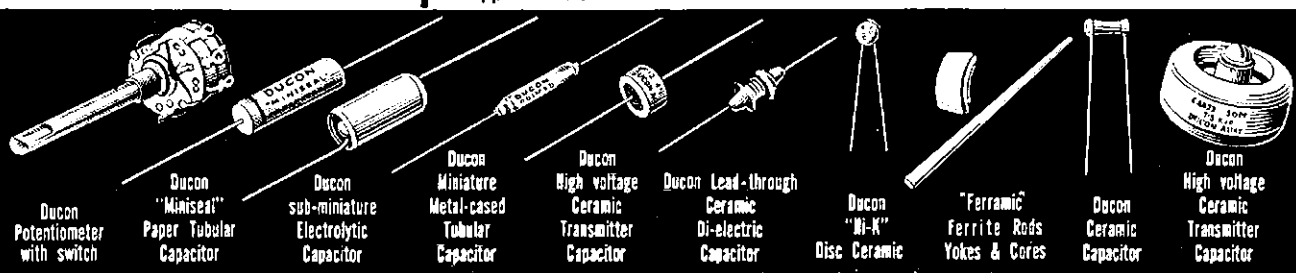
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THE GRID-DIP FEATURE

Let's first consider the possibilities of the unit operated as a grid dip oscillator. When an oscillator is coupled to a circuit which is capable of taking r.f. power from the oscillator, its activity will decrease. This is analogous to the situation encountered in a transmitter output stage—when an antenna is coupled to the transmitter and starts to draw power from it, the amount of r.f. voltage floating around in the final tank is reduced. Obviously, if the load circuit is tuned, it will accept power more readily at the particular frequency where it is resonant. If the grid dip oscillator is coupled to a non-resonant type of load (such as a low inductance link feeding a pure resistance) power will be accepted by the load over a wide range of frequencies, and the effect on the oscillator will be a general reduction of grid current regardless of the oscillator dial setting. It may be virtually impossible to detect resonant effects in a circuit of this nature. If, on the other hand, the oscillator is coupled to a low-loss parallel-tuned L/C circuit, power will be absorbed most efficiently at the resonant frequency of the load circuit, and a well-defined dip in the oscillator grid current will be noted as the oscillator is tuned across this frequency. The higher the "Q" of the coupled circuit, the sharper the dip.

Any electrical circuit which displays resonance effects may be investigated using the grid dipper. Parallel-tuned L/C circuits, sections of r.f. transmission lines, quartz crystals, antenna elements, filter sections, r.f. choke coils (with distributed capacity), r.f. by-pass capacitors (with lead inductance), stray resonant circuits formed by long wiring leads and their associated stray capacitances . . . the list is probably endless. Before attempting to use the grid dip oscillator to check the resonant frequency of any electrical system, it's quite important to figure out in advance just what sort of circuit is involved. Unless one can visualise the nature of the resonant circuit, it is difficult to determine how to couple the power output of the grid dipper into it.

SINGLE TUNED CIRCUITS

Let's take a simple example—a parallel-tuned circuit consisting of a coil and its tuning capacitor. In practice, this arrangement is frequently encountered in oscillators, transmitter interstage and output tank circuits, wavetraps, v.h.f. receiver front ends, antenna tuners, etc. From experience with transmitter circuits, most of us know how such a circuit behaves when power is fed into it at its resonant frequency. If one end of the coil is grounded, high r.f. voltages appear on the other end. If the coil has a centre tap and this is grounded, both ends of the coil become hot with respect to ground. Most of us are also familiar with the means used to transfer power from one tuned circuit (the g.d.o. coil) into another (the circuit under test). If we can get the driver coil close enough to the driven coil we can provide mutual-inductance coupling between the coils. Tightest coupling will exist when the driving coil is actually placed inside the driven coil, with the coil axes parallel. Some degree of

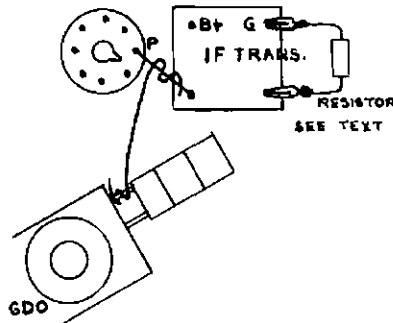


Fig. 1.—Method of checking the resonant frequency of a double-tuned shielded i.f. transformer. Note the clipped-in resistor across the other winding of the transformer, and the use of a short piece of hook-up wire wrapped around the coil prong of the grid dipper, which provides coupling into the shielded circuit.

coupling may be obtained by placing the coils side-by-side, with their axes parallel. And that's the logical way to approach a simple single-tuned circuit with the grid dip oscillator.

However, suppose the coil is inside a shield can, or is so arranged that we can't move in close enough to it with the dipper coil? Well, what do we do in a transmitter in order to get power from a driver stage into the following grid coil when we can't arrange the layout so the coils are close together? One way out is to use capacitive coupling. Since both the grid dipper tank circuit and the circuit under test are high-impedance circuits (at resonance), the amount of coupling capacitance required to transfer power between the hot ends of the coils may be very small.

Occasionally, adequate capacitive coupling may be obtained by bringing the end turn of the dipper coil, or one of the coil plug leads, close to a hot lead on the tuned circuit under test. If this is not sufficient, a little extra capacitance may be added in the form of a "gimmick" (Fig. 1), made by wrapping one end of a short length of insulated hook-up wire around one of the coil prongs of the dipper, and the other end around one of the hot leads on the tank circuit under test. The loosest possible coupling should be employed, since the added stray capacitance on the grid dipper coil will tend to upset its dial calibration. The wire should be insulated at both ends—it merely provides a small amount of coupling capacitance and an extension lead between the dipper and the circuit under test.

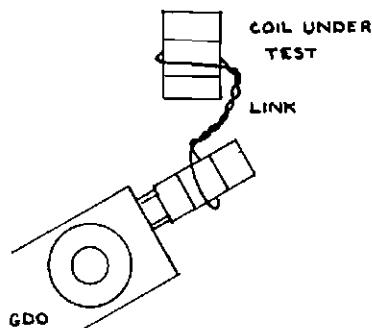


Fig. 2.—Coupling by means of a short link.

Another means of transferring power between two widely-separated tuned circuits is by link coupling (Fig. 2) and this system may also be used with the grid dipper. In fact, some commercial models of the dipper are furnished complete with a small link-coupling device. In general, the links should be small, and exhibit as little self-inductance as possible, in order to avoid resonance effects in the links themselves. The transmission line between the links should be short, for the same reason.

It often happens that the parallel-tuned circuit under investigation is not composed of a single coil and compact capacitor, but rather consists of stray-type reactive elements. For example, we often employ r.f. choke coils to serve as blocking devices to prevent r.f. currents from flowing into a circuit. It is desirable to have an r.f. choke look like a very high impedance at the frequency it is supposed to block. The highest impedance obtainable in an r.f. choke occurs when it looks as if it were a parallel-resonant circuit. Resonance effects are present because the distributed capacitance between coil turns acts like a tuning capacitor across the coil winding.

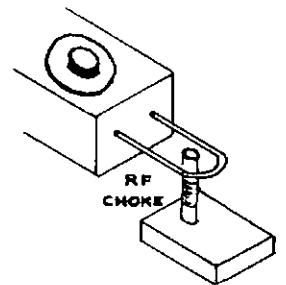


Fig. 3.—This is the method of determining the natural resonant frequency of a common v.h.f. r.f. choke coil. In this case, the choke is acting as a parallel-tuned circuit, in which the capacitance is formed by the stray capacitances between the individual turns of the coil. Note that both ends of the choke coil should be insulated from ground and dressed away from grounded objects.

We can therefore treat the r.f. choke like a combination of inductance and capacitance, and "dip" it just like any other tuned circuit. In Fig. 3, which illustrates this application of the dipper, mutual inductance coupling is employed, and both terminals of the choke coil are insulated from ground. Multiple-winding chokes may display more than one resonance.

The converse of the case just described might be a capacitor with distributed inductance in its leads or internal structure. In an r.f. by-pass circuit we generally desire the lowest possible impedance from the by-passed point to ground. At low frequencies, most capacitors look and act like capacitors—the effects of lead lengths, etc., are negligible. But at very high frequencies, the inductive effects are noticeable, and the impedance of the by-pass actually rises with increasing frequency. It is often handy to know at what frequency the inductive and capacitive effects tend to cancel out and produce the best by-passing action. This can be checked by connecting the ends of the capacitor leads together to form a one-turn loop, which can be treated as a simple parallel-tuned cir-

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cuit. The dipper can then be inductively coupled to the single turn loop (Fig. 4).

The resonant frequency as determined by this method is actually the frequency of best by-passing action, but it should be remembered that at frequencies above the resonant point the capacitor acts more like an r.f. choke! The approximate resonant frequency depends so much on the type of capacitor being choked that it is impossible to estimate the frequency range in which you should start looking; typical paper-roll type units may resonate in the low megacycles, micas may go up into the hundred megacycle or so range, and some of the tiny ceramic units now available will probably resonate beyond the range of most Ham dippers!

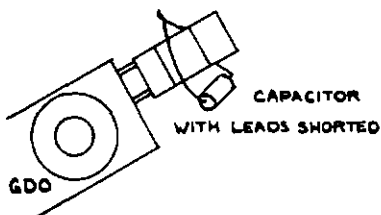


Fig. 4.—Using the g.d.o. to check the resonant frequency of a paper tubular capacitor with the leads short-circuited. The dip may be hard to find on some units because of their high Q at resonance.

Even the simplest single-tuned circuit displays "parasitic" resonances. The coil, as we have pointed out, has distributed capacitance between its turns. The leads to the tuning condenser and the frame of the condenser have inductance. Thus, in addition to its main, low-frequency resonance, the circuit will exhibit additional resonances where the v.h.f. effects come into play. Such resonances are often a serious problem in high-powered transmitter circuits where the components are necessarily large. Coupling the grid dipper to these "invisible" resonant circuits is a problem that requires the use of good judgment and common sense, because it is next to impossible to predict just where the "coil" section of the parasitic resonance is located and where the "condenser" is! In fact, these circuits quite often do not take the form of "coils" and "condensers" but rather are more similar to transmission lines; a condition which merits a separate discussion.

To best approach such a set-up, couple the grid dipper coil as closely as possible to the wiring loop formed by the leads between the coil and the capacitor. In the case of a transmitter, the "capacitor" might well consist of the tube capacitances and not the big variable! After a little experience you'll be able to judge quite accurately where the long leads will resonate, and where the "hot spots" of the parasitic circuit are located. There's no set rule. We can't even say that the plates of the tubes are "hot" at the v.h.f. resonant frequency because of the long leads inside the tube. Fig. 5 shows a typical approach. We were able to couple sufficient energy by placing the dipper coil close to one plate lead, which probably gave a combination of inductive and capacitive coupling. Here's a good point to remember: when such a situa-

tion as this exists, it is often possible to increase the coupling by reversing the position of the coil in the grid dipper—it may produce addition, not cancellation, of the two modes of coupling.

It's wise to spend a little time after you build a new rig searching out the various stray resonances. It pays off. The unit had a strong resonance right in the middle of t.v. channel 7. It would have been a darned sight easier to make minor changes in the wiring layout to QSY that peak to a less occupied frequency than it would be to shield the entire transmitter to the extent that would prevent radiation of the strong channel 7 harmonic! By luck, however, the grid circuit of this particular rig resonated on a different frequency. If it had resonated on channel 7 also, think of how difficult it would have been to clean up that tendency of v.h.f. oscillations.² Similar remarks apply to receiver circuits. It took a grid dipper to locate the stray resonance in an r.f. choke used in the plate circuit of our two-metre r.f. amplifier which was causing said r.f. stage to pass along more noise at the i.f. of 7 Mc. than signals at 144 Mc.!

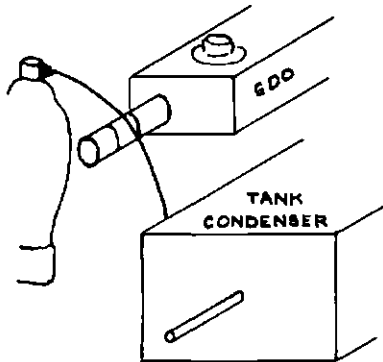


Fig. 5.—Checking the frequency of a stray resonant circuit formed by the leads between the plate cap and the associated circuit elements in a medium power transmitter. The coupling in this case is probably a combination of inductive coupling to the loop formed by the leads, and capacitive coupling between the dipper coil leads and the plate cap of the tube. It was no surprise to find it resonating in the middle of t.v. channel 7!

Before leaving the subject of single-tuned circuits, a few practical operational tips are in order. Generally, when attempting to "dip" circuits associated with tubes, the filaments as well as the plates should be off. This is due to the fact that the grid and cathode of any tube act as a diode. This diode, connected across a tuned grid circuit, can so "de-Q" the circuit that the dip on the g.d.o. meter may be broadened beyond the point of recognition. Another illustration of this problem is the input coil of a grounded grid r.f. stage. Under normal operating conditions the coil acts as if it is loaded by a parallel resistance of about 100 ohms! It's vitally important, however, for proper performance of the stage, that it be tuned to resonance.

Antenna coupling circuits (in transmitters and receivers) should be checked without the antenna connected, at first, since the antenna will load the

coil and may introduce spurious resonance effects. At the higher frequencies, when the antenna is disconnected, the coil will most likely be detuned because of stray reactances in the antenna connector system. We usually pull out the input link or un-solder the tap on the input coil to be on the safe side.

When working in the close confines of modern miniaturized chassis, it may be hard to tell whether the grid dipper is actually coupled to the desired tuned circuit or to some other circuit resonant near the same frequency. The quickest way to check this point is to de-tune the desired circuit slightly, using its trimmer, or by touching a "hot" section of said circuit with the tip of a wooden lead pencil. (We've found that a "subtle" de-tuning of this nature is more indicative of resonance on the v.h.f. bands than the "brute force" method of shorting the coil with a metal screwdriver or the like. Admittedly, more drastic de-tuning than the pencil provides may be required on low-Q low-frequency circuits!) This sort of test probing may also furnish interesting information on the distribution of r.f. voltages around the circuit. The "hotter" the point of contact of the pencil tip, the more noticeable the reaction of the grid dip meter.

TRANSMISSION LINES

In some ways, transmission lines act like simple tuned circuits. Consider a length of transmission line with one end open-circuited and the other short-circuited. At some frequency this line will appear to be quarter-wavelength long. If power is coupled into the transmission line at this frequency, the line will behave like a simple parallel-tuned circuit. A high r.f. voltage will appear across the open-circuited end, and high current will flow through the short circuit.

Knowing the physical length of a transmission line and the "velocity of propagation" factor for that type of line (obtainable from the handbooks or the manufacturer's catalogues), we can calculate the frequency at which the line will be a quarter-wavelength long. On the other hand, knowing the resonant frequency (which we can easily measure with the grid dipper) we can determine the effective length. A full wavelength in space (expressed in metres) is equal to 300 divided by the frequency in megacycles. To convert metres to inches, multiply by 39.4. The wavelength in a transmission line is less than the wavelength in free space, so to get the length of transmission line equivalent to a wavelength in air so we simply multiply the wavelength in air by the "VP" of the line; which may run around 0.66 for flexible coaxial line, around 0.80 for twin lines, about 0.99 for open-wire lines, etc.

The grid dipper can be coupled to a shorted section of transmission line by considering the shorting jumper as a low inductance link, and coupling the dipper to it. In the case of co-axial cable, it may be necessary to form a small loop of the inner conductor outside the shield when short-circuiting the line, to provide a link to couple into. If it's impossible to get at the shorted end of the line, measurements may be made at the open end, by using capacitive coupling techniques as described

² Orr, "The Pursuit and Elimination of Parasites", "CQ", Dec. 1950. This is a must for the transmitter designer!

for simple tuned circuits. This method is disadvantageous in that the added capacitance de-tunes the transmission line as well as the g.d.o.

A transmission line which is not short-circuited at either end can resonate as a half-wavelength section. To check this mode of resonance, we should couple to the centre of the line, though it may be difficult to obtain enough coupling. Try reversing the coil, if at first the dip is not sufficient. Obviously, in the case of co-axial lines at half-wavelength resonance, we cannot couple in the centre, so we must couple on an end, using capacitive coupling techniques.

Everything that was said above with regard to quarter-wave line sections also applies to $\frac{3}{4}$, $\frac{5}{4}$ and any odd number of quarter-wavelength sections. In addition, everything that was said about half-wavelength lines also applies to full-wavelength, $1\frac{1}{2}$ wavelengths etc. lines. Thus, it is necessary to do a little preliminary calculation to estimate in what general frequency range the line under test will act as a quarter-wavelength line, or what have you. If the physical length of a section of line is not known, a link can be hooked across one end, the other left open, and a series of checks made to check the various odd-quarter-wave resonances. From these readings the fundamental resonance can be found.

For example, suppose we had a roll of RG-8/U (52 ohm), and wanted to determine its length (Fig. 6). Coupling the grid dipper into a short-circuit on one end (better use an ohm-meter to see if the other end is open circuited!) we might find dips at 22.9, 16.3 and 9.8 Mc. Looking for a common denominator in this series, we note that $9.8/3$ equals 16.3/5 and 22.9/7 or 3.25 Mc. A dip would be located at 3.25 Mc. also, if we had looked there. So the line is effectively quarter-wavelength long at 3.25 Mc. or 92 metres. Electrically, it would be a full wavelength at 23 metres. Allowing 66% for the velocity of propagation, the line is then 23×0.66 or 15.2 metres physical length (600 inches). This example also serves to illustrate the numerous modes of resonance that may be encountered when using a non-terminated length of transmission line. Little wonder that they sometimes lead to confusing results in antenna measurements!

Obviously, all these remarks on transmission lines apply only to sections of lines which are actually open or short circuited—if a line is connected to a load such as an antenna, all bets are off! If it is desired to check a line when it is connected to a load on its far end, arrange to short-circuit the load end, and use capacitive coupling methods on the "sending" end. Be sure to use low-inductance leads to accomplish the short-circuiting, otherwise stray inductance in the shorting lead may upset the readings.

COUPLED TUNED CIRCUITS

When tuned circuits are coupled together, the problem of determining the resonant frequency of an individual section of the combination is somewhat complicated. One approach is to separate the circuit under test physically and electrically from the other sections of the network. This is often easy to do in the constructional phases of a

job, but once the job is finished it may be impracticable. For example, in constructing a t.v.i. filter, one might take the trouble to pre-align the individual series-tuned and parallel-tuned traps which make up the filter to the desired rejection frequencies before combining the sections in the final arrangement. (Series-tuned traps, incidentally, can be short-circuited and treated as parallel-tuned circuits.) After assembly of the unit, it is extremely difficult to adjust to the proper trap resonances because in a typical filter all adjustments interact.

It must be admitted that the pre-alignment method described above is not fool-proof. Often the slight changes in tuning which may be involved in moving the components to their final location are too important to neglect. One of the best puzzles we've run into is how to line up the coils of a Wallman cascode r.f. amplifier for v.h.f. use. Essentially, this circuit has three parallel-tuned circuits, wired in series with each other. The capacitors of the parallel-tuned sections usually consist of tube capacitances only. It's well-nigh impossible to separate the components of this circuit for alignment

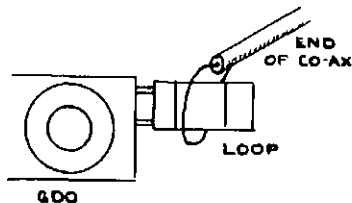


FIG. 6.—This is how the g.d.o. is used to check the resonant frequency of a section of co-axial transmission line open-circuited on one end and short-circuited on the other. This line, about nine feet long, resonated at 19 Mc. The dip will be quite sharp due to the relatively high Q of the line.

with a g.d.o., which simply means that we're still using the old cut-and-try design methods on this circuit! Neither is it practical to separate the primary and secondary windings of a typical r.f. or i.f. transformer; their tuning adjustments interact. The safest procedure in this case is to swamp out the Q of the unused winding by clipping a loading resistor (in the order of about 10,000 ohms) across it. This will also drop the Q of the coil under test but by judicious selection of the value of loading resistance it should be possible to retain reasonable sharpness of dip and still minimise the effects of tuning of the loaded coil.

We might refer back to the paragraph where we mentioned the method of checking for resonance effects, using a lead pencil or the like as a test probe. This method is also valuable whenever coupled tuned circuits are being checked. And don't forget that often it is not obvious that two circuits are coupled—for example, the tuned circuit in the signal input grid of a receiver mixer tube is often coupled (accidentally or deliberately) to the oscillator tuned circuit.

And the antenna feed line is usually coupled to a resonant antenna . . .

ANTENNAE

Much has been said about the use of the grid dip oscillator to tune antennae. It is true that the natural resonant frequencies of a radiating wire

can be determined quite nicely with a grid dipper by treating it in much the same fashion as the transmission lines described above. But when we hear a Ham talking about the way he pre-tuned his close-spaced five-element Yagi array using only a grid dipper, we wonder just how the design was accomplished. Coupled antenna elements are as hard to deal with as coupled tuned circuits. Take an element out of an array and both the element and the array are de-tuned. Even if it were possible to check the individual element resonant points, how would one be sure just what significance this data might have in calculating the directional pattern or feed impedance of his beam antenna? In short, it is the opinion of these writers that grid dip oscillators may be used effectively to test single-element antennae (straight or folded dipoles, ground planes, mobile whips, etc.), but it is extremely difficult to obtain useful data on a beam array with the unaided g.d.o.

Before attempting to test an antenna with the g.d.o., stop to figure out the current and voltage distribution of the antenna. If it is a centre-fed straight dipole, on its fundamental frequency it will be current-fed, and the feed point should be shorted for the test. On the second harmonic frequency the same antenna will be voltage-fed, and to test the array on this band the feeders should be removed and the two sections of the antenna treated separately. A ground plane antenna or a resonant mobile whip is usually fed at a low-impedance point, so the feed point should be shorted. An end-fed Zepp antenna is a tough one to describe because the feed line is actually part of the radiating system. About the safest statement to make here is that precise tuning of the antenna itself or the feed line itself is not generally required in a system of this type. By tuning the feeder reactance at the sending end,

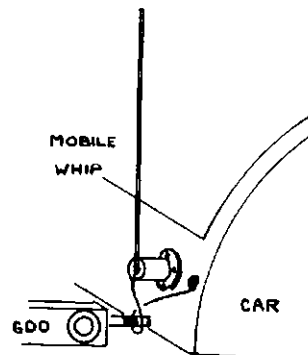
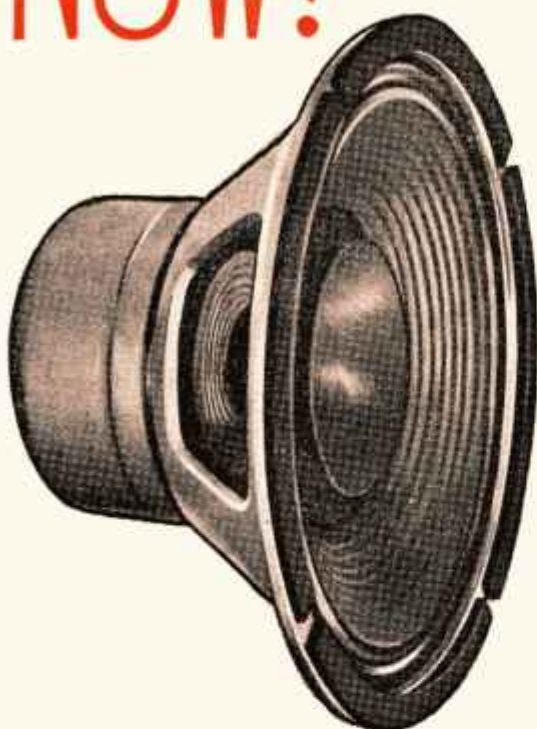


FIG. 7.—This is a popular method of checking the resonant frequency of a mobile antenna. Note that the feeder has been removed (inside the base insulator) and a low-inductance link coil substituted across the base.

with an antenna tuner, one can make the antenna take power, and if there's enough wire up in the air, it will radiate!

To couple the g.d.o. into an antenna: If coupling at a high voltage point use the methods of capacitive coupling described earlier. To couple at a current feed point, the feed line should be removed and a shorting jumper installed in its place. (The line must be removed, otherwise it will represent a resonant system loosely coupled into

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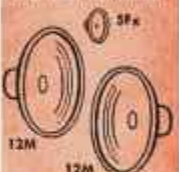
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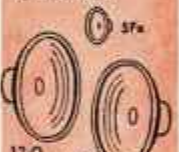
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the antenna because of the fact that the short-circuiting jumper has a finite impedance and allows the feed line to absorb energy at the frequencies where it resonates.) Then the dipper can be coupled into the jumper to check the various modes of resonance of the antenna. In order to provide an easy means of coupling to the jumper, it may be formed into a one-turn link coil (Fig. 7). The length of the wire in the jumper should be very short compared to the length of the antenna, despite this coiling.

When coupling into a high-current point of an antenna element with no split at the feed point (this test would be merely of academic interest, because addition of a feeding system would undoubtedly de-tune the element), it may be possible to obtain sufficient coupling by placing the g.d.o. coil as close as possible to the antenna element. Since this system provides a combination of capacitive and inductive coupling it would be well to try reversing the position of the coil in the grid dipper for best coupling. Another stunt is that of clipping a test lead across a short length of the element at its centre and coupling into this clip lead.

QUARTZ CRYSTALS

If a quartz crystal is connected into the coil terminals of any of the popular Colpitts-type g.d.o. circuits (Fig. 8) the g.d.o. becomes a Pierce-type crystal oscillator. The crystal will oscillate on its fundamental frequency in most cases. (Most crystals up to about 10 Mc. are fundamental cuts. Above this frequency they are likely to be third or fifth overtone units.)

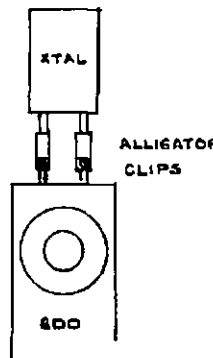


Fig. 8.—Using the grid dip oscillator circuit as a crystal oscillator to check the activity of a fundamental frequency crystal. In this arrangement the dipper circuit becomes a Pierce oscillator. The tuning capacitor should be set at or near minimum capacitance.

The activity of the crystal will vary as the tuning capacitor of the g.d.o. is rotated; peak activity will occur at a point near minimum capacitance setting. The meter of the grid dipper gives an indication of relative activity of various crystals. While the crystal is oscillating in the dipper circuit its frequency can be checked on a calibrated receiver or frequency standard. It should be noted, however, that the operating frequency of a crystal depends greatly on the constants of the circuit in which it is used. In fact, it will be apparent that the tuning dial of the g.d.o. affects the frequency of the crystal signal considerably.

To check the activity of overtone crystals: Energy may be coupled into a crystal from the dipper coil by connecting across the crystal terminals (Fig. 9). At the frequency where the crystal looks like a series-resonant circuit it will produce a very sharp

dip, and the relative strength of overtone modes may be judged by the amount of the dip.³

MEASUREMENT OF CAPACITANCE AND INDUCTANCE

The grid dip oscillator can be used to measure the resonant frequency of a capacitor and inductor. If we know either the inductance or the capacitance in a tuned circuit, knowing the frequency we can calculate the unknown element with a fair degree of accuracy, using the simple resonance formula. Most manufacturers of commercial grid dip oscillators provide figures on the actual inductance of the coils for their units, so the unused coils of a set may be used as inductance standards. It is not hard to build up a collection of accurate capacitance standards. A small variable capacitor calibrated directly in micro-micro-farads is also a handy grid dipper accessory. Certain commercial coils (such as the B. & W. Miniductor line) are sufficiently consistent in production that the manufacturer rates the coil in microhenries per inch. The scientifically-inclined Ham should make an effort to acquire suitable standards of inductance and capacitance for use in conjunction with his grid dipper; it's easy to measure effective r.f. reactances by this technique, though extremely difficult by most other systems available to the Ham.

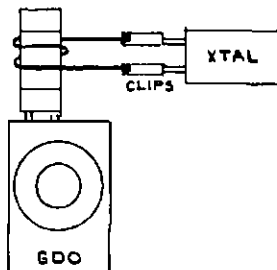


Fig. 9.—We can also use the dipper to check the activity of a crystal on its overtone mode. In the case illustrated, the grid dipper showed that the 8 Mc. crystal also displayed a strong series-resonant effect at 24 Mc.

OTHER FUNCTIONS OF THE GRID DIP OSCILLATOR

Here we are, almost out of space, and we haven't mentioned the other important applications of the grid dip oscillator. This is probably due to the fact that the grid-dip function is so unique to this type of instrument that this particular application is not as widely understood as the others. After all, we've had absorption wavemeters, test oscillators, oscillating c.w. monitors, etc., in our Ham shacks for years, so we'll kinda skip over these points hurriedly.

OSCILLATING DETECTOR

Using the grid dipper as a simple regenerative receiver gives us the most sensitive means of detecting the presence of weak unmodulated r.f. signals. It also provides information on the approximate stability and tone of the signal being received. About the only elaboration necessary here is to caution the reader that he should check the circuit of his particular grid dipper to see whether it is suitable for his type

of headphones. Some circuits require that a resistor be added in parallel with crystal headphones to provide a d.c. return. Other circuits might connect the phones in the B-plus lead, which would be bad for crystal phones. Also keep in mind that the headphones are connected to your head when you're probing around in the innards of a transmitter! **Be careful!**

NON-OSCILLATING DETECTOR OR MONITOR

The dipper may be used as a tuned r.f. voltmeter to detect the presence and approximate magnitude of a signal applied to the dipper's tuned circuit. Every remark which was made relative to coupling power from the dipper into an external tuned circuit applies equally well to the situation in which it is desired to couple power from an external circuit into the grid dipper coil. Numerous applications of this feature will present themselves—the dipper may be used as a field-strength meter obtaining its signal from a small pick-up antenna. It can be used to check the activity and frequency of oscillators in transmitters and receivers. It can be used to search for spurious output signals from a transmitter.

Though the typical grid dip oscillator is not sufficiently sensitive to detect signals capable of causing t.v.i. in the fringe area, it is a valuable tool in tracking down obvious causes of t.v.i. and during the preliminary clean-up processes.

Don't expect to have 100% success in "sniffing" out a micro-watt size signal in the output stages of a kilowatt rig, either. After all, the grid dipper has only one tuned circuit in it, and a single circuit does not provide enough selectivity to permit it to read a very weak signal in the presence of a very strong one even though the frequencies may be quite widely separated. If, in searching for a meter reading on a harmonic frequency of the big rig, you notice an up-scale reading on the dipper meter which seems to be relatively unaffected by tuning, it's probably normal, and due to overloading by the main output signal. This effect may mask the weak signal you're looking for. In spite of this tendency, however, it's surprising how well the dipper shows up spurious off-band signals.

Another point to watch out for in using the dipper as a field strength meter—make certain that the signal shown on the meter is the one you want to read. If the dipper is close to the transmitter it may be receiving most of its input signal via the power lines, or by radiation from the output circuits of the transmitter, rather than from the antenna system. For similar reasons, we have had little luck in attempting to use the dipper to check for standing waves on open-wire antenna transmission lines. It is also extremely difficult to arrange pure inductive coupling (or pure capacitive coupling) to the transmission line, therefore the standing wave pattern measured is likely to be a combination of the r.f. voltage standing wave pattern and current standing wave pattern—not much use for accurate work.

(Continued on Page 46)

³ Simms, "Checking Crystals for Overtone Activity", "QST", Sept. 1951.

IAN NICHOLS, VK7ZZ



THOSE Amateurs frequenting the c.w. portion of the 7 Mc. band recently have probably heard VK7ZZ, Ian Nichols, 9 Cressy Street, New Town, Tasmania. Ian obtained his A.O.C.P. just in time for the Remembrance Day Contest and wasted no time in getting on the air. Nothing remarkable in that perhaps, except that he is totally blind.

Blinded in an accident at the age of six, he attended High School and University where he obtained his B.A. and LL.B. degrees. Although he has been interested in Radio for a number of years, these studies, and later family responsibilities (he has four children) left no time for swotting for his Ham ticket. When the time came Braille copies of the Admiralty Handbook and the A.R.R.L. Handbook were obtained, and early in August an oral examination, conducted by the P.M.G. Department, was successfully passed. The Morse test was taken down in Braille and typed from that by Ian himself. He is now employed in the accounts section and in legal work for the Electrolytic Zinc Co.

For the present he is limited to an input of 10 watts crystal controlled, his transmitter to be built, installed and maintained by sighted Amateurs for

which VK7BJ, VK7KA and VK7OM have made themselves responsible. The transmitter when completed will have provision for four crystal frequencies in the 7, 14 and 21 Mc. bands with an aural tune-up device. The modulator to come later will be built by Ian himself. A special Avo meter for use by the blind is a recent acquisition.

The photograph shows VK77 operating in the R.D. Contest while his eight-year-old son, Robert, looks on. The receiver is a SX16 and on top of this is the transmitter, then being used, a portable/mobile 8 watt rig loaned by VK7CH.

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i.—Contest Period

Phone section—0200 GMT, October 25 to 0200 GMT, October 27.

C.w. Section—0200 GMT, November 29 to 0200 GMT December 1.

ii.—Bands

The contest activity will be in the 1.8, 3.5, 7, 14, 21, 27, and 28 Mc. Amateur bands.

iii.—Type of Competition

1. Phone Section: (a) Single Operator, (b) Multi-operator.

2. C.w. Section: (a) Single Operator, (b) Multi-operator, (c) Novice Operator.

3. Inter-club.

iv.—Equipment

There is no limit to the number of transmitters and receivers allowed, and competitors may use the maximum power permitted under the terms of their license.

v.—Serial Numbers

Phone stations will exchange serial numbers consisting of four numerals, the first two being the RS report, and the last two being their own Zone number. C.w. stations will exchange serial numbers consisting of five numerals, the first three being the RST report, and the last two being their own Zone number.

Stations in zones 1 through 9 will prefix their Zone number with zero (01 and etc.).

vi.—Points

Contacts between stations on different continents will count 3 points. Contacts between stations in the same continent, but not in the same country will count 1 point.

Contacts between stations in the same country will be permitted for the purpose of obtaining a Zone and/or country multiplier, but no QSO points are credited. More than one contact between stations on each band will not be permitted.

vii.—Multiplier

Two types of multipliers will be used.

(a) A multiplier of 1 for each Zone contacted on each band.

(b) A multiplier of 1 for each Country worked on each band.

viii.—Scoring

1. The score for each Single Band is the sum of the Zone and Country multiplier for that band, multiplied by the total contact points on that band.

2. The total All Band score is the sum of the Zone and Country multipliers of all bands, multiplied by the sum of the contact points on all bands.

3. Everyone who sends in a log for a single band is eligible for a Single Band award only. If a log is submitted for more than one band, indicate which band is to be judged, otherwise it will be judged as an All Band entry.

4. Those who submit a log for two or more bands will be judged for the All Band award.

5. A station is not eligible for more than one award.

6. Single operator contestants must show a minimum of 12 hours of operating time to be eligible for an award. If a contestant operates all bands and wishes to be judged for a specific single band, he must show a minimum of 12 hours on that band.

7. Multi-operator stations must show a minimum of 24 hours of operating time to be eligible for an award.

ix.—Zones and Countries

To check your own Zone number and country for scoring purposes, refer to the A.R.R.L. or "CQ" list as well as the W.A.Z. map. The continental boundaries used for W.A.C. will be recognized. Should any question arise as to the positive location of a station, the official definition will be final.

x.—Awards

Certificates will be awarded in each section as follows:

1. To the highest scoring station on each Single Band in the following areas: (a) Each call area of the U.S.A.; (b) Each call area of Australia and Canada; (c) All other countries.

2. To the station having the highest All Band score (more than one band) in the following areas: (a) Each call area of the U.S.A.; (b) Each call area of Australia and Canada; (c) All other countries.

xi.—Special Awards

1. A cup will be awarded to the highest scoring Single Operator, All Band, Phone Station in the world. (Donated by W2SKE.)

2. A cup will be awarded to the highest scoring Single Operator, All Band, C.w. Station in the world. (Donated by W2IOP.)

3. A cup will be awarded to the highest scoring Multi-operator, All Band, Phone Station in the world. (Donated by K2AAA.)

4. A cup will be awarded to the highest scoring Multi-operator, All Band, C.w. Station in the world. (Donated by K2GL.)

5. A plaque will be awarded to the affiliated DX Club submitting the highest aggregate score of the scores submitted by its members. (Donated by "CQ".)

6. At the request of the donors, previous winners are not eligible for the 1958 awards. In other words the cups cannot be won more than once by the same station. This, however, does not apply to the plaque award.

7. Also such special or additional awards as the Committee shall choose to make. In countries or sections where the returns justify, second and even third place certificates may be awarded.

xii.—Operating Suggestions

1. Foreign Amateurs, remember, scores are based on the greatest number of Countries and Zones as well as stations worked. Therefore do not concentrate on working only U.S. stations. This is a world-wide competition.

2. DX Stations; it is recommended that you give the call of the station you are working at the end of each transmission. This will prevent confusion.

3. Overseas phone operators; it is strongly recommended that you indicate which portion of the phone band, American or foreign, you intend to cover.

4. C.w. stations; calling on or off the frequency of the DX station, must be left up to the individual operator. This is generally governed by the technique of operators at the DX station.

xiii.—Log Instructions

1. In keeping log, fill in Zone number and Country **only first time** it is contacted on each band.

2. Use a separate sheet for each band and a final tally sheet or report form.

3. Keep all times in GMT.

4. All contestants are expected to compute their scores. Logs should be checked for contact duplications and proper point credit before they are submitted.

5. Make sure name and address is clearly noted on each log. Print or type.

6. Each contestant must sign a pledge that all rules and regulations have been observed.

7. If official log forms are not available, it is hoped that a duplicate form will be used. The size is 8½" x 11" with 52 contacts to the page.

8. Copies of the Zone and Country list and log report forms are available from "CQ", address listed below. Send a self addressed stamped envelope, or in the case of overseas stations, IRC coupons. Make sure to include sufficient postage, state how many sheets are needed and allow sufficient time for mailing.

xiv.—Rule Changes

The minimum operating time has been increased to 12 hours for single operators and 24 hours for multi-operated stations. This is a contest, not a leisurely week-end at your hobby.

The Committee is also going to be more critical regarding the observations of the rules and the keeping and scoring of your logs.

xv.—Deadline

All logs must be postmarked no later than December 1, 1958, for the Phone Section, and January 15, 1959, for the C.w. Section.

Send all logs directly to: "CQ Magazine," 300 West 43rd St., New York 36, N.Y. Att.: Contest Committee.

SPlicing 300 OHM RIBBON

Cut the ribbon so that a tab of insulation is left after the conductors are bared for soldering. Overlap the tabs, twist the conductors together and secure the tabs by an adhesive or by bonding with a hot soldering iron.

—H. Fanckboner, W9BPS, "QST" Jan. '58.



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 A.W.A. Valve Voltmeter, 1.5v. to 150v. A.C. operated. £15

VALVES, CRYSTALS, AND OTHER EQUIPMENT—SEE THE INSIDE FRONT COVER OF THIS ISSUE

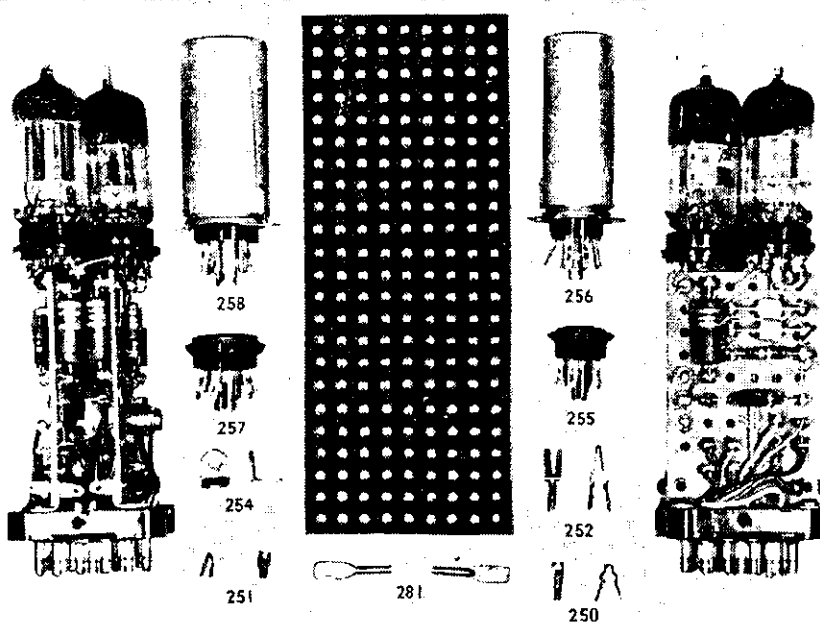
3BZ Transmitter, complete with valves, 12v. operation £15
 AT5 Transmitters, as new, with valves & dust covers, £8/17/6
 BC455 and BC454 Command Receivers, air tested, with valves, 6 to 9.1 Mc., £5; 3 to 6 Mc., £6.
 AT5/AR8 Aerial Coupling Units, as new £2
 AR8 Communications Receivers, as new, with valves and dust covers £20
 AR8/AT5 Cables, 12 ft. long 10/0
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THE IMPROVED DIPPER

(Continued from Page 14)

end of the coil with the Dipper capacitor set at maximum.

Then, for point to point calibration, the absorption meter is set at the desired frequency and the Dipper capacitor rotated until dip is indicated. The scale should be marked accordingly, using a hard sharp pencil and the special calibrating dial. The marker points may be inked after calibration. As mentioned previously, the grid current will vary gradually over each range; however, resonance is indicated only at the point where a pronounced dip occurs.

When calibrating with a receiver it is merely necessary to turn on the receiver beat oscillator and tune in the Dipper signal. Care must be taken so as not to become confused with harmonics or receiver images. Calibration points are marked according to the Dipper beat heard on the receiver, instead of observing the grid meter dip.

The instrument may be checked against itself in the following manner: Set the Dipper at 1.75 Mc. and tune in the second harmonic at 3.5 Mc. Then, with the receiver left tuned at this point, set the Dipper at 3.5 Mc. as indicated on its scale. The signal should then be heard on the receiver without any further tuning. This should be repeated at 7 Mc., etc., right down the line. If WWV can not be heard at the higher frequencies, the instrument may be set at a lower WWV frequency and then checked on the harmonics in the above manner.

If an absorption meter or receiver is not available for use at the highest frequencies, Lecher wires may be set up and the same procedure followed as with the absorption meter. For general calibration a signal generator may be employed by listening for the generator beat on a pair of phones plugged into the Dipper. With the lowest frequency coil there is about a 2% error with the phones plugged in due to the addition of the 50,000 ohm resistor in the grid return. On the other ranges, the error is negligible and may be discounted.

It must be remembered that the accuracy of the Dipper cannot be any greater than that of the calibration source and the care exercised during calibration. When employing the Dipper, greatest accuracy is realised when the probe coil is placed as far away as possible from other metal objects and when the coupling to the circuit under test is as small as permissible while obtaining an indication of dip.

[As a 100 pF. miniature split-stator variable condenser is rather hard to obtain, some improvisation may be necessary. Ham Radio Supplies have available 105 pF. miniature variable condensers (screwdriver adjustment). By making a "U" bracket and mounting the two condensers inside the bracket, back to back, the two rear rotor shafts can be joined by a sleeve and solder sweated. Then a shaft should be made to slip over the collar on the front of one of the condensers to tune the pair. Make the connection to the collar a tight fit. Of course the usual Amateur ingenuity will find many other means of connecting two of these condensers to form a split-stator condenser.—Editor "A.R."]

AMATEUR TELEVISION

(Continued from Page 25)

Under high speed sweep, at low repetition rates, the trace is of course very dim, as the beam is blanked off most of the time, the active time in the example above is only one in a thousand.

Triggered Sweep

This has to be calibrated in time (duration) and the sweep length adjusted to 4". Assuming all duration capacitors (S8A) have been checked on a bridge before fitting, set duration to 100 μ secs. position. Inject a c.w. signal from a signal generator at about 50 Kc. Adjust sync. gain and trigger threshold controls as necessary for a stable display. Either positive or negative trigger will do. Adjust the signal generator frequency to display an exact integral number of cycles—say 5. The frequency then should be 50 Kc. If not, adjust the two triggered sweep charging resistors shown as 500K and 100K in series, until 50 c.p.s. gives exactly 5 cycles. When correct on one range, it will be correct on all others.

To adjust trace length to 4", adjust the values of the capacitors on S8E to give the correct length, the values shown being nominal. The higher the value, the shorter the trace.

Trigger Delay

This assumes the three capacitors have been checked to give a 1:10:100 ratio, absolute values being nominal. Inject a 15625 c.p.s. signal (your line pulses) and display on the 400 μ sec. duration setting. Use positive trigger on positive pulses, and the reverse, although triggering will occur in the reverse sense, the leading edges are usually sharper. Switch delay to X1. Using "MICROSECOND" dial, shift second pulse to the position of the first. This point on the dial is 64 on X1, and 6.4 on X10. Shift the third pulse to the position of the first. This is 132 on the X1 scale, and 13.2 on X10. With these datum points, use a signal of 100 Kc. to provide 10 μ sec. points

right round the dial rotation, by shifting one complete cycle left for every 10 μ secs.

This c.r.o. is an ambitious project for someone new to oscillograph construction, but for the experimenter moving into Amateur t.v., it is no more tricky than anything described before. It is a versatile instrument and will become your right hand.

Next month I will conclude this series with a description of a television transmitter.

CORRESPONDENCE

YOUR HELP PLEASE

Editor "A.R.," Dear Sir,

I am an s.w.l. member of the N.Z.-A.R.T. (N.Z. Amateur Radio Transmitter) as well as being an active commercial bands DXer.

The reason for writing is that I will be in Australia for several weeks (approx. six) at the end of the year. At least, will be arriving in Sydney on New Year's Eve.

I am anxious to meet as many s.w.l.'s. as possible, and any Hams, too, to say hello. I am trying to plan the tour well before I leave ZL. I intend to spend a week in each State.

—Basil Coombe, P.O. Box 377, Palmerston Nth., N.Z.

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TRANSISTOR H.F. RECEIVER

(Continued from Page 8)

(see coil table). The antenna is tapped at 13 turns through a 75 pF. capacitor. Tracking capacity of 150 pF. was required.

The next switch position (position 2) accommodates the 12 Mc. to 8.4 Mc. coil. On this band the antenna is tapped to the primary at 4 turns through a 50 pF. capacitor. The tracking capacity required was 470 pF. The coil details are to be found in the table.

By using an oscillator coil tunable from 7.25 Mc. to 6 Mc., r.f. injection of harmonics in the range 14.5 Mc. to 12 Mc., it is possible to tune the 14 Mc. band with quite good results.

Both mixer and oscillator coils use 3-30 pF. trimmers for correct frequency adjustment.

HINTS

Current drain from a 6 volt supply without signal is 14 mA. On very strong signals the current rises to 45 mA.

It is advisable to use transistor sockets, as it makes it easy to change transistors around. If the transistors are soldered into place, there is the danger of them being damaged by excessive heat.

The thermistor R32 is used to protect the OC72 class B audio transistors. Don't leave it out. The potentiometer R31 is adjusted until the OC72s draw 1 mA. each.

The receiver is very quite in operation. Without an antenna, the set sounds dead, there being no hiss level. Once the antenna is connected, the set becomes quite lively.

The complete set measures 12" long, 4½" wide and 7" high.

One final point. Be sure to by-pass the battery supply, both in the receiver and test set. About 2 µF. should prove satisfactory.

The author would be pleased to hear from anybody who may construct this receiver, or answer any queries.

[2N112 and 2N138 Transistors are no longer current types. They are replaced by the 2N485 and 2N632 respectively. See advert on page 18 this issue.—Ed.]

THE TA2 SPECIAL

(Continued from Page 17)

Before closing, just a few words on the audio requirements are in order. The use of a conventional speech clipping followed by an audio filter (approximately 3000 cycles cut-off) is advised for best results. However, this is not a "must" requirement. Finding an audio transformer with a ratio between 1:2 and 1:3 having a split secondary is not an easy job. The compromise suggested by George Grammer, using two transformers with the primaries in parallel and the secondaries in series works well in my rig. Shunt feed, using two filter chokes approximately 10 to 20 henries at 10 Ma. or more should do as another possibility. Tubes requiring low screen grid voltage are easy to drive so one or two watts of audio should be enough for 6BQ6s. My audio set-up was designed for 807s which required a relatively high screen grid voltage and provided much more audio voltage than is required by 6146s. Three to five watts should be ample for these tubes.

My hope is that this will get the ball rolling for d.s.b.s.c. and d.s.b.r.c. If so, maybe we will hear more talk and less carrier on the DX bands of the future.

Last, I would like to give credit to K7BGS (my XYL), though still not convinced that suppressed carrier phone is here to stay, she has been very tolerant of my disruptive influence around the Ham shack.

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- 2 Grammer, George, "DSBRC" Part I. and II., "QST" May and Jun. 1951.

G.D.O. APPLICATIONS

(Continued from Page 40)

If you're trying to measure percentage change of voltage or field strength, it's best to run the sensitivity control in the fully "on" position due to meter linearity.

SIGNAL GENERATOR

There are plenty of times when it's handy to have a wide-range medium-powered signal source in the Ham shack. You can use it for numerous receiver tests. The signal can be substituted for the normal oscillator signal of a superheterodyne receiver if it is suspected that the oscillator is out of order. Why build an oscillator for that breadboard receiver you're experimenting on, if you have a dipper on hand already? You can put the dipper on a local t.v. channel and proceed to go out and mow the front lawn just to prove to the neighbors that your transmitter isn't the only device that can produce t.v.i.! Or you can inject the relatively pure output signal of the grid dipper into a t.v. set to demonstrate that sometimes a clean signal on an authorized Ham frequency can cause t.v.i. You can also use the oscillator of the dipper to drive antenna measuring equipment, such as the "Antennascope".

Some models of the grid dip oscillator provide means for modulating the signal emitted by the device. Others are arranged so that a modulating signal from an external source may be inserted into the headphone jack. Better check the design of your particular dipper, before attempting to modulate in this way.

ABSORPTION WAVEMETER

One of the earliest devices for measuring wavelength of a signal was the absorption wavemeter. The dipper, whether it is plugged into the power line or not, may be used as a simple L/C tuned circuit to suck power out of any circuit carrying r.f. current. One precaution should be observed while using the dipper in this fashion around high powered (or even moderately-powered) transmitter stages. Do not couple enough power into the device to flash across the insulation of the internal wiring. The old-fashioned absorption wavemeters had little inside the box except the tuning condenser, and it didn't particularly matter if that flashed over. The dipper, however, has a tube socket, several small coupling capacitors (which may also be used to insulate the unit from the power line) and a tube, all of which may be damaged by application of excessive voltages, so take it easy!

It would not be possible to include all the potential applications of such a versatile device as grid dip oscillator in an article of this type. For further information refer to the articles mentioned in the footnotes, and study the instruction booklets available from manufacturers of these instruments.

APPRECIATION EXTENDED

The publishers of "Amateur Radio" wish to express their appreciation to J. H. Magrath & Co. Pty. Ltd. for their generous gesture in vacating the front cover so that a special design to commemorate the 25th Anniversary of publication of "Amateur Radio" could be printed thereon.

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PREDICTION CHART, SEPT. '58

Me.	E. AUSTRALIA	W. EUROPE	S.R.	Me.									
0	2	4	6	8	10	12	14	16	18	20	22	24	45
45	GMT											45	
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Listed below are additional subscribers to the Fund to send a Region 3 Amateur delegate to the International Telecommunication Union Conference at Geneva in July 1959.

Amateurs throughout Australia will be pleased to learn that the Postmaster-General has accepted the representations of the Federal Executive of the W.I.A. and has agreed to the Amateur delegate being officially accredited as part of the Government delegation to the Conference.

Many Amateurs may have refrained from sending in their subscriptions as they were not sure of the status of our representative and perhaps thought the monies collected may have been wasted. The recognition of our delegate by the Postmaster-General will now dispel any false impressions that may have been created on this surmise.

Now that official recognition has been made, it behoves every Amateur who has so far not subscribed, to immediately send his donation to:—

**Federal Secretary,
Box 2611W, G.P.O.,
Melbourne, C.I, Vic.**

Our target figure is £2,500—every effort must be made by Amateurs and by Divisions to assist in our endeavours to reach this figure. Your donations, large or small, are equally welcome.

The following is a list of contributions to 31st August, 1958:—

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C. McC. Hicks, VK2ADV.

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Vic. Railways Institute Radio Club, VK3RI.

£5/0/0
A. Fairhall, VK2KB; Moorabbin Radio Club, VK3APC; Townsville Amateur Radio Club.

£3/0/0
R. W. Johnston, VK2AUJ; J. F. Pickles, VK4FP.

£2/15/0
S. Clark, VK3ASC (from sale of wire).

£2/10/0
A. Roudie, VK3UJ.

£2/2/0
L. T. Swain, VK2CS; V. Cahill, VK2VC; A. J. Kelso, VK2WK; W. W. Jenvey, VK2ZO; A. Downward, VK3AHD; R. R. Anderson, VK3UR; L. G. Robertson, VK3WJ; D. H. Goldsworthy, VK3ZDL; J. Wright, VK4AR; C. D. Tilbrook, VK5GL; R. E. Conrad, VK7TR; J. McAllister, N.S.W.

£2/0/0
T. G. Hewitt, VK2LH; S. Fairbairn, VK2ZDF; R. J. Cayzer, VK3ATC; H. F. Bremerman, VK4HB; A. H. Morrisby, VK7MY; R. Sutherland, VK9BS.

£1/10/0
J. M. Endacott, VK3EB; D. Beadel, VK9DB; N. Casey, VK9NT.

£1/8/0
R. Grivas, VK2AQX.

£1/5/0
R. W. Edwards, VK2RE; W. T. Boon, VK2ZAB; H. J. Bracken, VK7BR.

£1/1/0
P. Huigens, VK2AOH; E. M. Simpson, VK2ES; F. M. Stean, VK2FZ; C. E. Bardwell, VK2HR; R. N. Sneddon, VK2WS; C. Gibson, VK3FO; E. Wardle, VK3OO; Mrs. G. Church-

ward, VK3US; R. M. Churchward, VK3VL; Dr. E. Marks, VK3VM; L. F. Shnitzerling, VK4CK; W. J. Robertson, VK4WL; F. B. Bond, VK4ZM; S. J. Smith, VK6SJ; Senator G. Hannan, Vic.; J. N. Paris, S.A.

£1/0/0

R.A.A.F. Radio Club, VK1AF.
T. Isaacs, VK2ABO; C. Orr, VK2ACO; W. Shakespeare, VK2AGF; F. Meyer, VK2AGY; C. Fletcher, VK2ASF; A. Isaacs, VK2AVI; E. Crouch, VK2EC; A. Phipps, VK2EU; R. Black, VK2YA; R. Adams, VK2YR; P. Pearson, VK2ZBB; J. Mackie, VK2ZIM; F. Caton, VK2ABQ; J. Young, VK2OY; E. Hocking, VK2AIE; A. Fox, VK2KF; A. Pict, VK2QE; P. Sara, VK2QV; L. West, VK2EI; A. Mulcahy, VK2ACV; F. Eade, VK2AEE; A. Mastennis, VK2AFE; L. Lee, VK2AQL; C. Jarlett, VK2AZK; N. Young, VK2OS; F. Carruthers, VK2PP; C. Peters, VK2SV; Maj. C. Allen, VK2ALC; D. Kerr, N.S.W.; M. O'Brien, N.S.W.; A. Sullivan, N.S.W.

C. Edmonds, VK3AEE; D. Laws, VK3AMI; G. Wood, VK3AUI; P. Gresser, VK3AVG; C. Donoghue, VK3DQ; L. Kermond, VK3DX; A. Buchanan, VK3PD; A. Goebly, VK3GV; B. Fayle, VK3IW; W. Alder, VK3JE; K. Green, VK3KG; F. Bibby, VK3OL; V. Barnes, VK3OT; A. Crewther, VK3SM; M. Dempsey, VK3WD; Mrs. A. Henry, VK3ML; K. Thomson, VK3ZBT; L. Ion, VK3AIO; M. Tulloch, VK3AKT; A. Faul, VK3EF; J. Keenes, VK3KE; I. Adams, VK3OA; W. Hehir, VK3RE; C. Golden, VK3TI; R. Bailey, VK3ZAO; H. Simmons, VK3ZES; J. Andersen, VK3ZFO; O. Fudge, VK3ZFP; W. Stevens, VK3ZZ; H. Stevens, VK3JO; R. Stevens, VK3OJ; K. Millburn, VK3CW; K. Jane, VK3MG; R.A.A.F. Apprentices Radio Club, VK3APP; V. McKenna, VK3AVM; L. Seedsman, VK3IE; W. Jardine, VK3PR; W. Tregear, VK3TX; J. Belcher, Vic.; J. Hayward, Vic.; G. Orton, Vic.; E. Trebilcock, Vic.; T. Millibourn, Vic.

E. Fell, VK4EF; W. Bestman, VK4LN; J. Young, VK4JY; J. O'Rourke, VK4SO; R. Morris, VK4MT; H. Overend, VK4OH.

R. Simmons, VK5GK; A. McRitchie, VK5CE; H. Bowman, VK5FM; J. Brammer, VK5JN; E. Von Stanke, VK5KU; K. Metcalf, VK5ND; T. Davies, VK5TD; University of Adelaide Radio Club, VK5UA; L. Mullins, VK5XM; T. Drake, VK5DL; H. McCarthy, VK5MC; S. Tauber, VK5SQ; D. Kelly, VK5DK; R. Richards, VK5DO; D. Scott, VK5DS; J. Watson, VK5JW; K. Ring, VK5KH; W. Bulling, VK5KX; C. Othen, VK5ON; R. Scott, VK5RU; N. White, VK5ZAW; B. Warner, VK5ZBI; H. Blythe, VK5ZBL; M. Lane, VK5AO; K. Cahill, VK5KC; E. McGrath, VK5MO; R. G. Edmeades, S.A.; F. Forgie, S.A.

J. Hunt, VK6JD; R. Trew, VK6RP; L. Gooding, VK6ZAH; F. Paget, VK6ZBP.

G. Richardson, VK7GR (omitted from July list); T. Allen, VK7AL; T. Connor, VK7CT; L. Eddington, VK7LS; M. McGinniss, VK7MP; P. Frith, VK7PF; F. Nicholls, VK7RY; M. Sidebottom, VK7SK; R. Harrex, VK7ZAC; D. Thorne, VK7ZAI; R. Milne, VK7ZAL; J. Milway, VK7ZAM.

D. Taylor, VK9DT; W. Holland, VK9BW; M. Ewen, VK9CK; M. Lang, VK9ML; L. Howell, WIA-L8005.

Under £1/0/0

H. Fitzsimmons, VK3FI (10/6); E. King-Smith, VK3AKS (10/-); A. Wrembeck, VK4VO (15/-).

Amendments to Previous Lists

August list: Amend R. F. Giles, Qld., to read £1/0/0.

September list: Amend K. Nutt, VK4XD, to read K. Hutt, VK4XD.

The progressive total as at 31st August is £1,513/19/3.

1957 R.S.G.B. TELEPHONY CONTEST

Poor Entry from Australasia
The first three placings of G Hams were: G3DO, 4140 points; G4ZU, 4060 points; and G2CDI, 3765 points.

The first three placings of the overseas entrants were: VQ4RF, 2120 points; ZD4BV, 1960 points; and OH5PE, 1940 points.

Following are the entries from Australasia: ZL3RB, 1045 points, 18th position in overseas entries; and VK2AKV, 615 points, 29th.

DX

Frank T. Hine, VK2QL
30 Abbottsford Road,
Homebush, N.S.W.

The "DX season" is recommencing. By that I mean that as I prepare these notes, 21 and 28 Mc., which have been rather quiet, are now showing plenty of signals and it is certainly easier to work DX on 21 Mc. than on 14.

The crazy thinking that is going on for A.R.R.L. D.X.C.C. credit is further exemplified by the granting of credit to W3ZA/3W. 3W8AA was a very consistent station on all bands, but was not credited due to F.C.C./A.R.R.L. ban on the U.S. Amateurs working that country. Now that a W is there, credit is given. The operator was previously signing XV5A. A further instance comes to the fore in regard to HB9SI, who is operating for the United Nations Radio at Geneva. The latest information is that he may be granted separate country status and be using the call 4UZA.

If the licensing authorities in U.S. maintain their current policy, the death knell has been sounded for rapid QSOs with DXpeditions. There have been a number of citations issued to U.S. Amateurs, the first commencing from the VK2AYY/LH trip, for their adopting the "de W" procedure. They are required to send the call sign of the station being called. This will prevent what has come to be known as "tailending" when the call of the station calling is sent once as the station in QSO is signing off.

It is pleasing to note a general movement in overseas Amateur Radio journals, to show all times on QSL cards in GMT instead of local times. Those who have taken very active part in DX contests will realise the enormous amount of time taken trying to convert DX local to VK local. Let all VK Amateurs get on this band wagon right away.

I have an interesting article from the Ionospheric Prediction Service, regarding, for those who can remember it, the Geomagnetic storm which occurred on Feb. 11 of this year. This storm, was reported as one of the worst in severity ever recorded, and no advance warning was available of the accompanying ionospheric disturbance. One thing has come out of it all, and that is steps have been taken to prevent getting caught like this again.

NEWS AND NOTES

Starting in Nov. '58 and ending in 1963. OH2HZ and OK2HZ, who are explorers and expeditionists, are starting on another expedition and are going to combine it with a DX-pedition. Proposed itinerary at the moment is: Czechoslovakia, Roumania, Greece, Turkey, Lebanon, Jordan, Egypt, Saudi Arabia, Yemen, back to Saudi Arabia, Kuwait, Iraq, Persia, Afghanistan, Pakistan, India, Sikkim, Nepal, Ceylon, back to India, Burma, Thailand, Malaya, Java, Sumatra, Borneo, Celebes, Australia, Tasmania, New Zealand, New Guinea, many parts of Polynesia, Philippines, China, Tibet, Mongolia, back to China, Korea, Japan, Poland, and then home. Radio equipment will be installed in two trucks and consist of two KWM-1, which is a transceiver and the type used on the recent DXpedition to Clipperton (FO8AT). The equipment will be used for communications back to base as well as Amateur work. OKIMB will act as QSL manager for the trip. Calls used will be OK1HZ plus the suffix/prefix of the country of location. As Amateur activity is not permitted in some of the countries listed, it will be interesting to see what happens when this party arrives.

The DXpedition by the VS1 boys to the Nicobar Is. looks like being off, according to VS1FJ, due to the probable refusal of the Indian Govt. to grant the necessary permission. At the time of writing, there is no news of the one planned by the VU boys.

ZS6IF/7 was operating from Swaziland this month for one week. QSLs will be on a card for card basis and should go to his home QTH. If he thinks, as a result of this trip, it worth while, he will visit ZS8 and ZS9 next year. ZD8LN is a foney; ZD8SC is leaving the area and his rig will probably be taken over by ZD8JP.

VP2LO is on from St. Lucia using c.w. on 14059 Kc.

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

EA6AF is at present doing some training in the U.S. and is due back in Balearic in Oct. CN8GU is returning to the U.S. and indications are that another CN8 will take over the QSL chores of ZD7SA.

DXL activity is expected from the Galapagos Is. late in Sept. or to Nov. on 14, 21 and 28 Mc., mainly on s.s.b. Calls are expected to be HC8LUX, AGO and WGF. Looks as though if one wants to be right on the ball for DX-peditions to the rare ones, s.b. is a necessity.

Trinidad Is., PY0 is expected to gain separate country status about December with credit acceptable back to 1945.

FO8AT on Clipperton adopted excellent procedure towards the end of his stay, by putting the U.S. stations on the l.f. side and the DX on the h.f. side of his frequency, and alternating each five minutes between each.

OY7ML has been heard in Sydney on 14020 Kc. cw. round 2100z. As he also works 21 Mc., he should be a possibility. I found him easier on that band than 14 Mc. If you have worked Chatham Is., now with separate country status, after 1945, and you hold the necessary piece of pasteboard, it is acceptable for credit for A.R.R.L. D.X.C.C.

I feel an extract from "QST" in regard to the disallowance of ZLIAEZ cards for credit may help those who do not know: "beyond any doubt that in many cases no direct contact with ZLIAEZ was ever made, yet confirmations were received for these 'contacts'. A QSL is . . . that a two-way change of information has taken place between the station sending the QSL and the station to whom the QSL is made out." [See also mention of same matter under heading of "Federal Awards Manager".—Ed.]

1200 QSLs from JT1YL are in course of distribution and some more from JT1AA. OK1JX, who is handling this chore, had to curtail his activities for a while due to other work.

Tanna Tova activity is reported on 7 Mc. by UA1GR/0.

Jan Mayen is expected to be represented after Sept. 20 and should last for one year. Call signs are at present unknown.

AC4AX has been reported on c.w. on varying frequencies on 14 Mc. band.

50 Mc. DX has commenced with VK2, VK4 and VK9 working JA stations. XE1GL has made a request that VK stations look for him on 50.005 Mc.

Current activity from the Antarctic region is given by, in addition to the VK stations, CE-9AR, LZ5AE, OR4VR, UA1KA, FB5YJ, FB-8XX, FB8ZZ, KC4USK, KC4USK and KC4USH.

For the s.w.l's., Don Grantley reports that DM8IGY is transmitting a test c.w. signal on approx. 28.2 Mc. He heard him at 0915z seeking reports on his signal and guarantees a QSL. As you can see by his call letters, he is connected with the I.G.Y. programme. QSLs may be sent direct or via the Bureau to Geophys. Obs. Collm., near Oeschatz, Germany, D.D.R. As 28 Mc. will improve from now, he should be easily found.

ACTIVITIES

3.5 Mc.: 3AHO: VK8AD.

7 Mc.: 3AHO: ZE3JC, ZEZJE, ZS6KD, ZE6IJ, W1A-L2101: W8EPM, KH8BEK, W1A-13089: JA3DX/MM. BERS105: on c.w. DU-9WX, JA, VR2DA, W and 150 Europeans.

14 Mc. C.w.: 2AGH: PY1DG, RA2M, EA-6AW, CR8AH, YN1AA, FO8AT, CN8KC, EA9AQ, ELIX, XW8AI, HK4JC, ZS6IF/7, UR2BU, VP2KF, ZD1FG, 2AHH: ZGATP, long path, T12PZ, HK4JC, UA30A, ZS4LB, 2AMB: GW3, KL7, XE1RM, OR4VN, VK-01J, VK0AT, FF8AC, T12PZ, GM, ST2AR, ZD7SA, FO8AT, ZD1FG, FA3QL, ELIX, XE1NAA, BV1US, KW6CE, KS6AG, FO8AD, XE-1XK, FB8XX, LU6SJ, LU8DO, CR6AI, VQ2AB, KM6BM, KM6BL, VE8YN, JZ0DA, WQ6CQ, 2QL, OR4VN, ZD1FG, ELIX, VQ8EW, VQ2GW, VQ3CF, FQ8AF, UP2NM, FQ8AE, ZS6IF/7, JT1AA, CR7BN, UD6AM, UD6AK, JZ0DA, VP2GL, FQ8HA, CR7CL, CR6AI, CR6AF, VQ8AE, VQ8AJC, ZR: UQ2EA, CN8DJ, UP2KBX, UP2NX, UCZKA, UQ2AN, and many Europeans, plus EA1BC, UCZKAR, 3AHO: JT1A, VP2VE, 4DQ, UA0KZ, XGCD, UR2BU, SP8BL, ON, VK0TC, KX6CB, LZ1AH, FA8RJ, XW8AI, ZP5LS, LZ1KPC, EA3KI, FO8AT, 9XK: VP2VB, FO8AT, W1A-L202, CR9AH, CN8JX, FB8XX, FK8AS, FO-8AC, FO8AT, F8UAE, HC4IM, HS1C, HK4JC, JZ0DA, JZ0HA, KB8BJ, KP4AR, KM6BL, MP-4A00, LZ1WD, T12PZ, OR4VN, YJ1DL, UB-5IF, VR2DG, 4X4KR, BERS195: CESAR, BV1US, CP8KE, FB8XX, FR7Z, F8UAE, FM7WU, FO-8AC, HC4IM, HS1C, JT1AA, JZ0DA, KM6BL, KX6BT, OR4VN, PY2KT, SV0WT/Crete, XE-1XK, XW8AI, YV5BX, ZK1AK, ZK2AB, ZS-4LB, PHLC, W1A-L3089: VQ3RF, KM6BL, VR2DA, YJ1DL, UA0FC, SP9RF, EA3KT, KP4AJO, SV0WF.

14 Mc. Phone: 2AMB: KX6BT, 2AGH: CO-2SW, VQ8U, 2AHH: G3LFO, L/SR, VR2DA, 3AHO: N6MM, ZS: VP2VF, YV8AE, YV-0AB, HB1L/FL, 981BF, VQ8U, YU1AD, PY4AS, HL9KR, CO2YZ, 3AOM, XE1RM, XE4PPE, VE, G, GW, DL, CT2AH, HK-4DP, EL3A, 4DQ: KL7: W1A-L2001: EA3JE, HP3FL, VS2DQ, FK1AS, OA4GW, VR2BJ, PY-2CK, VK2FR, VK0AT, VK0DA, BV1US, CO2BL, CT1DU, PJ2AQ, HS1C, KL7, ZK2AB, W1A-L222: DU6IV, EA3JE, FK8AS, HK7LX, KA-01J, OA4DA, OA4EF, VR2DG, VR1C, YV5EC, ZK1BS, ZK2AB, ZL5AE and many Europeans. BERS195: VK01J, VK0KT, MP4BET, VK0TC, VP5FR, VU2CQ, W1A-L363: VK0KT, ZK2AB, XE2NF, HL9KT, VE2CA, HK4HW, BV1US, Jan Thomas: W1 to 0 excluding W6, ZL1 to 4, VK-0KT, VR1A, KL7, OA4BA, FK8AS, FK8AU, VR2DA, VR2BJ, VK2FR, DL3JR.

21 Mc. C.w.: 2AGH: UA9VB, 2AHH: ZB2I, L/R, KC4USK, UA4IF, 2QL: ZP5CF, KX-6BT, FA8TT, VQ8EK, ST2AR, UQ2AN, SP2BE, VP2LS, ZS5BA, VQ3HO, OA4FM, ZD2GWS, ZR: GD3FXN, G13GPE, ZS5BA, CR8AH, FA30A, FA8TT, UQ2AN, XE1AX, SPIKAA, and a long list of Europeans, 4DQ: W: 9XK, ST2AR: W1A-L302: EA2CT, G1-3IV, GM3MCH, KW6CO, SP3FL, UR2BU, UR-



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21 Mc. Phone: 2AHII: On L.R. OE7SU*, EA3JE, 1ISM*, CN2BK*, G2MJ*, F8US*, DL3AO*, CN8GH*, S.R. SM5CO*, G*, KL7CI*, KA7MD*, KC4USK*, KH6CCI*, VR2AZ*, JZ-0PB*, SM*, OH*, GM*, GW*, VE3BQL/SU*, ZSSPG*, ZS1JA*, ZS4BH*, KB6BH*, PA*, 3AHO, JZ0PB*, VP5FH*, VP1EE*, VS9MA*, UA1BE*, HL2AG*, OK1MB*, HP1LO*, VP2VB*, VSSBY*, G*, F*, DL*, 4DO: KB6BH*, G*, GM*, KP4GN, VP6JC, VK9CP, JZ0PB, 6EJ: SV1AE*, G*, GI*, CN8*, KH6*, VK9NT*, VP-BIVM*, VK0TC, EA, ITLZDA*, GD3*, VS9MA*, EL*, LA*, 4X4*, VP1EE*, UQ2AN*, ST2AR*, XE2KW*, KB6BH*, ZS*, ZE*, VQ2VZ*, GC-6PQ*, VE3BQL/SU*, W1A-L2022, CR9AI, CN-2BK, DU1GF, GM3EST, G, HK3FV, HP1CN, KG6FO, OH, OZ, KB6BH, T12AB, VP5RD, VR-2AZ, VV5BE, XE1CB, SM5CO.

28 Mc. C.w.: 2QL: W*, ZC4AX*, ZE, OQ5. 4XJ: ZS5S*, ZS6AUT*, UB5SB*, U18AG*, WIA-L3022: W.

28 Mc. Phone: 2AIH: 2P5JX*, HK3FV*, W*, 4XJ: ZS6KO*, UB5SB*, W*, T12GC*, ZS6SA*, OAAUA*, 6EJ: VK9DB*, VQ4FK*, ZS6SA*, ZS2DY*, ZS6ACN*, 4X4IX*.

51 Mc.: 4XJ: J3J1W, 1XK: 60 JA covering all districts, VK4NG*, VK4AZ*.

QSL SITUATION

2AMB received cards from CE2AP, CR6CZ, GW5FW, CN2AQ, CX1AK, GD3FXN, VQ4QP, ON4FL, KS6AD, VK2AAY/LH. 2AGH: VK-22YU/LH, YV0AB, VP2VB, UR2AO, UC2CB, OZ7YU, OE2KF, UA3AZ. 2QL: OY7ML, YV-0AB, ZD7SA, ELIX, F8TRT, SV0WQ/Crete, UR2AO, VQ4KRL, VK0TC, VK0J, UR2BU, GD3FXN. 3AOM: T12OE, T12CAH, 5A1TU, HK-3FC. 6EJ: ZS for 3.5 Mc., ST2NG, GD3UB, GW3SVR, FB8BS, OQ5FH, HS1JN, 9K2AN, VE-8PB, VK0AS, UH8KA, BERS195: CR7CI, CR9AH, EA9BM, HK1FJ, JZ0HA, KG6AL, OD-5BZ, UA4HI, UD6BI, VQ2HR, VQ2GF, VQ4GQ, VS1BB/VSS, 3V8CY, XV5A, 4X4CK, 4X4WF.

QTH OF POSSIBLE INTEREST

FUBAE—Pert Vila.
JZ0DA—QSL via V.E.R.O.N.
VP2GL—Box 44, St. Georges, Grenada.
ELIX—Box 18, Harbel.
VQ2EW—Box 58, Ndolei.
VQ3CF—QSL via W2CTN.
VQ8AJC—Box 155, Mauritius.
UR2BU—Tarki, Estonia 14DO1.
EA9BM—Pabillonnes de Regulares, Alcazar-quivir (BERS195).
XV5A—L. Rundlett, M.S.U.G., Box 34, San Francisco (BERS195).
XE6UUE—QSL to WUUE.
Ex-XW8AG—Rene Maspimby, 9 Rue Ornaud-Bernard, Toulouse, France.
Ex-ZD3G—12 Tedder Ave., Wayfields, near Chatham, U.K.

One of the contributors has suggested that it could be of value to those who do read these notes, that the time and path of communication be included. I have never done this for the reason of the elapsed time from the QSO until these notes appear. However, if readers think that there would be some value to them with this information despite the change in propagation conditions over the period, let me know with your next despatch, and whatever the majority wishes will be done. After all, I know what is in these notes a month before you do.

And now we wind it up once again with thanks to W4KVX for his kindness in sending the DX Bulletins; 2AHII welcome to the page, Noel, and thanks for suggestion and don't let this be your first and last contribution; 2AGH: who is still adding the new ones and reached 210; 2AMB, very pleased to at last get zone 35 in the bag, and after all his efforts works two in the month; 2ZR, still able to work plenty of DX and get QSLs in return; 3AHO, another new contributor, we give a pat on the back for giving VQ9GU his first VK contact, let's hear more from you Bill; 3AOM, who advises his son, VR3A, making good progress; JDO, who is coming to Sydney to see what makes the VK2 boys tick; 4XJ, whom we wish well in the forthcoming 50 Mc. DX season; 6EJ, who is naturally happy at receiving his 3.5 Mc. S. African confirmations; 9XK, glad to hear from you Russ and keep an eye out for that Mexican on 50 Mc.; Don Grantley has now started to send out swags of QSLs, so give him one in return fellas, he is WIA-L2022; WIA-L2001, who has lived up his rx and expects better listening; BERS195, hope the XYL now 100 per. Eric; WIA-L3080 now with an AR7, but trying to reduce the vibrator hash to hear more DX on it, and finally Ian Thomas, who is dragging the DX through on his small rx.

Finally, on behalf of all DXers, may I congratulate "Amateur Radio" on reaching its 25th Anniversary, and those concerned with it for an honorary, and I bet onerous, job well done.



Ian J. Hunt, WIA-L3007
211 St. George Road,
Northcote, N.18, Vic.

To begin this month's notes I must add two items which, most unfortunately, I did not include last month. The first of these is to pass our congratulations to Gill Robinson, a member of the VK3 Group, on having passed the Full Ticket at the July exam. Gill is already on the air and no doubt having a fine old time. The second matter I must mention is a visit by VK3 Group members to the home of 3LN on 15th July last. Len demonstrated everything from voice controlled equipment to hi-fi sound. Len's gear includes Amateur t.v., panoramic adaptor, beams for h.f. and v.h.f. bands with tx's and rx's to match, all home built, and even a second shack for one of the junior ops. next door. Phyl, Mrs. 3LN, prepared a most enjoyable supper to which we did justice. We thank you very much Len and Phyl for your kindness and hospitality in having us at your home.

VK2 GROUP

Now to our correspondence. A letter from Barry Cartwright tells us the latest from the VK2 Group. Two of the boys up there were successful in passing the A.O.L.C.P. at the July exam, namely Bob Luthor, VK2 Group Vice-President, and Ken Oliver. Congrats. chaps from all of us down here.

Barney Smith, Chairman, and Barry Cartwright have been working on their rx's and now have them functioning smoothly. Don Grantley by all accounts did very well in the R.D. Contest and with the aid of his new converter is hearing plenty of rare DX. Les Stahl, of Richmond, a new member of the Group, has a HalliCrafter S8D rx and is a keen listener to all bands—80 to 10 mx. Les is Secretary of the R.A.A.F. Radio Club. Barry has the re-building of his 3-tube converter well in hand, but is having trouble getting his W8JK antenna to work properly. A 600 ohm open wire feedline plus a good antenna coupler should do the trick Barry.

The VK2 Group recently enjoyed, in the company of the V.h.f. and T.v. Group, a tour of television station ATN Channel 7 at Gore Hill and later proceeded to the studios of ATN at Epping. Thanks are extended to the V.h.f. and T.v. Group who arranged the outing, for having the S.w.l. Group along. Rex 2YA, of Gosford, has taken the local s.w.l's. there under his wing. He has put forward some very good ideas to assist listeners generally about which we hope to hear more in the near future. Some members have spent a couple of week-ends at VK2WI at Dural trying to improve the area surrounding the station by the removal of trees, bushes, etc., but could do with a few more helpers in this project.

S.W.L. OF THE MONTH

Featured in this section of our notes we meet Bob Wallace, who is a recent newcomer to the VK3 Division. Bob has been in the Permanent Army for seven years and holds the rank of Sergeant with the Royal Australian Electrical and Mechanical Engineers. He is a vehicle motor mechanic and inspector and can test and drive anything from motor cycles to Centurion tanks. Apart from radio Bob loves working on cars and sports cars, specially tuning up for performance and speed.

Bob is stationed at Bandiana near the Victorian-N.S.W. border, and keeps his 2 mx gear with him. At his home at Ampitheatre, he has his best shack which contains much gear, including 108s, 101s, Command tx's, 3 No. 11 sets, an SCR522 and much other equipment in various stages of construction and destruction. He uses an Eddystone 750 rx for s.w.l'ing and spends his time over the week-ends listening from 10 through to 80 mx. For the higher frequency bands he has home-built converters and beam antennae.

He has passed his A.O.L.C.P. and is now practicing code. At present awaiting allocation of his "Z" call sign, Bob intends to operate mobile between Albury, Ballarat and Melbourne on a frequency of 144.342 Mc. and asks the 2 mx gang to look out for him.

VK3 GROUP

At the annual meeting there were 25 members present including new members Mark Preston of Ascot Vale, Barry Tucker of Regent, Ron Rose from Nunawading, and Ian Thomas from North Clayton. Many interesting reports were received from members and stories of the R.D. Contest told. Arrangements were made for a working bee in the very near future to give the Institute rooms a general clean up.

Results of the election were: President, Michael Ide, WIA-L3015; Vice-Presidents: Geoff Morris, WIA-L3017; Ian Woodman, WIA-L3006, VK3ZBI; Secretary-Treasurer, Maurice Cox, WIA-L3055; Asst. Sec., Ian Hunt, WIA-L3007; Delegates to Divisional Council: George Robertson, VK3JW; Ian Hunt, WIA-L3007; Organising Committee, Bert Stebbing, WIA-L3050; Len Poynter, WIA-L3001; Ted Wickett, WIA-L3063; John McEwen, WIA-L3040; Peter Neilson.

Upon his retirement as President of the VK3 Group for the last four years, we wish Len Poynter the very best of luck in the future and thank him for the fine job he has done over that period. I myself as retired Secretary of the Group after only three year of it, wish to thank all the members who have assisted me in my job.

At the October meeting, Mr. Robert Gillies, of the Dept. of Supply, will speak to members on the subject of Electronic Computers. This should be a most interesting evening, so roll up in full force and hear what he has to say. All interested persons are welcome and we hope to see a number of the Full members present.

Yours truly will continue to compile the notes for this page of the magazine, but you are asked to address any correspondence regarding enquiries about the Group to the Secretary, Maurice Cox, Flat 1, 37 Boyd Crescent, Olympic Village, Heidelberg West, N.23.

Dave Jenkins, of Orbst, has been making more changes to his new rx and teeing up power supply arrangements. Dave had a fine time with c.w. in the R.D. Contest, what with having a better ether breather. Another enthusiast now located in Orbst is Noel Tuohill, aged 24, and a telegraphist at the Orbst P.O., having moved over from Lakes Entrance. Noel is obtaining a couple of Command rx's and hopes to be busy listening very soon.

I see in the last issue of "A.R." that the VK6 boys now have been issued with s.w.l. numbers, so we look forward to hearing more of their progress over there.

Have just learned that the VK3 Group Secretary is unfortunately seriously ill and in hospital. We hope Maurice that by the time these notes are read that you will be well on the way to complete recovery.

CARD OF THE MONTH CONTEST

For the month of October 10 cards were entered in this contest. The winner was Ian Hunt with a card from VK0KT, while Maurice Cox was a close second with a very nice card of huge size from W2BDS.

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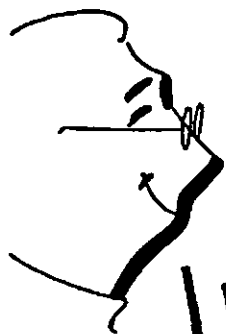
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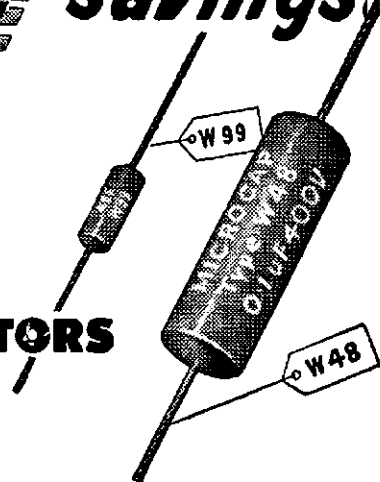
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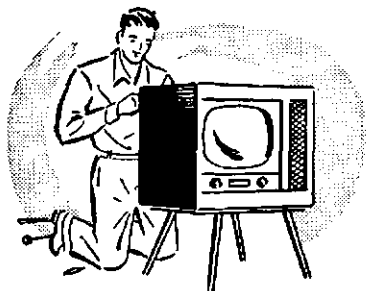


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VHF

Frank P. O'Dwyer, VK3OF
190 Thomas Street,
Hampton, Vic.

Spring this year has not only moved the plants to bud, it has brought life to 50 Mc. with Interstate signals being heard. VK3 by VK5, VK5 by VK4, VK4 by VK3 (details under Div. notes in this section), and JAs once again frequent contacts in VK4, with VK6 sharing in one good opening. Aug. 6 week-end. DUISW was solid copy to VK8CL at 2200, Aug. 6, and several other DU stations were heard.

The Interstate signals heard indicate that all Divisions were caught asleep, the winter habit of natter sessions preventing a sharp watch being kept on the band. Let heed be paid to Lance's (4ZAZ) suggestion last month that at least the band be scanned between overs for any DX call.

NEW SOUTH WALES

We are all sorry to hear that our good friend, Dave 2AWZ, will be on the sick list for the next couple of months. We will miss his smiling face and little red "bomb" and hope that he makes a speedy recovery.

In Dave's absence, these notes are being prepared by the so-and-so Chairman, who may take the opportunity of "getting square" on some previous scribes and others—no names mentioned.

The outstanding feature of the August activities was the Group's visit to Television Station ATN on Friday, 8th August. Allan 2AH conducted forty of our members over the tx at Gore Hill and from there we journeyed to the studios at Epping and were treated to a very nice supper and were then shown the activities and equipment at the studio. This evening was considered by those who attended to be one of the most interesting events arranged by the Group and our thanks have been expressed to the management of Channel 7 and to Allan. Incidentally, Allan is one of the few people in Australia who has worked ZL on 2 mx.

The next highlight was the inaugural Sunday evening broadcast from VK2WI at Dural. This broadcast was fittingly done by the old master himself, 20A, better known as Winchy, and by other names which may not pass the censor. The 2 mx equipment at Dural has been constructed by Horrie 2HL (tx—829 running 90w), Dick 2ZCF (modulator, including tone oscillator), Winchy (power supply) and others, and again our thanks are due to these good folk who have given freely (after some arm twisting) of their time.

One of the interesting features is the 16 element phased array which was hoisted into the heavens one Sunday by Dave 2EO, ably assisted by some and impeded by others and their harmonics. This array was fabricated by one of the commercial manufacturers and is a most imposing piece of equipment and what's more, it works as well as it looks—at the time of writing the only thing that is not known is the "damage"!

In future as far as it is practicable, the Sunday evening broadcasts will be done from Dural and where it is not practicable, they will be made from the home station of the Committee Member doing the broadcast under the call sign of VK2WI/Portable. It is hoped to get a far greater coverage than heretofore.

The man with the "mostest" mobile signal on 2 mx was our fox for the Night Hidden Tx Hunt, held on 27th Aug. Dick 2ZCF had himself very nicely planted in the scrub near Pennant Hills and it was with some difficulty that he was eventually located by all hounds. The first in was Phillip 2ZBB, followed by Bob 20A, who just pipped Jim 2PM by about half an hour. The Norman and Williams families provided a very nice bush supper, which was a happy ending to a very pleasant evening which saw some new partakers of the hunt craze; these being Bob 2ASZ, Ron 2ZBG, Phillip 2ZBX and Tony 2ZBU—with their appetites whetted we are sure to see more of them.

By the time you read (if you do) these notes an interesting lecture will have been delivered by Bob 2QZ on "The Cathode Ray Oscilloscope and Some of its Applications."

Don't forget the mobile motto, "Have Hams, Will Hunt"—and how!!!!

VICTORIA

V.h.f. Meeting.—The weather was very poor for the night of the August meeting, however some of the more hardy v.h.f. enthusiasts managed to make it. Jock 3ZDG was called upon to fill the gap when other arrangements failed and once, again he responded nobly with one of his "off the cuff" v.h.f. lectures. Jock, who is a mine of information on subjects of v.h.f. interest, spoke on a variety of subjects ranging from beam construction to converter design on 288 Mc. and managed to hold the attention of the Group for a good two hours.

Very little business was discussed but the Group did decide to hold a 2 mx scramble on the second Sunday of each month. The scramble will follow the same lines as the 8 mx one, i.e. will be held between 1945 and 2015 hrs. and at the conclusion scores will be taken by a control station. The control station will be the winner of the previous scramble. By the time this reaches you, the first scramble will have been held, but don't miss the October one to be held on the evening of the 12th.

6 Metres.—Things have been very quiet on 6 mx in VK3. For some time most activity is heard on scramble nights. Sixteen stations were active in the scramble held on the fourth Sunday of August, and Don 3ZFP managed to work all possible stations, second was Garth 3ZFA, who worked 14 stations, and equal third were Lance 3AHL and Jock 3ZDG, who worked 13 stations each. Don't forget the 6 metre scramble is held on the fourth Sunday of each month between 1945 and 2015 hrs. and the more contestants the better the scramble, so be in it!

Lindsay 3ZEW, who was recently operating portable in Melbourne, tells us that quite a few stations are operating on 6 mx near his home location in Hopetoun. They are 3ZFD at Horsham on 51.0 Mc., 3ZFM on 50.39 Mc. at Telangaturk, 3ZEA on 50.4 Mc. at Rainbow, 3NN on 50.125 Mc. at Yannac, 3ZCL on 50.04 Mc. at Hopetoun, and last but not least, Lindsay himself on 50.25 Mc., so while you're looking for the elusive DX take a look for these stations, particularly between 1915 and 2000 hrs. each evening.

Bob 3ZAN has found that dural beams are fairly liable to corrosion and has had to temporarily replace his long yagi with a dipole; he hasn't been idle, however, and passes along the hint that die-cast welding rod does a very good job of soldering elements into beams.

On Sunday, Sept. 7, 4LK was heard in VK3 off the back of his beam while he was busy working JA. Despite many calls, no contact was made, the JA QRM in Charters Towers must have been too heavy.

2 Metres.—Activity is pretty low on 2 mx and most operators seem to have hibernated till summer. The Ballarat Group, however, seem to be made of sterner stuff than their Melbourne counterparts and are doing a fine job in keeping the band populated.

1 Metre.—Mac 3QO is the second Melbourne station to be received by George 3ZCG, in Moe. Mac has been heard by George a number of times at 58. Another country station to fire up on 1 mx is Ron 3ZER, whose QTH is at Ballarat. Ron is running 20w. to a QQE03/20 tripler and although hasn't reached Melbourne yet from his home QTH, he has put an S8 plus signal into Melbourne from Mt. Buninyong. The 3ZAE, 3ZAN, 3ZAI group will have 1 mx stabilised gear for the next series of field days beginning in November, and will be looking for QSOs with country stations with stabilised 288 Mc. equipment.—3ZAI.

QUEENSLAND

Quite a few openings to JA this month and new members of the gang had their first taste of it much to their delight. Bob 4NG was well in the thick of it and Lance 4ZAZ was running him close. Max 4JO gets his share and can be heard working JA R5 S7 to 9, but we do not hear them here in Brisbane. At the moment he is at it, but I am only hearing faint signals with QSB and flutter, no can copy. Bob 4NG is now W.A.J.A. (Worked All Japan Prefectures). Brian 4ZAF is heading Melbourne way for a few months to further his studies and hopes to meet the VK3 gang. We are on the lookout for 3AHJ who expects to be in Brisbane Sept. 25/26.

On 27th August the V.h.f. Group met at the QTH of 4JO, 20 in all were present. 4NG came down from Rockhampton and gave the Group his ideas. Showed his best DX QSLs and played the tape of JA, KH6, VK9 and LU stations, and also a tape of his signal in W. land. Allan 4ZEF is heading for VK2 in the near future on holidays and is taking portable gear. A VK5 signal was heard in Rockhampton during the month, a gent testing. Bye, must get back to the rx, the band might have come good.—4WD.

SOUTH AUSTRALIA

The only news in respect to DX is the breakthrough of JAs to VK9 during the Contest. Apparently the VK9 boys were looking for high marks during the R.D. Contest and found the JAs strength 8 to 9 off the back of their beams. VK3ZGH was heard on a folded dipole by George 5ZGA, on the 5th August approx. 6.30 to 7 p.m. He was in contact with two other VK9s who were heard but not identified, sigs. 5 to 6.

Ron's (5MK) new beam on 50 Mc. is satisfactory and all that remains to complete his recent activities is his 150w. outboard final. A newcomer to the band is Gilbert 5GX, located at Payneham. Gilbert's rig is a 12AT7 to a 6M5 with intentions of driving a pair of 6146s; his antenna is a 4 element yagi. Jim 5ZBJ has had modulator trouble and was threatening to put the iron into it, which iron he did not elucidate. It could have been the XYL's. Brian 5ZBX is talking about a 35 ft. tower which sounds very nice. This, together with Col's (5RO) 60 footer, shows the inclination of the v.h.f. boys to get their sky wires higher. Col got his tower from Des 5DK, who is moving to VK7, and has only to shift it 150 yards to his own backyard.

Bob 5RT has re-created his 6 mx beam and has it 25 ft. high on waterpiper. Apparently Bob intends to try out his new constant level modulation on the JAs, by using his screen voltage he is able to reduce carrier on peaks of modulation. It sounds quite good too, but is a little rough when there is a tendency to overmodulate.

144 Mc.—This band has only one regular occupant, Reg 5QR, working mostly cross-band to 50 Mc. Keith 5MT, who regularly works Hughie 5BC, is down the south east. Tried a cross-band 144 to 3.5 Mc. with Hughie with the aid of Ken 5KC, but conditions were poor with only strength 2 to 3 reports.

288 Mc.—A little more lively than 2 mx with mobile work from various points, with Vic 5JH working back to town from distant peaks. George 5ZGA very active when not building his 6 mx rig. Lance 5ZBC, Gary 5ZGH, 5JR and 5WR being the most active.

Have you seen the back cover of the September "A.R."? The Geloso v.h.f. v.f.o. has distinct possibilities for an easily built 2 mx rig, the v.f.o. can also be used for combination 6 and 2 mx work using an all-band tank circuit similar to the portable rig in the '48 A.R.R.L. Handbook. Using the xtal portion, it would be possible to couple the antenna feeder straight into the 5763 6 mx tank. Give it a thought fellows, how simple to work those JAs on 50 Mc.—5ZAW.

PAPUA-NEW GUINEA

During August, 9XK (Port Moresby) frequently worked JA between 2000 and 2210 E.A.S.T. During one contact, JA1AXE informed Russ that he had just worked South Africa, making his total 15 countries and the first JA-ZS QSO.—9XK.

Wireless Institute of Australia Victorian Division

A.O.C.P. CLASS commences

THURSDAY, 6th NOV., 1958

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.

NOTES

FEDERAL

BOY SCOUTS PAN PACIFIC JAMBOREE

This event will be held in Auckland, N.Z., from 3rd January to 10th January, 1959.

The N.Z.A.R.T. intends to install and operate an Amateur Radio Station from the Jamboree during this period and has been granted the use of the special call sign ZLIPPJ (Pan Pacific Jamboree).

Operation of this transmitter will be from 0900 to 2100 NZT (2100 to 0900 GMT) and will cover all bands from 80 metres to 2 metres.

A special QSL card will be used to acknowledge all contacts.

Those stations wishing to arrange skeds with ZLIPPJ are requested to contact ZLI Amateurs or write direct to Jack Freeman, ZLIVA, who will be particularly pleased to hear from Radio Amateurs who are Scouts or are connected with this Movement.

AMATEURS HELP CHILDREN AWARD

(A.E.C.H.)

The Austrian Radio Amateurs Club, in co-operation with the OEVSV, have established the above award which has a two-fold purpose:

(a) To encourage Radio contact with Austrian Amateurs;

(b) To help the work of the S.O.S. Children's Villages which have been established to provide a solution to the world-wide problem of neglected, abandoned or orphaned children, and in order to give such children a real, normal and family-type home, and the security of a mother's love.

This award is open to all licensed Amateurs throughout the world and short wave listeners, and is issued in these classes:

(a) Class Three: Will be issued upon submission of 10 S.O.S. Kinderdorf QSL cards verifying 10 QSOs with Austrian Radio Amateurs.

ateurs. (b) Class Two: 20 S.O.S. Kinderdorf QSLs. (c) Class One: 50 S.O.S. Kinderdorf QSL cards.

Contacts on all bands, telephony or telegraphy, are eligible, but the same Austrian station may be worked only once per band and type of emission.

Fees for issue of this award will go towards the expansion and upkeep of the S.O.S. Children's Villages and are as follows:

(a) Class Three: 10 I.R.C. (b) Class Two: 20 I.R.C. (c) Class One: 40 I.R.C. These fees may be paid in the currency of any country, cash, I.R.C., cheques or money orders.

ZKF MORSE TRANSMISSION

These transmissions are operated by the R.N.Z.A.F. for the benefit of all would-be Morse operators, and those who wish to increase their proficiency. R.N.Z.A.F. have advised that the following is the current schedule.

Frequencies: 3236 and 6885 Kc., Monday to Friday inclusive, at the following times:

1830-1845	5 w.p.m.
1845-1900	10 "
1900-1915	15 "
1915-1930	20 "
1930-1945	25 "
1945-2000	30 "

The above transmissions should be of interest to all those requiring practice in slow and fast morse.

I.A.R.U. OFFICIAL COUNTRIES LIST

A proposal submitted by the W.I.A. regarding the establishment of an official I.A.R.U. Countries' List has been accepted.

As a result of the acceptance of this proposal, an official I.A.R.U. Countries' List is to be prepared by a committee consisting of the R.S.G.B., A.R.R.L. and the W.I.A.

SPARE VALVES FOR INDIAN AMATEURS

The question of types was considered by F.E. and the conclusion was that any type of valve at all can be put to some use by a Ham.

Tubes should be in serviceable condition, and if the type number cannot be read, should be labelled. Tubes will be sent to the Amateur Radio Society of India for distribution by that body as it sees fit.

Further to the recent note on the above, valves may be forwarded to:—

VK6AG, 327 Wellington Street, Perth, by VK6 Amateurs who desire to do so.

VK9XK, D.C.A. Marine Base, Port Moresby, by VK9 Amateurs who desire to do so.

FED. CONTEST COMMITTEE

The Contest Manager, Mr. Rex Richards, VK5DO, reports that all Certificates awarded to the winners of Contests to date have been posted. Any Australian contestant nominated for an award in the published results who has not yet received his Certificate should contact the F.C.C. immediately. The VK-ZL Contest is included.

Overseas awards may take some time to reach the recipients and a copy of the results was forwarded to each one along with the Certificate.

As this is the last VK-ZL Contest that this Committee will handle, thanks are extended to those Amateurs who made the Contest so popular with the overseas contestants. The compilation of the logs was exemplary. Please do your utmost to put VK-land into the 1958 one.

You may have noticed that the Committee has standardised the form of the Rules for each Contest. If not, then take another look, and compare, say Rule 3, in the VK-ZL and the Field Day, when you will see how it has been done.

Whilst on the matter of the Field Day Contest: what about some really overwhelming participation in the Contest this time. The scope of the Contest has been widened and the Committee has made an all-out effort to attract you and YOU and YOU into taking part.

Make your plans now. —Chairman, F.C.C.

FEDERAL AWARDS

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

The following are new members of this Award:

W2BUI, KB6BH, W3DKT, and LU5AQ.

Altogether, 89 Certificates have been issued.

D.X.C.C. AWARD

The following are amendments to the current list:

C.w. Section: VK3KB, No. 10, 244 countries.

Open Section: VK3HG, No. 3, 215 countries.

Deletion of Credits. All Kermadec Island D.X.C.C. credits are deleted as at 31/8/58 because of the fact, already well established, that a significant number of QSL cards presented for credit fall into the highly doubtful category. We are, therefore, unable to give credit for contacts with ZLIABZ.

Additional Countries. Consideration is currently being given to the question of additional countries for the D.X.C.C. list. There are about a dozen of them to be added in due course. G. Weynton, VK3XU, Manager.

FEDERAL QSL BUREAU

The new address for the W7K7 QSL Bureau is: Salem Amateur Radio Club, Box 61, Salem, Oregon, U.S.A.

The Israel Amateur Radio Club, Box 4099, Tel Aviv, Israel, sends a further reminder of their Jubilee Marathon Contest which commenced on 24th April and ends on 31st October. The object is to work as many 4X4 stations as possible. Each 4X4 station can be contacted once on every band during any 24 hours. Each station sending in a log will receive a participation certificate.

On a recent QSL received by BERS195 from John Alvares, CR9AH, it is stated that John is spending most of his time nowadays on 14305 Kc. s.s.b. and only odd bursts on 14023 Kc. c.w. He adds that there are only four current licensed CR9 calls: 9AE, 9AH, 9AI, 9AK. CR9AF is now CT1ID and CR9AL is now CT1BH.

Austine VK3YL, who has already received her card from FO8AT, will be QRT during early September due to moving QTH. Her new address is not so far away from the old one and is 1377 Dandenong Road, East Malvern. Rigging up the shack at the new location has a high priority.

Tom Laidler, VK5TL, who made the Northern Territory contact for so many overseas aspirants for the W.A.V.K.C.A. award, writing from Salisbury, S.A., under date of August 14, wishes it to be known here and abroad that he is no longer at Alice Springs. Tom has sent out cards for all contacts he made while sojourning at the Alice. He ceased activity at that location on Feb. 7. Tom expects to settle down again at Benmark about the end of October. He is presently keeping his hand in on a Type 22 and gave the VK5 Division great help during the recent R.D. Contest. Tom is receiving cards for contacts allegedly made after he had QRT at Alice Springs. Tom adds that as far as he knows the only station in Northern Territory now active is VK5AE at Darwin.

The "A.M.P. DX Club" of Sweden is sponsoring a 1959 Low Frequency Award. A certificate will be available to any station in the world who runs up 50 points during 1959. One point is earned when contacting any country in the A.R.R.L. Country List. The contacts must be made on the 40 or 80 metre bands. The cost of the certificate is 10 I.R.C. It is unnecessary to send confirmations, providing a list signed by a responsible member of your country's recognised Amateur Radio Society is submitted. Applications for the award should be made to SM5CQH, S. Hector, Hjalmsalund, Vallentuna, Sweden.

—Ray Jones, VK3RJ, Manager.

NEW SOUTH WALES

HUNTER BRANCH

Our popular Treasurer, Bill 2XT, should be almost back from his trip to Orange-blossom land by the time this appears in print, so I trust that he has taken sufficient photos to keep an s.s.b. lecturer at bay for another month. Bet he keeps two sections, one to show the Hunter boys and the other to show his XYL, yes fellows, he went alone. A goodly crowd was present at our social to bid Bill bon voyage as a good-will gesture. ZAGR let Bill beat him for the first time at billiards for a long time; rumor has it that Bill's XYL got Alec ZABU to be on the same ship to keep an eye on him.

SILENT KEY

It is with deep regret that we record the passing of:—

VK3UI—M. A. (Alan) Rodger, 25th August, 1958.

VK3WE—A. R. ("Bill") Williams, Fred Leader ("The Monitor"), of New Zealand, 9th August, '58.

CONTEST CALENDAR

Compiled by W.I.A. Fed. Contest Com.

★

VK-ZL DX CONTEST:

Dates: Phone—4th-5th Oct., 1958.
C.w.—11th-12th Oct., 1958.
Times: 24 hours from 1000 GMT, Sat., to 1000 hours Sun.

Bands: All h.f. bands (including 11 mx).
Rules: Sept. issue, page 14.

Logs: For VK-ZL Stations—To Contest Manager, ZL2GX, 85 Lytton Rd., Gisborne, N.Z., before 20th Dec., '58.

"CQ" WORLD-WIDE:

Dates: Phone—0200 GMT, Oct 25, to 0200 GMT, Oct 27.

C.w.—0200 GMT, Nov. 29, to 0200 GMT, Dec. 1.

Bands: All h.f. bands (including 11 mx).
Rules: See this issue (Note Rule 8, Sec. 6 and 7).

R.S.G.B. TELEPHONY CONTEST

Dates: Nov. 22 and 23.

Bands: Restricted.
Rules: Same as for 1957 except for scoring bonus for working G3 stations.

ROSS HULL MEMORIAL V.H.F.:

Dates: 1st Dec., 1958, to 31st Jan., 1959.

Bands: All v.h.f. bands.
Rules: Same as for 1956-57.

Special Award for greatest distance over 3,000 miles.

NATIONAL FIELD DAY:

Date: Sunday, 25th January, 1958.

Bands: (1) H.f. (2) V.h.f.
Rules: To be published Dec. 1958.

B.E.R.U., C.W.:

Date: Probably January, 1959.

Rules: As for 1958.

OK DX CONTEST:

Date: December, 1958.

Bands: All h.f. bands.

Thirty-three chaps were in attendance at our August meeting to listen to Barry Z2AG give a very interesting lecture on the practical aspects in the application of radio valves and also a dash of transistorised power supplies. The rapid fire of questions shot at Barry was indicative of the interest shown and naturally it was left to Stuart Z2DF to move a vote of thanks to a "fellow v.h.f.-hound"—his words, not mine. Those present were 2SF, Z2L, Z2QR, Z2FA, 2CN, Z2NA, Z2DS, 2RJ, Z2OR, Z2QB, Z2AE, 2XT, 2FP, 2CS, Z2DF, Z2K and associates Sutherland, O'Brien, Bergmann, McLaughlin, Jackson, Grigg, Stobbs, Davis, Nichol, Finch, Richardson, Bailey, Ward, Broad, Witherhall and one undecipherable signature. Two other chaps either missed the book or couldn't write.

Stan Z2DL doing very well on 144, was 5 and 6 in Sydney the other night, believe several of the boys are contemplating coming up on this band, in fact if a better response to the I.T.U. Fund is not forthcoming, 144 may be all we will have left, that is of course until we have perfected the band and no doubt then we will again be told to shift.

Probably by the time you get this mag., our Dinner will be half eaten, but it will not be too late to get ready to amble forth on the Sunday to Blackalls where an entertaining programme has been arranged.

The usual meeting of the Branch will be held at the University of Technology, Tighes Hill, Newcastle, on Friday, 10th October, at 8 p.m. and the social "do" at 2XT's on Wednesday night, 22nd October.

Any information re these meetings and/or the I.T.U. Fund can be got from me by phoning West Wall-end 6 during business hours or 53 thereafter.—Z2QR.

VICTORIA

Unfortunately for me the monthly meeting which is usually my only source of information for these notes was delayed a week this time owing to school holidays and copy is due before the meeting is held. However, the forced curtailment of the notes on this account will serve a good purpose as space is required for this, the special 25th anniversary issue of our magazine. A truly fine effort for an organisation such as ours where voluntary effort is the order of the day.

However, despite this fine achievement, I feel that we are missing the bus somewhat in other directions as we don't seem to be conscious of our responsibilities in using the bands, even after several impassioned pleas by those who know what this means to the cause. The I.T.U. Fund results to date have been outstanding, which proves that the average Ham has his hobby at heart, but there it seems to

end, because he doesn't bother to exercise his rights on the bands provided. You don't have to take my word for this. Just listen around any night or over the week-end when activity should be at its peak and what do you find? Yes, I know, commercials, but there are still a few spots left if you hunt around. Don't blame officialdom for failing to see why we should be allowed to retain our allocation if we don't substantiate our claims to the space.

There is also another very important aspect to be considered in this matter and that is how it affects the newcomer to the bands. We seem to leave nothing to be desired in catering for the prospective Ham in his efforts to get his ticket, but once through we leave him to his own devices. This appears to be the case, anyway, as we have a request from a new Ham for QSOs. His name is Gill Robinson (3VC) of Ringwood, and he is looking for QSOs on 80, 40 and 20. Never let it be said that we can't meet this request.

While on the subject of personalities, the v.h.f. boys and no doubt many others will recall Quinton Porter (3IM), who left for overseas some months ago to further his studies.

As a result of these later efforts, he has now completed his Doctor of Science degree and we offer him our congratulations.

The next meeting will be held on 1st October when members of the Publications Committee will speak on the activities of this committee.

As you have heard on recent broadcasts, a committee is investigating the possibility of obtaining other accommodation for Divisional headquarters as it is anticipated that the rent for the present rooms will soar beyond our reach after restrictions are lifted next June. In order to test the feelings of members in this matter and to obtain guidance in carrying out the wishes of a majority of the members, Council has asked that the subject be thrown open for discussion at the October meeting. Here is your opportunity to air your views on this very important question, so come prepared.

SCOUTS LEARN OF HAM RADIO

On Wednesday, 27th August, three of the local Melbourne boys travelled to Ferntree Gully, about 20 miles from the city, to provide a demonstration of Ham Radio and Short Wave Listening for the 1st Upper Ferntree Gully Scout Troup. They were Norm 3ZBU, Ian 3ZBP and Ian Hunt, Sec. of the S.W.I. Group. They were welcomed by the Scout-Master, Mr. Barrett, and Asst. S.M., Charlie Pennel, and eagerly by the Boy Scouts, about 20 in number.

Ian Hunt opened the evening with a talk on what may be heard on the s.w. bands and demonstrated with the aid of his AMR300 rx. At the finish of his talk he distributed copies of an article on s.w.ing for their further guidance. By this time the 2 mx gear was set up and in operation. Ian Davis then gave a short talk on Ham Radio and the big moment had arrived. Norm, with mobile gear in the car, took about five Scouts at a time for a drive around the locality, at the same time allowing them to talk back to their mates in the Scout Hall via the fixed station set up there. A wonderful time was had by all and a QSO with the Divisional President, 3YS, was squeezed into the proceedings.

WESTERN ZONE

Jim 3AOE of Hopetoun, who has recently built a higher powered rig, has been working some nice DX. His best results have been obtained on the 21 Mc. band. Herb 3NN of Yannac has been active on the 6 metre band, and has had some nice contacts there. Merv. 3AFO of Horsham will spend his forthcoming annual leave in VK6 land, so we wish he and Nora an enjoyable holiday.

A Hobbies Exhibition will be held in Stawell beginning on 11th November, finishing on 15th

November. With the help of local Amateurs we expect to have a station operating from there during these times, so we will be happy to have as many contacts as possible.

MOORABBIN AND DISTRICT RADIO CLUB

There has been improved activity on all bands in this district lately. Jack 3VT has been trying out his new wings on the "d.c." bands with 120 watts to 6146s, and has even been heard mentioning DX contacts. (It's all been

OBITUARY

M. A. (ALAN) RODGER, VK3UI

It is with sorrow we learn of the death of Alan VK3UI. Licensed pre-war, Alan served in the Royal Australian Navy as a Radio Operator. His main interest was in v.h.f. work, where his patience and good operating were rewarded with some notable "firsts," both home station and portable on field days. As a W.I.A. member, he has been President of the N.E. Zone of the Victorian Division.



Unmarried, Alan is survived by his mother and sister, to whom we extend our most sincere sympathy.

FRED LEADER—"THE MONITOR"

It is with deep and sincere regret that we record the passing of possibly the best known listener member of N.Z.A.R.T., Fredrick Arthur Leader. Fred Leader, known to Amateurs throughout Australasia in particular as the "Monitor", passed peacefully away on Friday, 9th August, last after celebrating his 84th birthday on the previous Monday.

Fred had been a member of the Association since 1931. He was elected as a member of the Executive Council in 1948 and in June 1949 at the Annual Conference he was made a Life Member of N.Z.A.R.T.—the first and so far the only listener member to be so honoured. He was also an honorary member of the ZL Old Timers Club.

Born in Bristol, Fred came to New Zealand in 1910 and became interested in Radio in 1928 since which date he became known to many hundreds of Amateurs for his friendly reports. His election to Life Membership of N.Z.A.R.T., an honour reserved for few, was an indication of the high esteem in which he was held and of the outstanding work he had done for the Association over the years. He not only followed his hobby in a practical manner, but his voluminous listener reports testify that he also interested himself in the Amateur's family and home life. Fred's periodic trips around New Zealand—often accompanied by Monty "The Pilot"—left a trail of boxes of chocolates handed out with old time courtesy to XYLs or children.

The funeral service was conducted on Tuesday, 12th August, by the Rev. Ray Culpitt, ZL2FD, who came from Wanganui especially for the service accompanied by Past President Chas. Berry, ZL2BY. The service was well attended by a representative gathering which included many Radio Amateurs, not only from Auckland but from other parts of the North Island. Pall bearers included Fred's old friend "The Pilot" and President Jack Freeman, ZL1VA, on behalf of the Association.

Fred's wife predeceased him some years ago and he had no relatives in N.Z. To his many friends we express our deepest sympathy.

WIRELESS INSTITUTE OF AUS.
HUNTER BRANCH, N.S.W. DIV.

★

SEVENTH ANNUAL
CONVENTION
SATURDAY and SUNDAY,
4th and 5th OCTOBER, 1958

Canberra Radio Society and
South Western Zone, W.I.A.
present

.6th SOUTH WEST. ZONE
AMATEUR RADIO
CONVENTION
at
CANBERRA, A.C.T.
4th and 5th OCTOBER, 1958
to be held at the Canberra Club
House, Riverside, Canberra.

W.I.A. VICTORIAN DIVISION

★

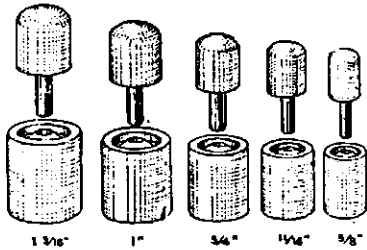
SOUTH WESTERN ZONE
CONVENTION

will be held at
BALLARAT
on
SATURDAY AND SUNDAY
NOVEMBER 15-16, 1958

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Enquiries to Brian Stares, VK3ZBS

"WILLIS" CHASSIS PUNCHES



3/8"	21/-	1-3/16"	35/-
1/2"	22/6	1-1/4"	42/6
5/8"	22/6	1-3/8"	47/6
11/16"	23/6	1-1/2"	47/6
3/4"	24/6	1-3/4"	57/6
1"	31/6	2"	62/6
1-1/8"	33/6		

Any special size requirements made to order.

Q-MAX SCREW-TYPE CHASSIS CUTTERS

5/8"	26/7	1-3/8"	38/6
3/4"	26/7	1-1/2"	38/6
7/8"	29/4	1-3/4"	42/-
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1-1/4"	34/10	1" Square	52/3

One key supplied with each cutter.
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Compact, bandswitched, high power pi-coupler inductor for co-ax output. Rated for a max. 1,200v. d.e. at 300 mA. Input. Higher voltages on c.w. and s.s.b. For max. efficiency the 10-metre coil is made of in. silver-plated strip, 15 and 20-metre coils of 1/8 in. silver-plated wire, and the 40 and 80-metre coils of 12 B. & S. tinned-copper wire.

Input capacity 250 pF. max., output capacity 1,500 pF. max. A single pole five-position switch is provided which can be used for switching in parallel capacities when required.

Recommended input capacitor: Eddystone Type 817. Recommended output capacitor: Standard miniature 3-gang BC condenser which is suitable in this position up to 1 kw.

Price: £4/17/6 nett

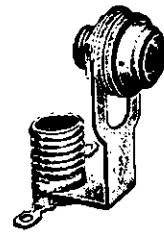
WILLIAM WILLIS & Co. Pty. Ltd. extends its hearty congratulations and best wishes upon the 25th ANNIVERSARY of the W.I.A. magazine, "AMATEUR RADIO."

With Typical Precision Engineering and Calibration Accuracy comes the GRUNDIG Model 701

GRID DIP OSCILLATOR

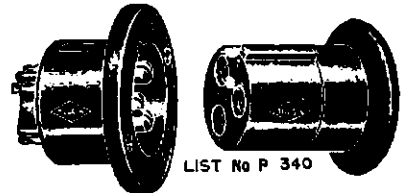
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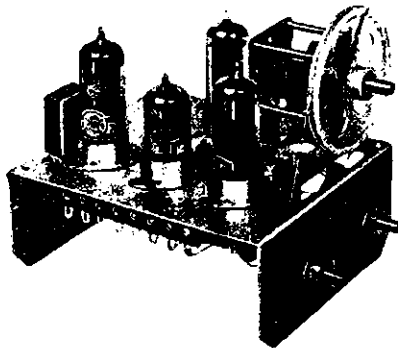
Bulgin Type P73, similar to illustration, Flush 3-Pin Plug and Socket. Ideal for any equipment, 7/- each.

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.

Price (inc. tax): 31/6

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4/103 V.F.O. UNIT EXCITER

MODEL 4/103 V.F.O. UNIT EXCITER

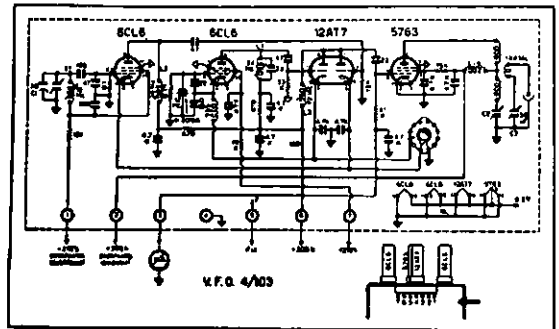
Freq. Range: 144-148 Mc.

R.F. Power Output: Sufficient to drive an 832 or 2E26.

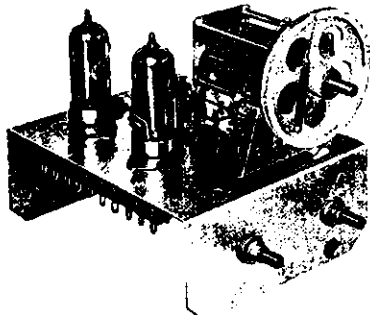
Valve Line-Up: Two 6CL6 oscillator multipliers, one 12A7T multiplier, one 5783 driver.

The unit incorporates two different oscillator multipliers, one variable for establishing communication, one crystal-controlled fixed frequency oscillator for working.

Price: £12/1/11



CIRCUIT DIAGRAM FOR 4/103



4/104 V.F.O. 6-BAND UNIT EXCITER

MODEL 4/104 V.F.O. UNIT EXCITER

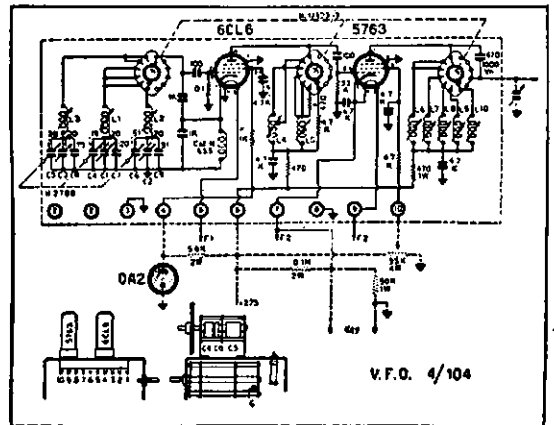
Six Bands: 80, 40, 20, 15, 11, and 10 metres.

R.F. Power Output: Sufficient to drive one 807 or 6146 for phone or c.w.

Valve Line-Up: 6CL6 oscillator, 5763 driver.

This is an oscillator exciter of high stability, because of its conveniently selected C/L ratio and the 6CL6 oscillator tube employed.

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CIRCUIT DIAGRAM FOR 4/104

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SOUTH AUSTRALIA

A display of members' gear highlighted our last meeting, when a wide range of interests in our hobby was indicated by the variation of the equipment displayed.

Two Associate members had exhibits on demonstration, neither of them previously proving their gear together. Bill Simister brought along a t.v. camera that he had made up, beautifully done and complete in all detail. This was hitched to the t.v. rx made and displayed by Alex Adams, and not to the video stages either, but direct to the input, to give an idea of how these things can work. In spite of only ordinary lighting, pictures on the screen were good enough in definition and clarity to recognise those being "photographed". A good exhibit and worthy of the prizes awarded.

Frank Fergie took some points with his e.h.t. supply and control for a c.r.o., an ingenious arrangement of boosted voltage with a poor long suffering 6H6 rectifying the h.t. which shows just how simple these things can be. An excellent idea for the basis of an inexpensive modulation checker. Al Rechner, 5ZCR, took the prize for the rx section, a nice piece of work, too, with Neil 5ZAW walking off with the instrument section, he displaying a g.d.o. and demonstrating how he uses it to measure capacitances. John 5JC gave us look at his mobile rig, wish we could all do work like that John, we try, but don't all succeed.

Les SAX took his mini-minimeter out of the car and found it had the converter in it also, so he showed us how to get there easily and how small they can be made. Ray Tuck, 5BT, gave us a look at a plug-in noise limiter, John Gazzard his idea of a dummy load, Joyce Martin an audio oscillator (yes, a YL associate who can weld a soldering iron and use side cutters), and to round it off, Dave 5BF brought along a simple tape recorder idea that should inspire any associate to copy.

New members admitted: Associates—J. A. Cooper, of Gawler; E. L. Bennier, of Craters; and J. R. Edlington, of Suttontown; and the following full members—P. C. Hutchins, 5PH, of Marion; D. W. Rickard, 4ZDK, of Maralimba; and T. F. Robbins, 5AQ, of Leigh Creek. Welcome to the ranks fellows, hope you enjoy membership as much as we enjoy seeing our ranks added to by your joining. We have a lot of things to fight for and protect both now and in the future, which will be more effectively done by a vigorous and healthy membership.

We were all sad at the news of the sudden and severe illness of Joe 5JO, who was taken ill whilst engaged in the R.D. Contest. Hospitalisation was called immediately, and at the time of writing, he is still there under close medical care. Hope you are soon on your feet Joe. Prior to all this, learned via the grape vine, that his pet hobby the Brompton and Bowden Boys' Club, had obtained their licence, VK5BA, and hoped to have a signal on the air very soon. All the gear is made on the premises and the boys given suitable instruction in the various aspects of the game, right from how to solder, upwards.

During September two notable events occurred, President Brian 5CA and Council member Bob 5FU both took unto themselves wives, one each of course, congratulations fellows, we all wish you both the best.

Rod 5SX recently heard to be making up a selectoc to cure some of the QRM, and incidentally, showed a good example when in QSO, responded to the first call for lunch; reckon he must have been real hungry. Austin 5PW now has 203 countries, including Clipper; congrats, fellow, they must be getting hard to find by now. Warwick 5PS was recently called to a certain duty with a group of other similar "Trusted and True" types, when they had to be "confined" overnight. Fannie was made Matron of the Ward, and what a matron he made! Treasurer Clem now has his call sign allotted, guess what—5ZBB. No rude remarks please; another new call sign to VK5 is Cor 5WA who was 5AWT from Ouyen, welcome to the best State Cor. The Woomera boys 5WC buy log books by the dozen, they must be working 'em all right these days. Latest from there indicates the old shack demolished or vacated with no new site yet determined.

The R.D. Contest has again brought forth a little more activity, why not keep it up throughout the year? A number of calls crop up at R.D. and are not heard again for 12 months. F.E. are to be congratulated once again for the splendid organisation shown at the opening ceremony, which it is hoped will always be a part of the proceedings. This affords good publicity as well as keeping the main idea of the Contest before us all.

Jack 5AM had a bit of bother during the Contest with a series of mishaps, first he burnt out the power transformer in his rx, followed

seeking advice concerning the retention of 6 metre band. The last meeting proved just how important is the work of a good Secretary. With Jim still away, it was difficult to obtain the results of various requests submitted at previous meetings. After the meeting closed, Vince 4VJ laid the ground work for an emergency network trial which was held on Aug. 31.

The emergency trial was conducted from 4WI and involved some seventeen fixed and portable h.f. and v.h.f. stations. 4FP had the only mobile in the hook. The exercise was taken a further step forward by the use of recognised report forms and standardised maps. All in all, the emergency run was successful and steps are under way to co-ordinate our networks with other official services. The possibility of obtaining disposals gear for these networks is also being taken to official levels.

It is with regret that we record the passing of Andy 4BW. Andy was one of the pioneers in radio in Queensland and as his association with radio went back to 1910, we felt that here was a significant chapter in the history of Amateur Radio in Queensland. Although it has taken some considerable time to tap sources of information, the results that Andy achieved are surprising. To this end a comprehensive history is being forwarded to "A.R." One particular report, written by Andy himself, covers 50 pages of notepaper. Not only was Andy well known in Amateur circles, but during his lifetime he came in contact with business people, representatives and Departmental officers. He is kindly remembered by all his associates as a grand man. We extend our sympathy to his wife and family in Mareeba.

The last v.h.f. society meeting was held at 4JO's QTH, Clayfield. The meeting was well attended by licensees who were very interested to hear recordings of good DX on 5 and 6 mx. Discussions took place which supported the preliminary action of VK3 in requesting that information, logs, etc., be furnished by Australian v.h.f. Amateurs in order to present a good case for the retention of the 6 mx band. Queensland Amateurs are requested to send information as set forth in "QTC" to the Divisional Secretary. The construction of the Queensland prototype of W.I.C.E.N. Communicators is nicely under way. Anyone seeking information can come along to the V.h.f. society meeting which is held on the third Friday of each month at 4JO's QTH at 8 p.m.

The last 2 mx tx hunt was won by John 4FP who located the rig at Beatty St., Archerfield. Rick 4VR hid the tx in the long grass by the side of the road. Unfortunately the boys had to put up with the severe cold of the Archerfield flats, but the warm coffee and a good supper Mrs. 4VR supplied back at Rick's QTH more than made up for any discomfort. The hunt is coming into its own again with an encouraging number of participants. Be in the fun, come along to 4JO's QTH, 7.45 p.m., first Friday of every month.

TOWNSVILLE

Last meeting of the T.A.R.C. was a little better attended than the previous one, though there is still room for further improvement. Well, what about it boys? After disposal of the usual club business, the boys had a spirited 15 minutes sorting out some gear for sale by 4ZAX, who went away with heavy pockets and light arms, hoping that the corner shop would still be open.

John 4DD gave his long-awaited lecture, his subject being "Operations of D.C.A." He traversed his talk covering the early formation of D.C.A. to the present time, giving a brief resume of gear used in the early times up to the latest aids to navigation. A blackboard was used to give an indication of the many small outposts being manned, some of these giving way to larger stations with greater coverage. He held the audience's attention very rapidly when discussing the air passage heights in the main routes along the coast and density of traffic around the capital cities. He pointed out how the small aeroplanes are kept track of in their flights off the main routes. The R.A.A.F. is discontinuing the responsibility of "Air-Sea Rescue" soon, this being taken over by D.C.A. A brief resume of this was given and how the various forces are co-opted when required.

A local Amateur, who has been using the W.I.A. QSL service, has decided to become a member when it was pointed out this service was for financial W.I.A. members only. The VK4 Bureau does not impose any charge whatsoever on outgoing cards. This is a great saving to the chaps who QSL 100 per cent, and only a stamped addressed envelope is required for received-cards.

Congratulations are due to three chaps who faced the barrier last examination. Result, one full ticket and two Z licenses.

done before!) Max 3DF has been busy airing his new call sign with a 122 set, and Laurie 3CN has also been trying out his new 122. Best score to date has been a ZL on 80 mx from a 14 ft. whip from 3CN. Others who got 122s included Ed 3EM and Col 3XV. All this promises plenty of competition in the next Field Day.

Our President, Stan 3ZE, is back from long service leave with a real Queensland suntan. He couldn't get back to the rig fast enough!

Our first meeting at 3EM's shack was quite a success. The smaller room dimensions made us look like quite a crowd. Meeting will continue for the time being at 267 Jasper Road, McKinnon, on the third Friday of each month.

GEELONG AMATEUR RADIO CLUB

Some of the highlights of the past month have been a disposal sale, a visit to various educational institutions to study electronic equipment displayed, and a report on the restrictions of Amateur Radio. The disposal sale was well attended and a wide variety of items was offered. It was particularly pleasing to see the bargains available for new members and most present took home something, even if only to use as paper weights.

A prominent number of club members visited the displays offering at the Royal Melbourne Technical College and the Gordon Institute of Technology. Everyone was impressed by the layout of the exhibits and the ease with which the working of the models could be studied.

The local branch of the W.I.A. has for many months been negotiating with the P.M.G. to practice emergency work by assisting local organisations. We have been asked to assist the local Sea Cadets, Boy Scouts, the C.M.F. and other organisations. There are a dozen licensed transmitter-equipped mobile units and a great number of s.w.l.s. which could be called on in an emergency. However, this assistance is outside the scope of Departmental regulations and it is a pity that some full-time practical experience could not be adopted as in New Zealand and in some other Australian States. We hope the C.D.E. Net can be a practical working organisation in this locality.

Bill 3BU is still keen on Amateur t.v. and is amassing a lot of equipment to put a picture on the air. Jim 3ABT, Peter 3ZAV, and Dick 3ABK are hoping to work further afield on 288 Mc., so chaps beam on this band from Melbourne, particularly over the weekend. Bob 3IC and several assistants set up a Ham Station at the Ocean Grove Proclamation Ceremony and made quite a lot of QSOs.

QUEENSLAND

The Council meeting on August 8 was not fully attended, due to a number of members being on holidays and transfer. As no inward correspondence could be discussed the meeting was given over to discussion of small points of policy. An apology was received from the Treasurer, Jim 4OB. His QTH at Ipswich makes things somewhat difficult when the meetings are held in Brisbane. Some discussion centred around the advisability of insuring the Technical Library and it was agreed to implement a cover of adequate insurance. The assessing of the Library's value is to be undertaken shortly.

The question of Outward QSL cards arose and it was decided that members should address all communications to Outward QSL Officer, Box 638J, G.P.O., Brisbane. Similarly, it was noted that in some instances, members have requested official action verbally. In some of these cases, not unnaturally, points of interest have tended to be overlooked. Therefore, any member requesting official action, should correspond through the Box number, addressing all communications to the Secretary. This will eliminate misunderstanding on behalf of members and Council.

Have you the latest Call Book and Handbooks? These are available from the Secretary. Only a limited number are available at present, so order your copies early.

During the absence of our Station Manager, Stan 4SA ably conducted the Sunday morning hook-up on 40 metres. Many thanks, Stan, for keeping the organisation running smoothly. Unfortunately we couldn't talk Stan into taking over the Secretary's job. Jim 4FR, the Divisional Secretary, is in Rockhampton, not Townsville as stated in last month's notes.

The August general meeting was not well attended, numbers being below par. Jack 4JO filled in as scribe and considering the length and complexity of some of the motions moved, he did an excellent job. Once again, due to a slight mishap involving the P.O. Box key, the meeting was conducted rather as a preliminary W.I.C.E.N. meeting with Bruce 4ZBD

by the same thing in his tx, finally after fixing these two items a short in the key click filter put him out of business. Wal SDF still in bother with his modulator, so comes up on c.w., not many takers he finds, a good T9 note, Wal.

The W.I.C.E.N. boys still hard at practice and improving each time, they have been keen enough to go out and into the hills districts, on very wet and very cold nights, to test sites, frequencies, etc., and carry out exercises. Some talk of possibly trying out v.h.f., so you take it from there Neil.

WESTERN AUSTRALIA

The August meeting of the Division was well attended, a feature of the meeting being the auction of the late Fred Tredrea's books. A visitor to the meeting was Herb 6XO, of Katanning. Herb had just received his license papers and call sign, and had a rig at home all ready to fire up. Since then, most of the low frequency boys have enjoyed QSOs with Herb. Also in Katanning and just about ready to go is 6XR. Best of luck there, boys.

In place of having a full-sized lecture by a guest speaker during meetings, we are trying an idea of having short lectures, dealing with topics, purely Ham. 6BE was the speaker at the August meeting, his subject being "PI Tanks". September's speakers are 6RH (problems associated with using 6148s), and 6KW (building out modulators). Comments so far have been very favourable. If you would like a talk on any particular Ham topic, no matter how elementary it may be, let us know and we'll see what we can do.

Another OT in John 6GB has re-appeared on 40 and 80 mx. Jack has been exclusively v.h.f. for many years, but has now completed a Geloso controlled rig. Heard Jack renewing acquaintance with 6WL the other night. Only needed 6NL to complete the trio.

Bernie 6KJ has just finished a "mobile" holiday. Some of the boys worked him all the way round on his trip, Albany-Perth-Milling-Perth-Bunbury-Albany. Bernie's revamped No. 19 did a very nice job on the trip, apart from a little trouble which was located and cleared up during Bernie's stay with 6CL and XYI. Roma.

The R.D. Contest has come and gone again, but this time VK6 is not quite so confident of success. Shrewd tactician 6RU tips a very close result. VK5 operators scored very heavily, while relatively poor conditions on 80 early on the Saturday night, plus the absence of two top scorers of last year (6TH and 6FD) told against VK6. Remarks have been made on the high standard of operating in the Contest this year, apart from the usual few pests who think they can get through on the modulator alone (known as "Winding up the Wick"). Unfortunately, the extra points gained by these chaps are lost by their fellows who can't copy through the QRM.

6TH has been absent on business in Sharks Bay, unfortunately missing the Contest. Since his return, Tom has put a pi tank in his final and I hear it is working out very well.

The Slow Morse Transmissions have resumed now that 6BE is back at work. If you're interested, listen on 3.6 Mc. at 8 p.m. on Wednesday night.

The 6 mx gang has been watching anxiously for signs of DX activity on that band, particularly since reports have been received that 4NG and company are into the DX again. Living in the tropics has some compensations apparently. Maybe they even like the climate! Good luck to you anyway, boys, even if we're a little envious.

This month's funny story: S.w.I. (now passed ticket) was visiting a VK6 shack. On

one chair was the remains of a long defunct TA12D; on another was a cage, complete with a pink and grey galah. S.w.I. bends over to examine the remains; Cocky eyes the expanse of tightly stretched trouser and, ever an opportunist, gets right to the seat of the matter. S.w.I. straightens up with a howl of anguish, and turns to see what has attacked him. Cocky just looks at him with one eye and says nothing!

TASMANIA

NORTH WESTERN ZONE

Well chaps, another R.D. Contest has come and gone with its usual crop of breakdowns; minor and otherwise. I heard most of the locals plugging away steadily. One, I won't mention names, reported that he went to sleep and forgot the Contest, so made a late start.

At our August meeting a new associate was welcomed in the person of David Waldon, another reinforcement for Ulverstone. How is the Morse going David?

On August 13 about nine associates gathered at the home of Jim 7JO, where we were solidly thrashed on the subjects the examiners revel in. Our worthy Secretary looked longingly at Jim's rig and dreamed of the time when he can go to it with his own gear. Jim's XYL turned on a lovely supper as a final to Ohm's Law, etc. Once again our thanks to you and your XYL, Jim, I am very very sure the boys benefited greatly. On Aug. 21 Max Ives, John Lee and myself got together on some morse. Practice must be kept up at all costs.

At the moment of writing yours truly is in VK3-land returning from Sydney where I visited some of the better known disposal stores. Boy! did I walk some miles; those stores are scattered and Sydney is a big place. I am afraid their goods are easier to locate by reading advertisements; mainly huge piles of equipment. Melbourne stores proved much the same, but with higher prices. Broadcast reception here on the mainland is not as good as at home, the Interstate stations not proving very useful; so I suppose we have something to be thankful for in our location.

I trust all the hopeful associates got their applications away in time, anyway best of luck chaps. I hope we all pass OK, then there'll be some difficulty finding a clear spot on the bands for a while.

Several committee members met the Burnie Fire Brigade in August to discuss two-way radio equipment for Brigade vehicles; I guess we will hear all about it at the next meeting. Had a yarn to Max 3ZS whilst in Melbourne, also Dave 2AYE; main topic being the I.T.U. Conference. They both stressed the importance of sending a representative, so don't forget your contributions, please.

Saw another t.v. set like yours Syd, covered just as great an area, too.

Many Happy Returns to "A.R."

PAPUA-NEW GUINEA

We are back on deck this month after the mad rush getting ready for the R.D. Contest; the XYL is very pleased, she can walk into the lounge again without falling over odd bits of rig. By the time this goes to press Bob 9BS will be back from the bush and possibly back in the home town—Rabaul. Roy 9AU has left Wewak and is now stationed in Port Moresby. We hope to see you take an active part in the doings of the Division Roy, and when you get settled in, hope to hear you in the Sunday hook-up at 8.30 a.m. Bob Murphy will be travelling round in the future and will be in Lae for about three months and also in Madang for the same period. Bob has bought an SX99 and reckons its the goods. Another Bob, 9AA, is on leave at present and will be bringing back a new SX100. This will go well with that neat Viking Ranger Bob and by the way, it's time that conical quad was taken out of the lounge! J. Whittaker, 9AS, has been very quiet of late and you know why. He has set up a radar unit on the roof and a television rx in the lounge and just sits staring, sure he has heard t.v. programmes from the Philippines but as yet there has been no pretties to look at. I think you better give it away and come back on the air; it won't be such a strain on the eyes.

Eddie 9AT is back from leave and has been transferred to Garoka. Hope to hear your mellow voice again on Sundays, Ed; by the way, how is your t.v. going? Doug 9DB has learned to play golf at last and once again can be heard on the bands occasionally. Another strange voice lately has been Doug 9SE, who has been off the air for about 12 months, and has just built a table-top rig using a

Geloso and reckons he'll have a tri-band quad in operation for the VK-ZL Contest. Reg 9SF is down south, having a spot of leave at present. Also down that way is Bill 9WP. Our Secretary, Peter 9PO, is back on his feet again after his recent illness and we trust you don't have any more bad luck. Another old member, Charlie 9WG, has also been in hospital recently with a bad leg complaint, and the birdie tells me he is going south shortly to recuperate. We wish you all the best, Charlie, and hope it won't be long until you are your old self again.

Well chaps, that's it for this month, and remember the meeting night is the last Wednesday of the month and the Sunday broadcast and hook-up is on every Sunday at 8.30 a.m. on both 7 and 14 Mc. We'll be looking round for you.

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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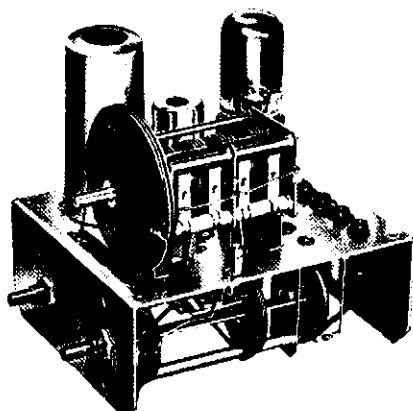
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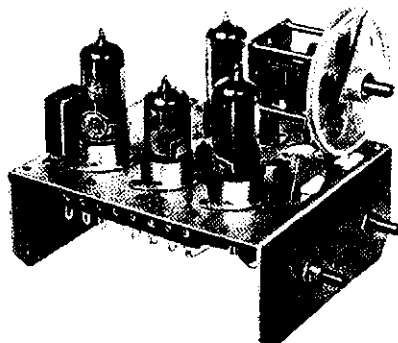
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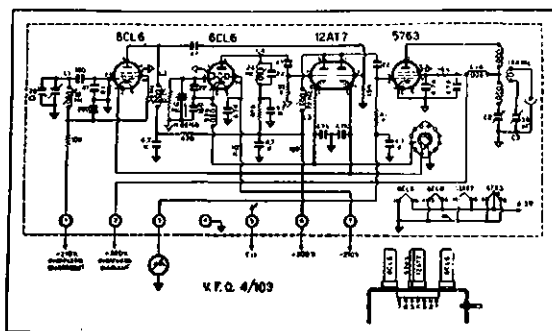
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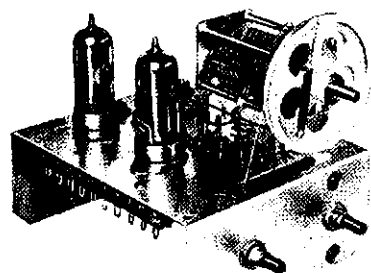
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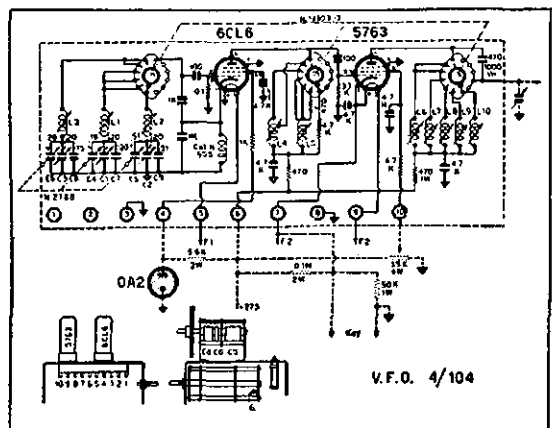
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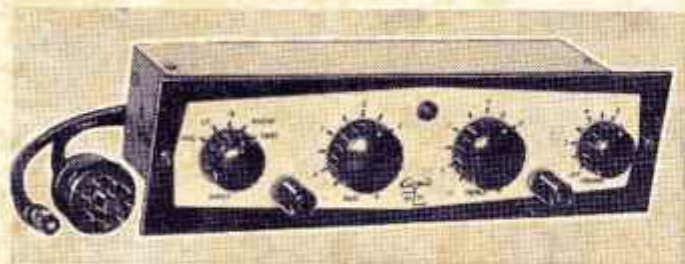
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EDITORIAL



"A LETTER TO THE AMATEURS OF AUSTRALIA"

Dear Fellow Amateurs,

I desire to place on record through the medium of this journal that subsequent to the request from the Wireless Institute of Australia, the Postmaster-General, Mr. C. W. Davidson, M.H.R., confirmed in a letter under date of the 1st September, 1958, that provision will be made for the inclusion of a Representative of the W.I.A. in the Australian Delegation to the Administrative Radio Conference to be held in Geneva from August, 1959.

I have had the opportunity of personally thanking Mr. Davidson and have confirmed this in writing on behalf of the Federal Council of the Institute and all Australian Amateurs.

It is indicative of the regard in which the Amateur Service is held that Mr. Davidson has seen fit to include an Amateur Representative in the delegation in the capacity of adviser-observer.

The Australian Amateur has no ulterior motive in seeking representation at Geneva. This desire stems from the fact that the forthcoming International Telecommunications Union Conference is convened at a crucial time in the history of communications, and our frequency bands, of which we have sacrificed portion at every past Conference, stand in jeopardy.

As an internationally recognised Service distinct from national domestic services, we have a very keen interest in the problems of frequency allocation on an equitable engineering basis in relation to our own limited channels in which we have to operate alongside hundreds of other stations in a channel-density-per-kilocycle unworkable under the conditions required by our commercial "big brothers".

All over the world today the Amateur is presenting his case for the retention of his existing channels of operation through his Government Administration with the united hope that his national worth in defence, his ability in technical employment

in Government and private enterprise, his proven value in emergency communication operations, and his ability to contribute a valuable asset to the world of electronics generally, will be reason for his Government to consider his small requirements in the frequency spectrum sufficiently important to be safeguarded against encroaching commercialism.

There will be many Amateurs at Geneva as observer-advisers with the official Delegations from their countries, and we are particularly proud that, for the first time, a representative for the Australian Amateur will be officially accredited with the Australian Delegation in an advisory capacity when matters affecting the Amateur Service are under discussion.

I am aware that all Amateurs are desirous of knowing who is to be the representative of the W.I.A. at Geneva. Until such time as the financial position is secure, it is considered unfair to approach a person and request him to negotiate leave of absence for the period of the Conference. Rest assured that you will be informed when this position is reached.

The Federal Council takes this opportunity of thanking all those Amateurs who have so willingly contributed to the fund organised by the W.I.A. to raise the necessary finance. With the fund standing over £1,500 after deducting expenses for printing, postage, etc., assurance from our sister Dominion—New Zealand—that the New Zealand Amateur Radio Transmitters Association have opened a fund in support of the W.I.A. and the expectation of contributions from other Region III. countries, the prospect of reaching the target figure of £2,500 is most heartening.

In conclusion, I appeal to all those Amateurs who are financially able and who have not yet contributed to the Fund to expedite their subscriptions to enable the Fund to be closed at the earliest possible date.

G. MAXWELL HULL, VK3ZS,
Federal President W.I.A.

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Transistorised I.F. Amplification

BY HANS J. ALBRECHT

THE application of transistors in i.f. strips requires some special consideration, particularly with regard to circuit economy. The selection of suitable types obviously cannot be done on lines known from valve technique, where practically any ordinary pentode is good enough for the purpose. It is well known that one of the important characteristics of transistors is their cut-off frequency beyond which they do not display amplification of any kind. On the other hand, costs of manufacture are often considerable for types with high cut-off frequencies. Thus it is a reasonable approach to choose transistor types according to the i.f. channels required. In addition, it may also be advisable to diverge from the channel frequencies generally utilised in tube technique, in order to make possible the use of transistors which are available at a lower price.

In consequence of what has just been outlined, a multi-conversion communication receiver, with fully transistorised i.f. strips, could use about 10 Mc. as first i.f., if the highest receiving range extends to the v.h.f., and about two megacycles per second if 30 Mc. is the highest frequency to be received. The second i.f., normally 455 Kc. in orthodox tube receivers, should be retained in that range. A third i.f. strip may be tuned to a frequency between 50 and 100 Kc. Such an i.f. channel allows the use of a low-priced category of normal alloy-junction triodes.

As is well known, transistors in the triode class display their best frequency response in the common-base connection. However, this type of configuration may necessitate special consideration in the arrangement of the bias supply. For this and other reasons, the common-emitter circuit is generally preferred. Table 1 gives, for popular triode transistors, approximate information on the order of magnitude of the limiting frequency for i.f. amplification. The figures are largely based on theoretical considerations and experimental tests made by the author. They can only be regarded as average data. Individual transistors may possess cut-off frequencies up to at least 30 per cent. higher than the value given as average value for the type concerned.

The behaviour of triode transistors is similar to that of triode tubes inasmuch as there is a natural tendency towards oscillation, provided the stage

gain is high. An efficient remedy is a neutralisation circuit arranged in such a way that undesirable coupling between output and input circuits is compensated in a fashion similar to that known from tube technique.

Considering the requirements of a triple-conversion communication receiver it is intended to describe in this article circuit details of i.f. strips on about 2 Mc. and 455 Kc. with various types of transistors. A transistorised Qser or, in other words, a third i.f. strip on about 70 Kc. and appropriate audio output circuits shall soon be published within the framework of this series of the author's publications on transistorised communication receivers.

THE 2 Mc. I.F. STRIP

Depending upon the availability of modern transistors and their price, there are, presently, two popular categories of junction transistors for i.f. applications, namely the normal alloy-junction triode and the alloy-diffused-junction transistor. The use of the last mentioned type has obviously many advantages, because there is a considerable improvement of the characteristics governing the cut-off frequency. Assuming that, for this discussion, this type is represented by the recently developed OC170, its cut-off frequency in the optimum configuration is 70 Mc. On the other hand, the tendency towards excessive positive feedback through the internal capacitance is also reduced to a large extent. The interlead shield is normally connected to earth. Thus in cascaded tuned amplifiers or, in particular, in i.f. strips, this new junction transistor promises to be very useful indeed. In case transistors of this kind are not yet available on the Australian market, they should definitely be on their way to it.

Fig. 1 depicts the complete circuit diagram of an i.f. amplifier with two channels and the appropriate mixer stage. The first part of the figure illustrates an i.f. strip on 2 Mc. using two transistors of type OC170 in common-emitter connection. The correct impedance from stage to stage can be achieved by taps on either the inductance or the capacitance of the resonant circuits. To demonstrate how this can be done, the first resonant circuit is tapped on the inductance for correct matching to the mixer output impedance; in other words, this circuit represents the collector output circuit of the mixer which is not included in the circuit diagram. The capacitance of this circuit consists of two condensers in series with the centre being connected to the base of the first i.f. stage. The ratio of the two capacitances results in an impedance matching just as a tap on the coil.

For reasons of economy, certain triode transistors could also be considered for the 2 Mc. i.f. strip. The circuit would then take the form depicted in the second part of Fig. 1, which actually shows the second i.f. strip on 455 Kc. to be described further below. Again referring to Table 1, we are able to

select suitable transistor types at the desired circuit configuration. It can be found that, in common-emitter circuit, the OC44 permits i.f. amplification on 2 Mc., while with the common-base connection this type and the OC45 should result in satisfactory performance.

The resistances have been calculated to give a stability factor "S" corresponding to the requirements of tuned amplifiers, as already defined in the author's recent article in this journal. Thus $S = 2$, where "S" is given by the method described some time ago.¹ It may not be amiss to repeat here that

$$S = \frac{1 + \frac{R_s}{R_a} + \frac{R_s}{R_b}}{1 - a + \frac{R_s}{R_a} + \frac{R_s}{R_b}} \dots \dots (1)$$

where the resistors are denoted as in the first stage of the figure, "a" being the current amplification factor in the common-base circuit. It should be recalled that "S" is defined by the derivative of the collector current to the zero collector current in common-base configuration. The stability factor thus depending upon the common-base characteristics is also valid for the common-emitter connection, because this definition of stability is not affected by changing from one configuration to the other. In other words, a stability factor derived from data in the common-emitter connection is related to our stability factor by a constant. To work towards standardisation of design methods for transistor circuit, it is advantageous to use only one sort of stability factor, namely that shown once again in the above formula. All comments to circuit stability in this series of publications refer to this stability factor.

THE I.F.-MIXER

The two stages of the first i.f. strip are followed by a mixer with the output on 455 Kc. While an OC44 should be used in the actual mixer stage, the mixer oscillator may use an OC45. The oscillator circuit is very similar to that published some time ago in this journal.² Oscillator stabilisation is based on the author's method. With reference to one of his previous publications³ the value of "N", defined as the overall temperature coefficient of the oscillator frequency per degree Centigrade, is assumed to be 0.00025. This results in a variation of 0.62 Kc. per degree Centigrade at a frequency of 2455 Kc. According to formulae given in the publication just mentioned, we then find the necessary circuit coefficient as being approximately 0.5 parts in thousand. Taking into account the positive temperature coefficient of the coil, the method described before yields 600 negative TK units as the necessary temperature coefficient of the capacitance combination. This means that an ordinary ceramic condenser, having a temperature coefficient of a value between -700 and -800 TK units, should be connected in parallel

Type	Common Emitter	Common Base
OC44	2 Mc.	15 Mc.
OC45	1.5 Mc.	6 Mc.
OC70	50 Kc.	300 Kc.
OC71	40 Kc.	300 Kc.
OC72	45 Kc.	350 Kc.
OC73	80 Kc.	500 Kc.

Table 1.—Approximate values of cut-off frequencies.

to a capacitance with positive coefficient, e.g. a mica condenser. It is obvious that for accurate final adjustment of frequency an appropriate trimmer is required. Assuming a circuit inductance of 4 μ H. we find that, for 2.455 Mc., a total capacitance of 1,000 pF. in combination with a ceramic trimmer of about 30 pF. results in an oscillator on the correct frequency. This oscillator is coupled inductively to the mixer emitter by means of a link of a few turns on the oscillator coil, numbering about ten per cent. of the total number of turns required for 4 μ H. The coupling must be adjusted experimentally by varying the degree of coupling or by changing the number of turns of the link. The quiescent operating point of the mixer transistor OC44 is determined by the stabilising resistors, the emitter resistor being in series with the coupling link.

THE 455 Kc. I.F. STRIP

This part of the circuit uses two transistor triodes in common-emitter circuit and another one in the beat-frequency oscillator. According to Table 1, type OC45 is suitable for all three stages. Again, impedance matching is achieved by taps on one of the circuit components, in this case on the inductance. Here, as well as in the 2 Mc. strip, interstage coupling can be obtained inductively by h.f. transformers of the type normally used in transistorised equipment. In many cases, however, single resonant circuits with taps result in sufficiently good operation and are thus preferred because of simplicity of construction. Although division of the total winding into three parts for impedance match-

ing does not give optimum conditions, a good compromise can be obtained by this simple method. It is useful to use formers with adjustable cores. Alternatively, about 30 pF. of the circuit capacitance could be replaced by a trimmer to allow accurate and final adjustment to resonance on the required i.f. frequency. This is also valid for the coils utilised in the 2 Mc. strip described above.

As mentioned in the introductory remarks, a neutralising arrangement, consisting of capacitance and resistance or a capacitance only, may have to be connected from one transistor base to that of the preceding stage, if oscillation on the l.f. frequency is observed. Although the entire circuit is designed for considerable stage gain, neutralisation should normally not be necessary but this may depend upon battery conditions and other factors.

The b.f.o. is an ordinary oscillator variable around 455 Kc. The range of variation should be approximately plus and minus five kilocycles per second, giving a total of ten kilocycles. A trimmer of 30 pF. in parallel to the circuit capacitance of 330 pF. plus stray capacitance and that of the transistor yield the above mentioned range of variation, together with an inductance of 0.33 mH. Here we may assume a value of 0.00015 for N, thus requiring a temperature coefficient of -400 TK units for stabilisation by means of the condenser. This value is obtained by a combination with a condenser of positive coefficient, similar to the system used in the mixer oscillator.

The output is connected to a tap one third above the cold end of the coil and thus gives suitable matching to another mixer, in other words the first

stage of the Q5er to follow. Alternatively, this output may be connected to a detector stage.

GENERAL PERFORMANCE

Concluding this description of a part of the transistorised communication receiver, it is useful to consider its performance in relation to the receiver as a whole. As has been indicated previously, the low frequency i.f. strip and the audio part are soon to be described under the heading of a transistorised Q5er. The actual r.f. part, or the front-end, of the receiver will also be dealt with in a separate article. The entire receiver is designed for absolute stability in all its sections. In order to allow a universal use of the receiver, all values are calculated for a six-volt supply. Four 1.5 volt dry cells in series or a six volt car battery can thus be utilised.

Of several possible methods of a.v.c. application in transistorised i.f. amplifiers, the following appears to be the best system, because circuit stability does not have to be jeopardised. Following rectification of the signal in the detector stage and appropriate amplification of the resulting d.c. signal, this is applied to a diode in parallel with one of the tuned circuits. Briefly, the amount of damping of this resonant circuit is then controlled by the strength of the signal. More details will be given later.

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- (1) Hans J. Albrecht, "Design Notes on Transistorised Audio Amplifiers," "A.R.," Vol. 28, No. 1 (1957).
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- (3) Hans J. Albrecht, "Notes on the Frequency Stabilisation of Transistor Oscillators," "A.R.," Vol. 25, No. 3 (1957).

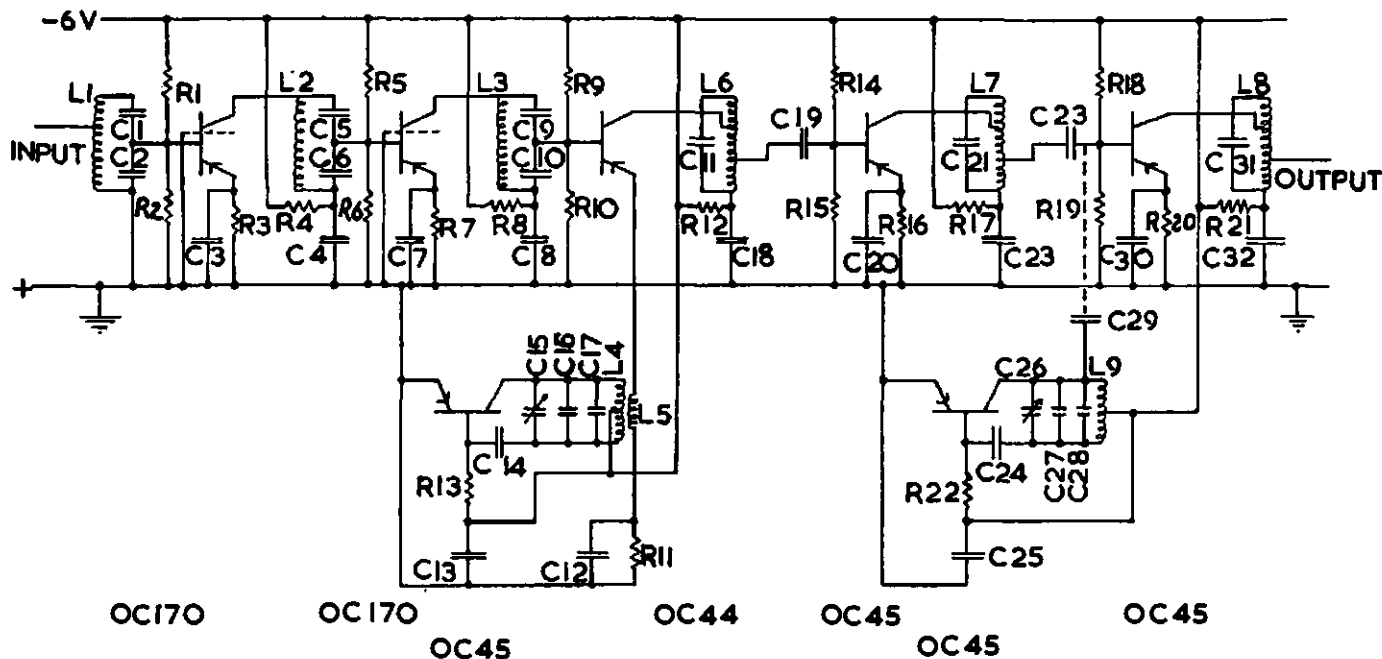


Fig. 1.—Transistorised I.F. Amplifier of Multi-Conversion Receiver.

C1, C5, C9, C24—500 pF.
C2, C6, C10—3,800 pF.
C3, C4, C7, C8—10,000 pF.
C11, C21, C31—330 pF.
C12, C13, C18, C19, C20, C22, C23, C30, C32—20,000 pF.
C14—100 pF.
C15, C28—5-30 pF. trimmers.
C16—820 pF. (-750 TK)

C17—180 pF. (plus 80 TK mica)
C25—50,000 pF.
C27—200 pF. (-750 TK)
C28—130 pF. (plus 80 TK mica)
C29—Capacitance of two wires or fixed capacitor.
R1, R5—5,400 ohms, ½ watt.
R2, R6, R12, R17, R21—1,000 ohms, ½ watt.
R3, R7—800 ohms, ½ watt.

R4, R8—150 ohms, ½ watt.
R9, R10, R14, R15, R18, R19—6,000 ohms, ½ w.
R11, R16, R20—3,000 ohms, ½ watt.
R13, R22—100,000 ohms, ½ watt.
L1, L2, L3—15 microhenry.
L4—4 microhenry.
L5—See text.
L6, L7, L8, L9—350 microhenry.

Frequencies for Emergency Net Working

BY J. A. GAZARD,* VK5JG

WHAT are the best frequencies for Emergency Networks working over short distances of up to 15 miles? Some Amateurs prefer the lowest frequencies available, those in the 3.5 Mc., but others claim that very high frequencies, such as 56 Mc., are best and give as examples the use by taxi and other mobile services of frequencies between 60 and 70 Mc.

Reference to text books gives no clear answer to the question but gives us the following relevant facts on radio propagation which will help to solve the problem.

Briefly, radio waves travel in four modes:

1. The Ground Wave—which travels along the surface of the earth and is vertically polarised.
2. The Space Wave—the direct wave which occurs when there are no obstructions between transmitter and receiver.
3. The Skywave which is reflected or refracted back from the ionosphere.
4. The Tropospheric and Ionospheric Scatter Wave.

The attenuation of the ground wave due to ground absorption increases rapidly with increase in frequency so that low frequencies are much better on the ground wave path. Over average country, it is unlikely that a 56 Mc. ground wave could be useful at more than five miles.

With the space wave, attenuation is due only to the wave spreading out with distance and therefore there is no difference between the propagation of the 3.5 Mc. and 56 Mc. signals.

Sky wave will occur only on rare occasions with 56 Mc. signals and even then 15 miles will almost certainly be inside the skip distance, but on 3.5 Mc. sky wave is effective although the waves are nearly vertical over short distances.

Tropospheric scatter wave can be neglected for the power and antennae commonly used in mobile working.

It would seem then that 3.5 Mc. is superior to 56 Mc. for ground wave and sky wave and equal on space wave. Other factors, however, must be taken into account. Taking first the space wave where attenuation is the same on both frequencies, we have to consider the antennae that can be used. As the space wave depends on a clear path between transmitter and receiver, the height of aerial is important and it is much easier to put the small 56 Mc. high up in the clear than the bulky 3.5 Mc. antenna of corresponding radiation efficiency. Also a 56 Mc. ground plane or beam antenna, which concentrates the signal in the horizontal plane, is easy to set up high but it is almost impossible to achieve the same results on 3.5 Mc.

Antennae suitable for 3.5 Mc. are the half wave horizontal and quarter wave grounded vertical which may be shortened by centre loading. The horizontal radiates an effective sky wave and

● The Publications Committee feels that the author has opened a most interesting subject and would be pleased to receive reports on experiences of those who have had experience with emergency networks. Reports of about 500 words, in a form suitable for publication, would be appreciated. —Editor.

space wave but does not produce a good ground wave as this is vertically polarised. On the other hand, a vertical antenna, while producing effective ground and space waves, does not give the near vertical sky wave required for short distances. Neither of these two antennae can be considered suitable for mobile working and if the vertical is shortened down to whip size, its radiation efficiency is lowered considerably.

Therefore if the country is such that space wave is possible between transmitter and receiver, then because of the greater effective height and the horizontal concentration that can easily be obtained on 56 Mc., this frequency will be most effective. On the other hand, if obstructions such as a range of hills intervenes between transmitter and receiver, sky wave is necessary and 3.5 Mc. with horizontal antennae will be most effective.

There are other factors which also will influence the choice. One of these is the strong atmospheric noise (static)

that exists on 3.5 Mc. on occasions. It has been noticed that at times of heavy static a local 3.5 Mc. station is received better on a short untuned vertical wire than on a good high tuned half wave antenna. The reason for this would seem to be that the local signal is mostly space and ground wave while the static is sky wave. The horizontal antenna favours the static sky wave, while the vertical favours the signal ground wave, and thus the signal-to-noise ratio is better on the vertical antenna.

While these briefly are the theoretical considerations the best frequencies over any particular path can be determined only by actual test, but in testing all the above factors must be taken into account. For example, it is useless to compare both frequencies on one receiving antenna such as a six-foot whip.

One of the reasons why commercial mobiles use the 60-70 Mc. band is that as there are no long distance sky waves on these frequencies, the same frequencies can be used in different cities and States without causing interference.

Another band that might be considered for short distance emergency nets is 28-30 Mc. While 28 Mc. antennae are twice the size of those on 56 Mc., a quarter wave for whip or ground plane is still only eight feet long and there is a definite advantage in the simplification of gear. A 28 Mc. transmitter requires one less doubler than a 56 Mc. and most station receivers tune to the 28 Mc. band.

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AMATEUR TELEVISION

PART NINE

BY E. E. CORNELIUS,* VK6EC/T

TELEVISION TRANSMITTERS

Previous papers in this series have described specific equipment which has been tested and proved over a considerable period. In describing transmitters, the ground I will cover will be far less firm, and the discussion much more general.

A simple transmitter has been made up and performs satisfactorily. It needs a vestigial sideband filter to follow it, but I have had no success in designing such a filter for 300 Mc. that can be built and adjusted by an Amateur. The transmitter features are worthy of consideration, however, and while the transmission of the full lower sideband is out of band, and hence illegal, a discussion of the technique has point. If a linear final amplifier is added to follow the modulated stage, as in the vestigial sideband transmitter, the three tuned circuits on 295.2 Mc. may reduce the lower sideband adequately to comply with the regulations.

Thanks to the interest and help of John Stewart, VK1ZBS, who has suggested an alternative design with true v.s.b. characteristics, a transmitter for the 288-296 Mc. band is practicable for Amateur construction. This does not

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involve any more complex circuits than a t.v. receiver r.f. and i.f. section, and will be discussed later.

The design of a video transmitter is not simply a wideband version of an a.m. sound transmitter. Several new considerations, unique to television, call for a different approach. These are:—

1. A video bandwidth from 25 c.p.s. to 5 Mc., preclude all the more efficient methods of modulation.
2. The necessity for d.c. transmission, with an invariant black level requires special considerations in the modulator.
3. Vestigial sideband transmission (essential for 288-296 Mc.) calls for a rather unusual type of filter.
4. Video plus sound transmission requires two separate transmitters, but the subcarrier method can avoid this, and give worthwhile economy.

To consider the implications of wide bandwidth first, remembering that gain times bandwidth is more or less constant, it is important to realise that wherever the wide bandwidth is a factor, the power gain will be correspondingly low. This applies to the modulated stage, and to any linear stages which follow. An unsuspected trap is that even if the anode and/or screen is

modulated, the grid circuit must be wide band. Instantaneous grid current is a function of anode current, in a Class C stage, and if the anode current is varying at video rate, so will the grid current. To maintain adequate grid drive under all conditions of modulation, the grid circuit will therefore have to be wide band.

Happily, adequate circuit Q's at 200 Mc. are easy to obtain, in fact it is difficult to get the Q too high, but with undesired regeneration, this can occur.

Similarly, the antenna system must have adequate bandwidth, and for 5 Mc. video, multi-element Yagis have to be designed with care. In general, the greater the number of parasitic elements, the narrower the bandwidth. So for a specific antenna gain, it is better to have a number of driven elements, rather than the same gain from a parasitic array. The bandwidth of the transmitting antenna has to be noticeably wider than the 5 Mc. transmitted, as any restriction in bandwidth at this point, is as serious as the same lack of bandwidth in the video chain.

To maintain both bandwidth and gain, therefore, it is necessary to have a high proportion of driven elements. In commercial practice, no parasitic elements are used.

A video modulator must run Class A. The bandwidth of 25 c.p.s. to 5 Mc. makes the use of transformers, and hence Class AB or Class B circuits, impossible. Anode modulation of a Class C stage is therefore out of the question except at very low power levels, due to the inherent inefficiency of the Class A amplifier. T.v. transmitters are therefore normally grid modulated, but at the power level of those to be described, anode and screen modulation has been possible.

A Simple Transmitter

The first transmitter to be described is essentially similar to any a.m. sound transmitter, excepting insofar as d.c. and video transmission modifies the modulator, and the special techniques applicable to 300 Mc. See Fig. 43.

As outlined in Part 1, the vision carrier is on 290.25 Mc. This is crystal controlled by a 10.75 Mc. crystal. A tritron oscillator using a 6M5 (VI) triples

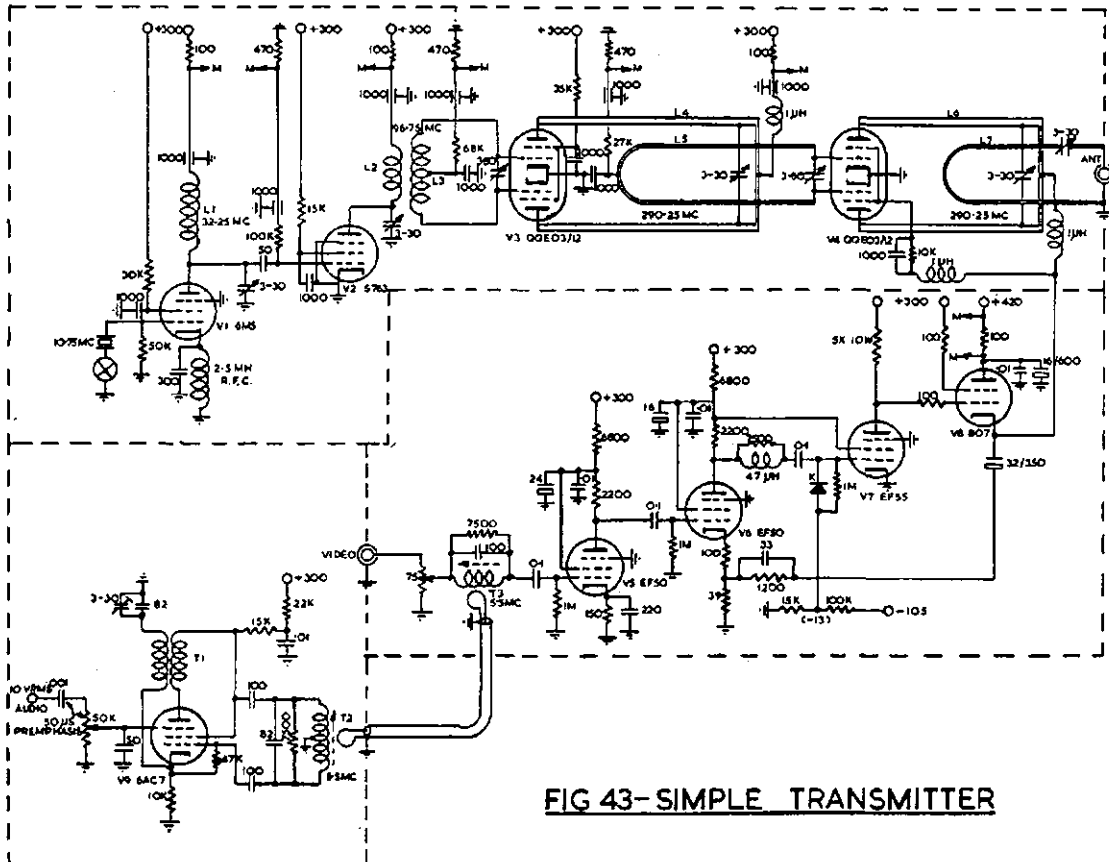


FIG 43—SIMPLE TRANSMITTER

in its anode circuit, providing 32.25 Mc. drive to V2, a 5763 tripler to 96.75 Mc. This in turn drives V3, a QQE03/12 tripling to carrier frequency of 290.25 Mc. A final QQE03/12 (V4) is anode and screen modulated by the video modulator.

Video from the camera chain at the 1.4 volt p.p. level is taken to an EF50 (V5) as a straight video amplifier and then to a feedback pair cathode follower V6, V7, V8, using EF50, EF55 and 807. This last is essentially similar to the feedback circuits in camera and camera control, and designed on similar lines.

The 807 cathode follower is directly coupled to the anode and screen feed of the final stage, and provides adequate modulation. The 807 cathode swings between +260 and +60 volts for maximum modulation. D.c. restoration at the grid of the EF55 maintains d.c. transmission with black level set at about 70% modulation.

The linearity on negative peaks (white) is poor, causing white compression, but could be overcome by using a negative supply for the EF55 cathode circuit, enabling the anode, and hence the 807 grid and cathode, and QQE03/12 anode and screen to be driven down to near earth potential on white peaks.

Sound Channel

To avoid the necessity for two separate transmitters for sound, a 5.5 Mc. f.m. subcarrier is injected into the video modulator, which generates a sound carrier 5.5 Mc. above (and below) the picture carrier. A v.s.b. filter, if it had been practicable, would have removed the unwanted sound carrier below the picture carrier. However, the principle of multiplexing the sound on the vision channel is equally practicable in the second transmitter to be described, and will be discussed more fully in that context.

The transmitter, without filter, was tested on air, and provided a good signal over about three miles. Some 50 c.p.s. buzz was evident in the sound, due to d.c. restoration in the EF55 tending to clip the f.m. subcarrier on the sync. peaks. For anyone interested in a transmitter on these lines, coil details are as below:

- L1—9 turns 16 B. & S. on 3/8" diam., 1" long.
- L2—5 turns 16 B. & S. on 1/2" diam., 3/4" long, close coupled to—
- L3—6 turns 16 B. & S. on 1/2" diam., 3/4" long.
- L4—Lecher bars of 1/4" copper tubing at 1 1/2" centres, 3 3/4" long, shorted with 10 B. & S. copper wire. 3-30 pF. Philips' trimmer 3/8" from short.
- L5—Lecher bars of shape shown in Fig. 43, at 1" centres, of 1/4" tube, 2 1/2" long. 3-30 pF. trimmer on grids. Bars about 3/4" below L4.
- L6—as L4.
- L7—as L5, 2" long, with 3-30 pF. trimmer in series. About 3/8" below L6.
- T1—30 + 30 turns bifilar on 3/8" form, 40 B. & S. enamel.
- T2—20 turns 36 B. & S. on 3/4" former with slug. Link 2 turns over centre of winding.
- T3—as T2, link over cold end.

300 Mc. techniques apply to both transmitters and will be discussed in connection with the v.s.b. transmitter.

Sidechain Vestigial Sideband Transmitter

The block schematic in Fig. 44 will indicate the methods involved, in which the sideband shaping is done at a practicable frequency—29 Mc.—and this shaped response translated to carrier frequency.

The effective frequency multiplication in this case is 30 times, i.e. 3 x (9 + 1), calling for a crystal on 9.675

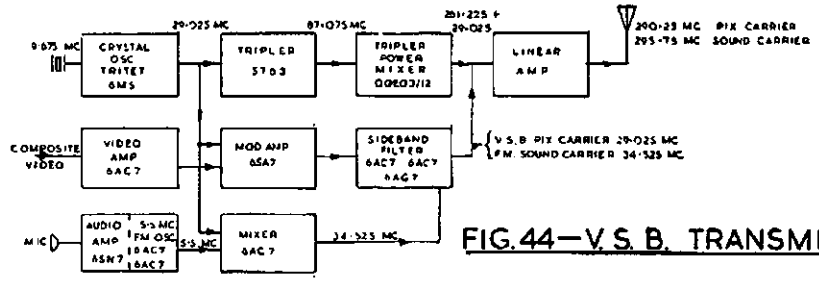


FIG. 44—V. S. B. TRANSMITTER

Mc. A tritnet oscillator is used as before, a 6M5 tripling to 29.025 Mc. This signal is used for three purposes.

1. To two tripler stages as before, using 5763 and QQE03/12 with output on 261.225 Mc. (This frequency never actually appears—see later.)
2. To a modulated amplifier using a 6SA7 where the 29.025 Mc. subcarrier is modulated linearly with picture information.
3. To an f.m. subcarrier system for the sound channel, to be discussed later.

The modulated carrier from (2) is double sideband a.m., with a carrier frequency of 29.025 Mc. This is fed to a sideband filter using standard receiver type i.f. components to give a shaped response as shown in Fig. 45 This filter follows normal receiver techniques, and all tubes must operate Class A. The output of this is a standard v.s.b. signal, and is now translated in the modulated stage, by power mixing, with 261.225 Mc. to the carrier frequency of 290.25 Mc. The unwanted products of the mixer stage will be 29 and 58 Mc. below the wanted signal, and will effectively be rejected in following tuned circuits.

The Sound Channel

A two-stage audio amplifier lifts the microphone level sufficiently to enable a Miller tube modulator to frequency modulate an oscillator on 2.75 Mc. by ±25 Kc., with good linearity. The oscillator doubles in its anode circuit to 5.5 Mc., with a deviation of ±50 Kc., which is standard.

This 5.5 Mc. f.m. subcarrier is then mixed with the 29.025 Mc. sidechain signal to give an effective sound subcarrier at 34.525 Mc. This is re-injected into the main channel with the v.s.b. picture information, and is transmitted with it.

This method overcomes the sync. buzz effect noted in the first transmitter. Translation of the 5.5 Mc. to 34.525 Mc. enables injection back into

the transmitter, late in the chain, minimizing v.s.b. amplifier overload and enabling the v.s.b. filter to cut off before 34.525 Mc., the sound carrier frequency.

It also reduces the probability of multiples of 5.5 Mc. appearing on each side of the main carrier, due to non-linearity in the video and v.s.b. circuits. See circuit, Fig. 46.

As this is being written to meet the Editor's deadline, this transmitter is not complete, but the main problems were attacked in order of importance, and proved soluble. These were:—

1. Power mixing at 290.25 Mc. This is feasible with useful efficiency, using a QQE03/12, grid or screen modulated. It is running with the circuit shown, with an output of about 0.7 watt from the modulated amplifier.
2. Linear video modulation of a 6SA7 is satisfactory with the circuit shown. Due to d.c. transmission requiring d.c. restoration at the 6SA7 grid, the screen voltage is stabilised by an OD3.
3. The v.s.b. side chain is quite practicable, as would be expected, but a fairly high modulation voltage is necessary, and the modulator tube is hence a power tube. The damping resistor constants shown are not final, and the pass band characteristic of the filter not yet ideal.
4. The 5.5 Mc. f.m. sound subcarrier generator is good as it stands, and the

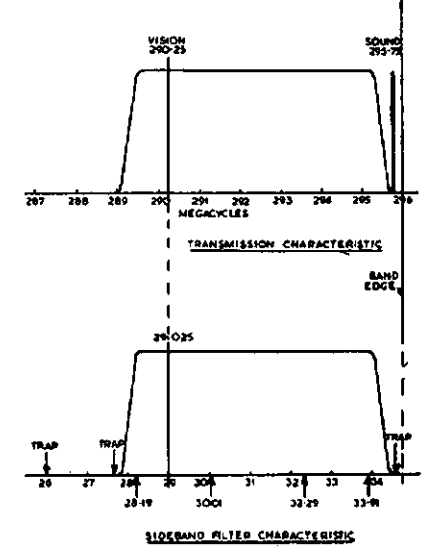
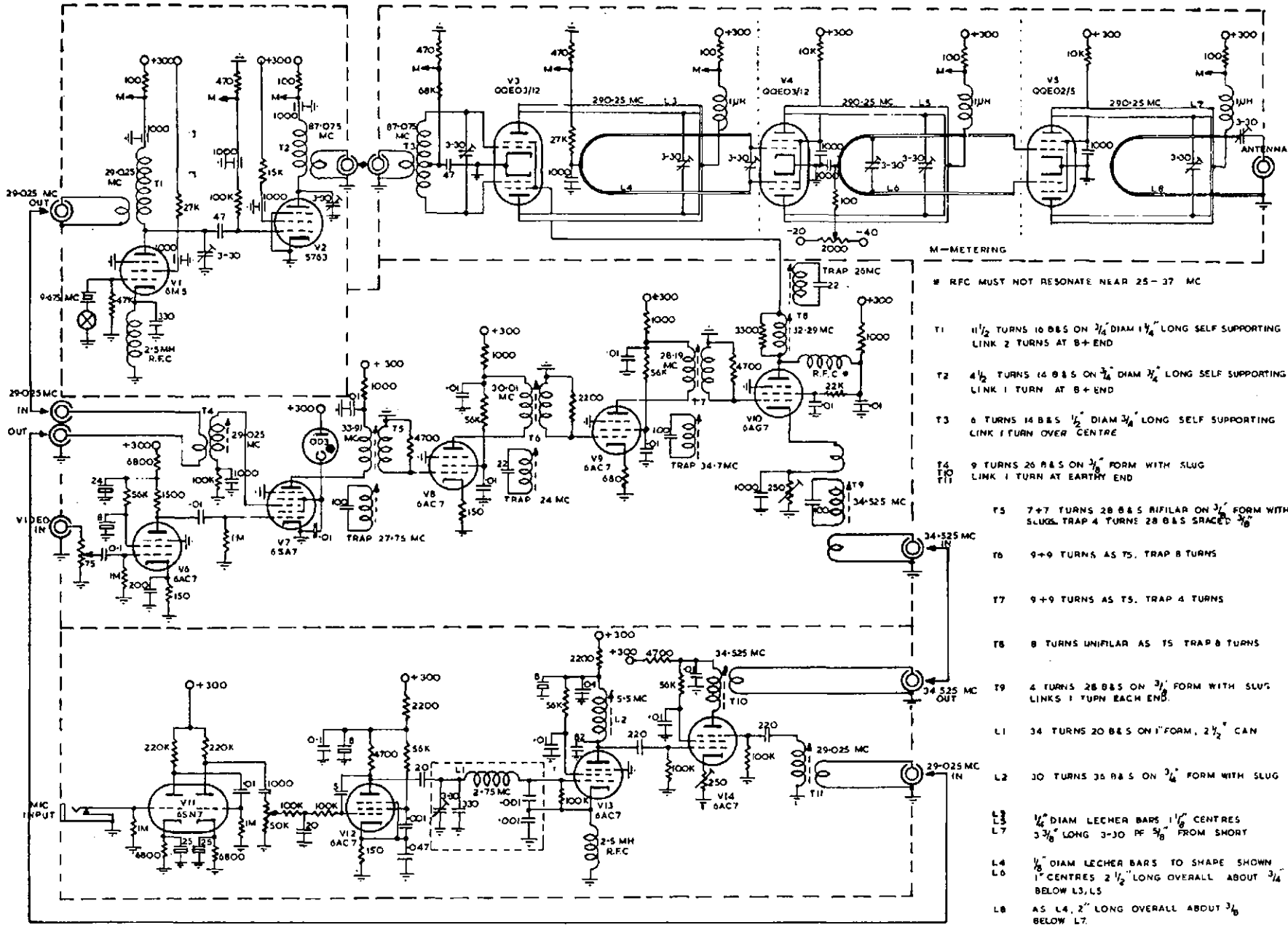


FIG. 45



- M—METERING
 * RFC MUST NOT RESONATE NEAR 25-37 MC
- T1 1 1/2 TURNS 10 B&S ON 3/4" DIAM 1 1/4" LONG SELF SUPPORTING LINK 2 TURNS AT B+ END
 - T2 4 1/2 TURNS 14 B&S ON 3/4" DIAM 3/4" LONG SELF SUPPORTING LINK 1 TURN AT B+ END
 - T3 6 TURNS 14 B&S 1/2" DIAM 3/4" LONG SELF SUPPORTING LINK 1 TURN OVER CENTRE
 - T4 9 TURNS 26 B&S ON 3/8" FORM WITH SLUG LINK 1 TURN AT EARTH END
 - T5 7+7 TURNS 28 B&S RIFLAR ON 3/8" FORM WITH SLUGS TRAP 4 TURNS 28 B&S SPACED 3/8"
 - T6 9+9 TURNS AS T5, TRAP 8 TURNS
 - T7 9+9 TURNS AS T5, TRAP 4 TURNS
 - T8 8 TURNS UNIFLAR AS T5 TRAP 8 TURNS
 - T9 4 TURNS 28 B&S ON 3/8" FORM WITH SLUG LINKS 1 TURN EACH END
 - L1 34 TURNS 20 B&S ON 1" FORM, 2 1/2" CAN
 - L2 30 TURNS 35 B&S ON 3/4" FORM WITH SLUG
 - L3 1/4" DIAM LECHER BARS 1 1/8" CENTRES
 - L7 3 3/8" LONG 3-30 PF 3/8" FROM SHORT
 - L4 1/8" DIAM LECHER BARS TO SHAPE SHOWN
 - L6 1" CENTRES 2 1/2" LONG OVERALL ABOUT 3/4" BELOW L3, L5
 - L8 AS L4, 2" LONG OVERALL ABOUT 3/8" BELOW L7.

FIG. 46.— VESTIGIAL SIDEBAND TRANSMITTER

centre frequency stability is more than good enough for Amateur operation. A discriminator circuit with a 5.5 Mc. crystal is quite simple, and will be incorporated in the future.

Power mixing at 300 Mc. is not an efficient process, particularly when the tube used, a QQE03/12, is running above its commercial frequency limits. Using grid modulation of the final, the available output is about 0.5 watt. Screen modulation of the tripler stage frees the final stage(s) for linear amplification.

NOTE.—Fig. 46 shows an additional linear stage which should deliver 4-6 watts to the antenna feedline. This stage can be completely omitted with screen modulation of the tripler, but is necessary with grid modulation after the tripler.

As the final mixing is done at comparatively high level, it is worthwhile to consider the most efficient method possible. This is obviously plate and screen modulation, and now that the modulation band is 28 to 34 Mc., instead of 25 c.p.s. to 5 Mc., the use of a transformer is possible, and hence the use of a Class B modulator, single ended, or push-pull. A twin tetrode like the QQE03/12 should be ideal for this purpose, and will be tried in the near future.

In this system, the power mixer is effectively delivering a suppressed carrier single sideband signal, this signal being the new video and sound carriers, plus video and sound modulation components.

The suppressed carrier is, of course, on 261.225 Mc., and the unwanted sideband is the inverted t.v. channel generated between 233 and 226 Mc. These two products are effectively suppressed by the tuned circuits after modulation.

Assuming 60% realisable modulated stage conversion efficiency, with one sideband being one sixth of the total carrier plus sideband energy, the effective efficiency could not be more than 10%. But as the required sideband only is selected, the effective efficiency can be higher, up to 30%. With the QQE-03/12 it will be rather less than this, with its 200 Mc. commercial frequency limit.

I suggest using a QQE02/5 as the final (linear) amplifier, as it has much higher efficiency at 300 Mc., and is capable of enough output to fully drive a QQE06/40, which can give 40 watts or better at 300 Mc. This is real power, and with an attainable antenna gain of 14 to 15 db., an e.r.p. of 1 kw. can be obtained.

The Circuit

V1 and V2 in the exciter deliver power at 29.025 Mc. to the side chain circuits, and at 87.075 Mc. to the main amplifier. Coil data is shown in the table. V3, the modulated tripler, has its anode circuit tuned to 290.25 Mc., which can only be done with both grid and screen excitation. For tuning to the correct sum frequency, a good calibrated wavemeter is essential. Using Lecher bar tuned circuits as shown, it is easy to tune to the wrong harmonic or frequency. The range of a 3-30 pF. trimmer will tune to both the second and third harmonics of 87.075, and with modulation there are several sig-

nals which will give resonance, namely 174, 203, 232, 261 and the desired 290 Mc.

The post modulation circuits should be tuned with picture carrier applied, then, if possible, with only sound carrier applied (295.75 Mc.), and then detuned approximately half way between them, to 292.5 Mc., to give a symmetrical band pass for all wanted components.

The use of a calibrated wavemeter here cannot be overstressed, as it has been found that with the tripler anode, and final grid, tuned to 261 Mc., it is still possible to get the final to give good output on 174 Mc.

For those not familiar with Lecher bar tuning, if the bar inductance, and tube and stray capacitance resonate at a frequency higher than desired, a trimmer capacitor at any point on the bar will bring it toward resonance. If the tube capacitance and bar resonate at a frequency lower than that desired, a trimmer at the tube end will, of course, make it resonate even lower in frequency, but a trimmer near the shorted end will act as a moveable shorting bar and will raise the frequency of resonance. Not a true short of course, and with the trimmer more than about $\frac{1}{4}$ " from the shorted end it is possible to tune that part of the bar toward the tube to one frequency present at the anode, and also tune the part between trimmer and short, to another component. This can be very disconcerting, when there are components every 29 Mc. An absorption wavemeter has proved ideal for identifying the frequencies to which parts of the bar are tuned. A g.d.o. should be even better.

V.S.B. Side Chain

The vestigial sideband filter consists of a Butterworth stagger tuned quadruple, around a centre frequency of 31.15 Mc. The bifilar circuits are tuned to 33.91, 28.19, 32.29 and 30.01 Mc. Traps at 34.7 and 27.76 Mc. are to provide the sharp cut-off required at the filter edges, and traps at 26 and 24 Mc. are to ensure that the unwanted sideband is suppressed 20 db. or better.

Using receiver type i.f. transformers, either commercial or home-made, as described in "R. & H." for October '57, the design and lining up is essentially the same. A minor difference is that the pass band shape is rather easier to handle than in a receiver. The band edge traps are sharply tuned, high Q, and the 24 and 26 Mc. traps much broader. They are distributed such that the trap slot is not near the centre frequency of the associated transformer, which tends to distort its curve during line-up. The last tuned circuit is selected for low Q to give some band pass in the sound carrier region and its trap well away from that frequency. The broad tuning of the anode circuit avoids the possibility of grid circuit overload, for components on its skirts. The bias of each stage is arranged to avoid grid overload, except in the 6AG7 modulator, which draws some grid current, necessary to obtain sufficient voltage to modulate the QQE03/12 screen fully. The potentiometer in the 6AG7 cathode is for adjustment of optimum bias for maximum power output with minimum white compression.

The Sound Subcarrier Generator

The important requirement for this unit is its frequency stability. A Clapp oscillator circuit (V13) is used, with Miller tube reactance modulator (V12). As the percentage deviation is small, $\pm 1\%$, the oscillator tank can be reasonably high Q (low L/C ratio), and using silvered mica capacitors, the frequency drift is small enough to be neglected.

Doubling in the oscillator plate circuit helps to prevent interaction from the 5.5 Mc. and the 34.525 Mc. circuits from "pulling" the 2.750 Mc. oscillator circuit.

The heterodyne mixer V14 has two tuned circuits following it at 34.525 Mc. of high Q, to reject ride-through of the 5.5 Mc. carrier to the transmitter proper. Harmonics of 5.5 Mc. at 33.0 and 38.5 Mc. will also be rejected, so long as their amplitude is kept down by limiting the 5.5 Mc. drive to the grid of V14. Although not shown in Fig. 46, this is achieved by tapping down on L2 to a point where grid current does not flow.

The circuit shown, injecting 34.575 Mc. into the modulator cathode should provide adequate isolation of sound and vision. The 250 ohm potentiometer in V14 cathode is to control sound carrier amplitude.

Metering

Adequate supervision of the r.f. power circuits is necessary. Grid and plate meters, switched to the points marked M enable lining up to be effected reasonably simply. All tubes except the optional V5 have no fixed or cathode bias and lack of drive for a short period can cause damage due to excessive screen or anode dissipation. Leave the anode or screen supply open until adequate drive is obtained to provide protective grid bias.

LINING UP

Use a calibrated signal generator, or wobulator, feeding direct to the outer grid of V7, with no video input, but fixed bias of -3 volts on the inner grid and a probe on the screen of V3. Line up the v.s.b. filter for optimum pass band. Detune the traps outside the bandpass while doing this. The damping resistor values are not final and will need to be varied to obtain optimum characteristics. Then tune the traps in T5 and T7 for band edge shaping and then the other two for 20 db. rejection, or better, of the unwanted sideband. The wobulator or signal generator will need to cover 22 to 38 Mc.

Then apply 29.025 Mc. drive to V7 outer grid for ten volts grid leak bias on the outer grid and a 50 c.p.s. sine wave to the inner video grid, at about 10 volts p.p., or 1.4 volts p.p. to the video input jack.

A probe and c.r.o. on V3 screen will then show the demodulated envelope of the 29.025 Mc. carrier. Compression of white or black peaks will then be adjusted for minimum distortion. A probe check at the antenna terminal (into dummy load) should show the same condition. If not, the bias on the 290 Mc. Class B stage(s) must be adjusted.

The sound chain can be adjusted by injecting low level audio into the
(Continued on Page 11)

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**RON FISHER*
VK3OM**

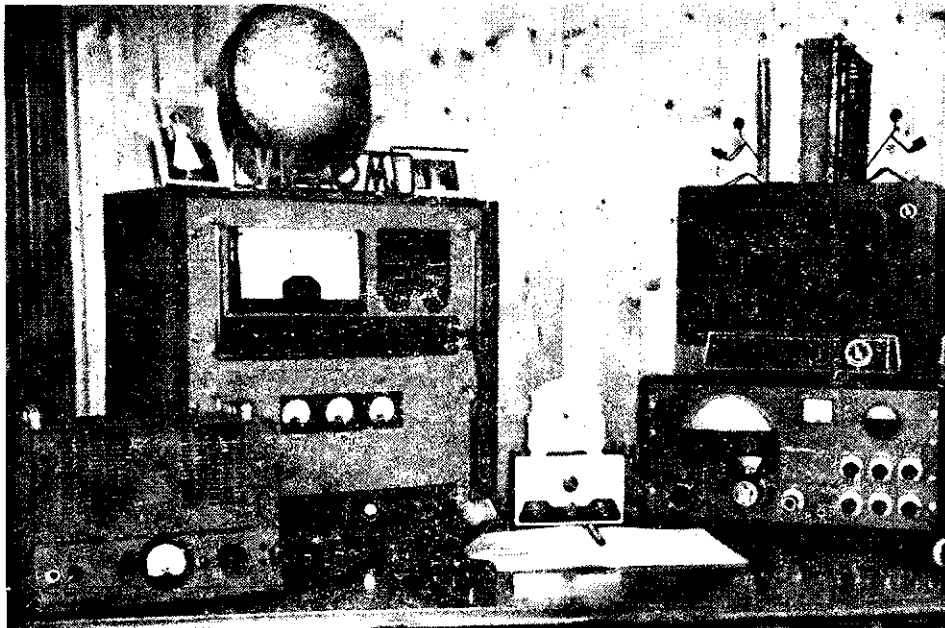
AMATEUR Radio Station VK3OM is located at Wheelers Hill, approximately fifteen miles south east of Melbourne. This is a very good radio location, being about 500 feet above sea level, and one acre of land is available for antennae.

The shack is part of the living room, so comfortable operating is assured all the year round.

On the front left of the desk is a completely self-contained 40 metre phone transmitter. This has mainly been used as a mobile rig, but also to keep on the air during re-building. It has an 807 p.a. with 15 watts input, and KT61s as modulators.

The main transmitter, to the rear of this, runs 130 watts input on all bands from 80 to 10 metres. A Geloso drives parallel 6146s in the final. A pi network output is used here. The modulator uses 807s in Class B with a direct coupled 12AU7 as a driver. Speech line-up is a Larbor MD21 dynamic micro-

* Station: Fairview Avenue, Wheelers Hill; Postal: 758a Glenhuntingly Rd., Glenhuntingly, Vic.



phone to a 6AU6 pentode, 6AU6 triode and 6C4 driver. The r.f. and modulator units are together on the top deck, while the power supplies, control circuits and meters are on the bottom deck.

In the centre is a Heath Q multiplier which is used in conjunction with the receiver.

To the right is the Hallicrafters SX42 receiver. This has full coverage from

550 Kc. to 110 Mc. Used in conjunction with a crystal controlled converter for two metres, it gives full coverage of all the most used bands.

Three dipole antennae are being used at the present time, one for 80, one for 40 which also operates on 15, and one for 20 metres. A G4ZU beam is under construction.

Other hobbies are photography, both still and movie, and hi-fi reproduction.

CORRESPONDENCE

VS2DQ

Sungei Raya Estate,
Pulau Langkawi Islands,
Kedah, Malaya,
9th Sept., 1958.

Editor "A.R.," Dear Sir,

Would it please be possible for you to find space in your correspondence columns to let Australian Amateurs know the reason of the sudden disappearance of VS2DQ.

It was expected that I should next go on leave in 1959 and I had hoped it would be possible to visit your great Country. However, my leave has suddenly been put forward to this month and I have to go to England on business so I very much regret I will not have the opportunity of paying a personal call on some of the Australian Amateurs, perhaps it may be possible when the next leave comes.

Living in isolated location such as this, Amateur Radio is a real blessing and I have always particularly enjoyed the contacts with Australian stations. Over 500 VK stations have now been worked on phone and I am very grateful for the pleasant contacts, co-operation and encouragement I have been given.

All contacts should have been confirmed, but if QSL cards have gone astray then my address will be:—

J. C. Pershouse, G3KPY,
C/o. Westminster Bank Ltd.,
Town Hall Square,
Bexhill-on-Sea,
Sussex, England.

I expect to return to Malaya in March 1959 and look forward to renewal of contacts with many Australian friends.

—J. C. Pershouse, VS2DQ.

AMATEUR TELEVISION

(Continued from Page 9)

microphone jack and monitoring the 5.5 Mc. output of L2 with a t.v. receiver discriminator. The final check will necessarily be "on air" with a t.v. receiver, using a converter, or one turret channel loaded with coils for 290 Mc. With the vision adjusted for optimum picture, reduce the receiver input till the picture is noisy. Then adjust sound carrier level till the receiver limiter is just beginning to lose control and noise is beginning to be evident. This gives optimum balance of the two signals.

V.H.F. TECHNIQUES

On 290 Mc. no liberties can be taken in layout, wiring, components, or bypassing. The circuit layout should be thoroughly designed on paper with a full scale sketch first. The chassis should be copper, brass or aluminium in that order. Wiring should be so short as to be practically invisible. Ceramic tube sockets are available from Philips for the double tetrodes and should be used. Bypass capacitors should be within $\frac{1}{4}$ " of the point to be bypassed and lead-through types used if possible, bead-type ceramics if not, I use lead-through capacitors for metering points and keep the metering leads above chassis. Each tube filament

should be bypassed at the socket. A shield across the tube socket(s) of the linear stage(s) is an advantage, the pin connections lending themselves to this.

Stray capacitance should be very low. Note this. A capacitance of 5 pF. has a reactance of 120 ohms. To maintain 60 volts r.m.s. across this requires half an ampere of r.f. This happens to be the input capacitance, and drive requirements of the QQE03/12, so you will see the magnitude of the problem.

For the side chain, orthodox t.v. receiver techniques and components are ideal as the frequency and circuits are closely parallel.

ANTENNAE

I do not propose to describe a specific antenna. I suggest that resonant parasitic elements be shunned, but otherwise, choose your favourite. My first was a folded dipole with bazooka in a corner reflector—gain 12 db. My next is to be a 16 element driven array with a screen reflector, a mattress. At this frequency antennae are easy to design and construct, and the standard text books will do far better than I.

And here I finish this series, with thanks for the dozens of letters I have had already, and hope for more to come. This introduction to full-scale Amateur Television has been lengthy, but the field was wide. Now we need more specialised articles. Will you write them?

EARLY COPY

The closing date for copy for the January issue is 1st December.

W.I.A. FEDERAL PRESIDENT'S REPORT

It is my pleasure to present to you the annual report of Federal Executive for the period April 1957 to March 1958. There has been a steady progress on various matters during the year and of course included in this period was the 24th Annual Convention of the W.I.A. Turning to the matters of major importance during the period under review, these are as follows:

FEDERAL CONVENTION

The meeting of the 24th Annual Federal Convention during the period 19th to 22nd April, 1957, inclusive, and held in Melbourne was attended by thirteen delegates and members of Federal Executive. It was disappointing to all that the N.S.W. Division did not send a delegate as this was the first Convention held in three years and many important matters were discussed. I am very pleased to report, however, that, although not attending, the N.S.W. Council generously contributed to the Convention expenses. All Divisions have since this time received copies of the Convention minutes and I must apologise for the lateness of their arrival, which was due to the length of the proceedings and discussions. It was necessary to include much more of this matter than normal due to all Divisions not being present. In all, 32 Federal Policy Items, 10 clauses of the Federal Constitution, 71 agenda items and 11 general business items were fully and completely discussed. The results of the ratification by Divisions of all items concerned have not to date been received therefore in most cases meaning that Federal Executive cannot take any action. This is unsatisfactory because there remains a great deal of work for the coming year which should have been partly completed by now.

I.T.U. CONFERENCE

As an outcome of a Convention item and on thorough consideration by Federal Executive, it was evident that with the I.T.U. conference scheduled to commence in July 1959 some formative and pre-planning action must be taken by F.E. so that the W.I.A. would not have to take some action at the last minute.

After long discussions on the various aspects of this most important matter, your F.E. has now formulated a plan which has been notified to all Divisions and each and every Amateur should receive an individual notice of the scheme to send an Amateur Delegate to the Conference. All Divisions, realising the importance of the Conference, are already giving the plan their support, which I trust will continue until the necessary funds are raised.

MEMBERSHIP

Although full figures from all Divisions are not available, it appears that membership is increasing, but only slowly. It is evident that all Divisions must make increasing efforts to improve the membership by encouraging S.W.I. Groups to form and by making long-range plans that will not vary with each incoming Council. By taking such steps and subsequently increasing interest in our hobby, the pool of available Amateurs for membership will automatically increase. All Divisions should endeavour to hold A.O.C.F. Classes which will also result in new members.

REGULATIONS

One of the major contributions to this aspect of Institute activities during the year has been the submission by F.E. to the P.M.G.'s Department of a revision of the Handbook for Operators of Amateur Stations. After consultation with the Department, F.E. were successful in all of their amendments being adopted and the new publication is understood to be at the printers at present.

Most of the anomalies of the previous edition have now been resolved, resulting in what is considered to be a much more understandable document, with little chance of misinterpretation.

During discussions on the Handbook, opportunity was taken to ask the Department for further privileges and this has resulted in the release of more realistic means of pulse modulation techniques. Other outstanding matters on which we hope to obtain some satisfaction in the near future are the use of the VK6 prefix and the novice licence. The requirements of the Federal Convention, of course,

have still to be submitted, when ratified, to the Department for a decision.

Our relations with the Department have been of the most cordial and whilst not always obtaining what we desire, the members of F.E. are always welcomed to discuss and present the requests of the Federal Council for consideration.

FINANCE

Due to the deliberations of the Convention, a more liberal allowance has been made by the Divisions to F.E. to conduct the Federal Policy of the Institute. The audited accounts and balance sheet of the Federal Executive are attached hereto as presented by the Federal Treasurer. You will notice that action has been taken, as a result of the Convention, to open separate accounts for the various funds as required. Whilst the monies in hand are still rather small, the additional income granted F.E. will be of great assistance in maintaining F.E. on a workable financial basis.

PUBLICATIONS OF THE INSTITUTE

The Publications Committee of the Victorian Division, who are entrusted with the publication of "Amateur Radio" and the Call Book, have again done an admirable job under difficult conditions as must always pertain when work is on a voluntary basis, with little thanks and plenty of criticism. The Federal Council agreed at the Convention to an increase in the price of "Amateur Radio" which has recently been implemented. It is hoped that this increase will allow the magazine to be published without becoming a severe drain on the Victorian Division's funds. Critics of the magazine will no doubt still find reason for complaint, but I seriously ask those in this category, "Are they doing anything themselves to help? Do they send in articles for publication—are they in a position to solicit advertising matter—could they produce better circuit diagrams?" If they can answer yes to these three simple questions, I suggest they place their services at the disposal of the Publications Committee who will be elated. Your Executive not being complacent in this matter, have endeavoured to crystallise a few ideas and at the appropriate time will present them for your comment.

The Call Book has maintained its original objectives whilst including new features and I thank all Divisions for the support they have

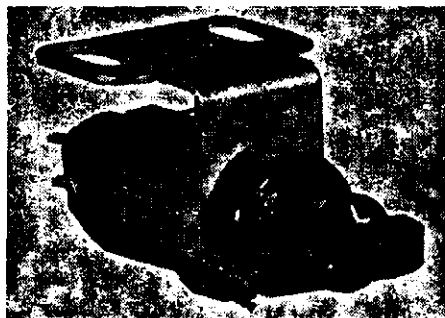
THE "MACRON" CRYSTAL TURNOVER PLAYER CARTRIDGE TYPE H.F.11

Made in Australia to suit Australian conditions

by MACRON ELECTRONICS PROPRIETARY LIMITED, 54 High Street, Glen Iris, Victoria

LET US LOOK AT THE FACTS:

- ★ Clip-in insert. Can be replaced without removal of mounting bracket.
- ★ Half inch and centre mounting interchangeable with standard arms.
- ★ Robust construction with positive positioning for "Standard" and "Longplay" positions.
- ★ Non-hygroscopic adhesives used throughout in the manufacture of the crystal element.



- ★ Slip-in Sapphire styli, interchangeable with standard makes.
- ★ Replacement styli available, also fit other standard cartridges.
- ★ High compliance, which ensures good tracking, thus resulting in low record wear.
- ★ Wide frequency response, enabling the utmost realism from modern wide-range recordings.
- ★ Attractively and safely packed in sealed clear-plastic container.

AGENTS: D. K. NORTHVER
115 Murray Street, PERTH, W.A.

NEIL MULLER LTD.
8 Arthur Street, UNLEY, S.A.

JACOBY, MITCHELL & CO. PTY. LTD.
469 Kent Street, SYDNEY, N.S.W.

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given, which has resulted in a yearly profit for this publication being maintained. I trust it will continue in this vein in the future, again with your support.

The magazine is the means of keeping our Federal structure—I ask all Councils to contribute in every way possible to its progress and improvement.

OVERSEAS SOCIETIES

As is usual, we have maintained contact with the I.A.R.U., the R.S.G.B., the A.R.R.L., the N.Z.A.R.T. and other overseas Amateur Societies by radio and correspondence during the year and will also be able to obtain personal contact via the Federal Secretary, Mr. Douglas Bowie, who is at present on an overseas trip. In this way, we hope to be able to personally represent the W.I.A. and its aims and policies to societies who previously knew us by correspondence only. Mr. Bowie will be attending a Region I. Conference in Germany later this year to discuss the forthcoming I.T.U. Conference and will undoubtedly be able to achieve much more this way than all the correspondence could do.

As mentioned in my last Annual Report, we made approaches to the Philippine Government through the Minister for External Affairs to allow their Amateurs to conduct contacts with VK Amateurs. I am very pleased to inform you all that in this matter we have been successful and can now legally communicate with them. Once again Amateur Radio has demonstrated how international are its boundaries within which friendship and amity are a symbol of goodwill.

CIVIL DEFENCE EMERGENCY NETWORK

This network has now been re-named the Wireless Institute Civil Emergency Network (W.I.C.E.N.) and the Federal Co-ordinator, Mr. George Glover, has devoted a great deal of time and enthusiasm to its establishment on an official basis. Authorisation cards for members of W.I.C.E.N. are now being printed, and firm rules and regulations for its operation have been promulgated. The promotion of this network is all important to the Institute for it may well be our "raison d'être" in international affairs. Its importance can therefore be not too strongly stressed, and all Divisions should continue to promote and support interest in it.

CONTESTS AND CERTIFICATES

The Contest Committee has once again continued their activities with zeal and have endeavoured to promote continued interest in all contests run by the Federal Council. A set of rules under which they operate have been circulated, and the main task still outstanding is to provide an equitable scoring method for the selection of the Remembrance Day Contest winners. The Federal Executive themselves have taken an interest in this matter, and various statistics of past contests will soon be compiled for issue to all Divisions for future suggestions to maintain increasing interest in this popular contest. My personal thanks are recorded for the efforts of the Contest Committee who I trust will continue in their capacity for yet another year of honorary service to the Institute.

MISCELLANEOUS MATTERS

With the support of members of the Federal Parliament, F.E. continued to press for a relaxation of the sales tax on equipment sold for Amateur experimentation and use. As yet our representations have not borne fruit, but I trust that in the near future a satisfactory decision in our favour will be made.

The news of the century, the successful launching of Russian and American satellites into orbit around the earth, found, as usual, the Radio Amateurs of the world well to the forefront in providing scientific information of value to the authorities. The W.I.A. was well to the fore in this regard and the Amateurs in VK can be well pleased about the job they did. A great deal of very satisfactory publicity was obtained, quite deservedly, and brought the service of the Amateur before the community at large.

I was very pleased to be able to make personal contact with some of the Divisions during the year, and thank them for their attention and hospitality during my visit. The use of tape recordings, too, I feel, has been the means of making the members of F.E. less remote from Divisions and I know this means of contact will be continued by your incoming President.

Continued cordial relations have been conducted with the Service communication chiefs on whom we often look for support in our representations to the Authorities. The Police

Department and the D.C.A. Chiefs are also numbered among our supporters and it is particularly pleasing to have useful allies in these people who realise the worth and wealth of potential the Amateur represents.

I am sorry to report the loss of two of our F.E. members who have been forced to resign as a result of business. I refer to Bill Gronow (VK3WG) and Bill Falconer (VK3AWF) who have been great assets to F.E. with their wide and varied knowledge of Amateur and business affairs. I wish them both well and trust that an easing of business affairs will once again render their services available to F.E.

At this juncture I wish to record my personal thanks to Mr. Ray Jones as QSL Officer, Mr. Doug. Faine and later Mr. Reg Jepson as Traffic Officers, Mr. Gordon Weynton as Awards Officer, and to the members of the Contest Committee, each and every one having given of his time and energies in an honorary capacity to making my three years as President more tenable and satisfying. I wish them all the best and trust they will carry on the good work for many more years in the same unselfish manner.

To all Divisional Federal Councillors and Councils, I also record my grateful thanks and know they will support the incoming President with the same wealth of advice and knowledge I have been accorded. To the members of Federal Executive who have given me their loyal support in my terms of office, no simple words of thanks can express my appreciation. I can only say in conclusion that Federal Executive are a team and as such are only as strong as their weakest member. To me the team were premiers—I hope they have been to you also.

WILLIAM T. S. MITCHELL,
Federal President, W.I.A.

TREASURER'S REPORT

I have pleasure in presenting for your inspection the Financial Statements of your Executive for the year ended 28th February, 1958.

Your attention will be drawn to the surplus of income over expenditure contributed to

Accumulated Funds for the current year. This has been mainly brought about by the increase of per capita moneys from 1/6 to 2/- per member, as authorised at the 1957 Convention.

The item "Convention Fund" represents the surplus in this account from the last Convention. This will be refunded to the Divisions on a pro-rata basis prior to the next Federal Convention.

The "Trust Fund" is a fund raised in result of a donation received and in anticipation of more to come, and will be utilised as thought best by your Executive.

Debtors: This figure of £245/19/11 is almost solely represented by per capita moneys from the Divisions outstanding at date of balance.

Stocks on hand have been reduced considerably in the intervening twelve months. This is mainly brought about by the directive of the 1957 Convention requiring certificate stocks to be written off and in place thereof the asset "Equipment—VK3WIA" to be raised. This is represented by equipment purchased ex Disposals, also gifts of equipment from Members, which, although obtained with little outlay, is, in its present complete form, more equitably represented by the figure shown on the balance sheet at £76/10/-.

I would like to take this opportunity in thanking yourselves, also the members of the Federal Executive in their co-operation during the fiscal year just elapsed which has facilitated the presenting of these accounts.

G. G. EWING,
Federal Treasurer, W.I.A.

EARLY COPY

The closing date for copy for the January issue is 1st December.

WIRELESS INSTITUTE OF AUSTRALIA—FEDERAL EXECUTIVE

BALANCE SHEET AS AT 28th FEBRUARY, 1958

Current Liabilities:		Current Assets:	
Creditors	£21 3 7	Cash on hand	£8 0 0
Convention Fund	£43 15 3	Commonwealth Savings	
Trust Fund	5 5 0	Bank (Society A/c.)	215 13 8
	49 0 3	Debtors	245 19 11
Accumulated Funds:		Stocks on hand	23 0 0
Balance, 1/3/57	£474 16 3	Prepayments	3 16 0
Add Surplus for year			£498 9 7
ended 28/2/58	112 7 6	Fixed Assets (at cost less depreciation):	
	587 3 9	Filing Cabinet	£14 0 0
		Typewriter (No. 1)	34 0 0
		Trophy—Ross Hull	27 8 0
		Trophy—Remembrance	
		Day	7 0 0
		Equipment—VK3WIA	76 10 0
			158 18 0
			£687 7 7

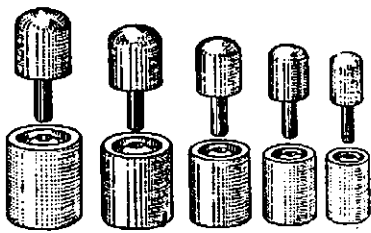
INCOME AND EXPENDITURE ACCOUNT FOR YEAR ENDED 28th FEBRUARY, 1958

EXPENDITURE		INCOME	
To Audit Fees	£10 10 0	By Per Capita Payments	£239 18 0
" Badges	4 0 0	" Sale of Badges, Log Sheets and	
" Bank Charges	17 3	Sundries	9 17 0
" Depreciation	26 3 0		
" Entertainment	29 1 6		
" Federal Contest Committee Ex-			
penses	15 1 8		
" Log Sheets	1 0 0		
" Postage and Telephone	20 17 5		
" Printing and Stationery	16 4 2		
" QSL Bureau Expenses	8 17 2		
" Sundries	2 9 9		
" Trophy Expenses	2 5 7		
" Profit to Accumulated Funds ..	112 7 6		
	£249 15 0		£249 15 0

We have examined the books and vouchers of the Wireless Institute of Australia (Federal Executive). In our opinion, the Balance Sheet is properly drawn up so as to exhibit a true and correct view of the state of the Federal Executive's affairs as at 28th February, 1958, 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 28th February, 1958, according to the best of our knowledge and the explanations given to us, and as shown by the books. Stock on hand at 28th February, 1958, has been accepted on the certificate of the Secretary.

DAVID FELL & CO., Chartered Accountants (Aust.), 12th August, 1958.

"WILLIS" CHASSIS PUNCHES



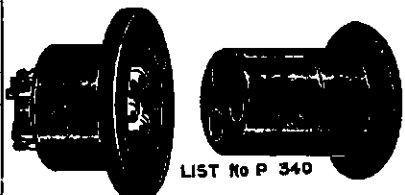
3/8"	21/-	1-3/16"	35/-
1/2"	22/6	1-1/4"	42/6
5/8"	22/6	1-3/8"	47/6
11/16"	23/6	1-1/2"	47/6
3/4"	24/6	1-3/4"	57/6
1"	31/6	2"	62/6
1-1/8"	33/6		

Any special size requirements made to order

Q-MAX SCREW-TYPE CHASSIS CUTTERS

5/8"	26/7	1-3/8"	38/6
3/4"	26/7	1-1/2"	38/6
7/8"	29/4	1-3/4"	42/-
1"	34/10	2-3/32"	68/9
1-1/8"	34/10	2-1/2"	81/7
1-1/4"	34/10	1" Square	52/8

One key supplied with each cutter. Spare keys 1/8 each.



LIST No P 340

MAINS CONNECTORS

Bulgin Type P73, similar to illustration. Flash 8-Pin Plug and Socket. Ideal for any equipment. 7/8 each.

PI-COUPLER FOR HIGHER POWER

Compact, bandswitched, high power pi-coupler inductor for co-ax output. Rated for a max. 1,200v. d.c. at 300 mA. Input. Higher voltages on c.w. and s.s.b. For max. efficiency the 10-metre coil is made of 1/8 in. silver-plated strip, 15 and 20-metre coils of 1/8 in. silver-plated wire, and the 40 and 80-metre coils of 12 B. & S. tinned-copper wire. Input capacity 250 pF. max., output capacity 1,500 pF. max. A single pole five-position switch is provided which can be used for switching in parallel capacities when required.

Recommended input capacitor: Eddystone Type 817. Recommended output capacitor: Standard miniature 3-gang BC condenser which is suitable in this position up to 1 kw.

Price: £4/17/6 nett

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.

Price (inc. tax): 31/6

SPECIAL HI-POWER PI-COUPLER CHOKE
150 watts, 25/-

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I.T.U. FOND DONATIONS

Listed below are additional contributions to the above Fund to send a delegate to Geneva for the I.T.U. Conference in 1959. The editorial in this issue of the magazine should be read by all members—it should give you some idea of the reasons for sending a delegate to the Conference and may further encourage contributions from those who have so far forgotten to forward their £1.

Please send your donations in cheque, money order or postal note to:
Federal Secretary,
Box 2611W, G.P.O.,
Melbourne, C.I., Vic.

The following list is current to the 30th September, 1958:—

- £10/10/0
W.I.A. Victorian Division, VK3WL
- £5/5/0
L. W. Louttit, VS6BE; W.I.A. West Australian Division, VK6WL
- £4/4/0
M. H. Meyers, VK2VN.
- £2/2/0
R. C. Meadows, VK2IN; A. E. Barlow, VK2GQ; N. C. Seymour, VK2XZ; C. C. Eakins, VK6CN; R. H. Atkinson, VK6WZ; G. Clarke, N.S.W.; R. H. Kyle, N.S.W.
- £2/0/0
W. H. Barber, VK6DX.
- £1/10/0
D. F. Lloyd, VK2AOQ; A. R. J. Topp, VK2AXT; T. R. Cuttle, VK4ZAT; R. Elms, VK6BE; T. Mills, N.S.W.
- £1/1/0
J. W. A. Paton, VK2VQ; A. R. Herald, VK3AJP; A. L. Berry-Porter, VK4BP; J. Allan, VK5UL; F. C. Lambert, VK6FL; H. O. Wanke, VK6XO; H. D. Spence, VK7DS; N. C. Bell, N.S.W.; W. L. Grimshaw, N.S.W.; L. E. Hawken, N.S.W.
- £1/0/0
L. Sparke, VK2AOR; J. Redman, VK2JE; S. Steinwede, VK2KC; E. Phipps, VK2ZDP; L. Agar, VK2AIM; M. Norman, VK2ZMN; J. Weaver, VK2AJP; R. Huband, VK2RV; A. Griffiths, VK2ZDG; A. Springett, VK2OM; R. Roberts, N.S.W.; E. Spalke, N.S.W.; A. Walker, N.S.W.
- W. Sievers, VK3ACB; C. Luckman, VK3ADL; K. Burnett, VK3AKV; L. Wright, VK3ALT; Mrs. M. Stafford, VK3KS; I. Stafford, VK3XB; J. Kling, VK3AJQ; G. Macfarlane, VK3AYM; J. Goodall, VK3ZBG; C. McNally, VK3CE; A. Harris, VK3CH; D. Gilder, VK3AHG; D. McDonald, VK3DM; H. Fleming, VK3HP; E. Cameron, VK3ME; G. Colley, VK3QZ; G. Weynton, VK3XU; J. McClelland, Vic.
- O. Alder, VK4JB; M. Power, VK4PM; R. Conway, VK4ZAY; S. Baxter, VK4FJ; J. Elles, VK4JF; F. Parker, VK4PF; J. Bull, VK4FH.
- H. Lloyd, VK5BC; F. Eastick, VK5AE (Northern Territory); L. McGrath, VK5GJ; J. Watts, VK5OM.
- A. Lathwell, VK6AL; W. Moore, VK6BA; R. Everingham, VK6BO; B. Field, VK6BR; C. Farkas, VK6CF; C. Cooke, VK6CP; E. Hodgson, VK6ES; E. Cowles, VK6EJ; G. Malcolm, VK6GJ; J. Cook, VK6JA; J. Godley, VK6JG; R. Westbrook, VK6KO; L. Allen, VK6LA; L. Morrison, VK6LM; A. Austin, VK6MA; M. Murray, VK6MY; N. Odgers, VK6NF; R. Peterson, VK6PW; B. Sorley, VK6RO; R. Siltford, VK6RS; W. Green, VK6WG; L. McGeoch, VK6WL; W. Morris, VK6WM; W. Watson, VK6WW; F. Whitfield, VK6XF; C. Siri, VK6XG; R. Crowell, VK6ZBX; A. Sowden, ex-VK6SN; I. Stimson, W.A.
- J. Milne, VK7AG; G. D'Emden, Tas.; J. Lee, Tas.

Under £1/0/0
L. McGarrigle, VK2YG (10/-); B. Congdon, VK6BC (10/6); F. Paget, VK6ZBP (3/-); M. McGinnis, VK7MF (10/-); B. Heybroek, N.S.W. (10/-); L. Walter, N.S.W. (10/-); D. Hosken, Vic. (10/-); S.w.I. Group, W.A. (18/-).

Amendment to October List
Amend J. E. Mackie, VK2ZIM, to read J. E. Mackie, VK2ZDM. Amend J. Hayward, Vic., to read J. Hayward, Vic. (4/-).

The progressive total to the 30th September, 1958, is £1,652/0/9.

PREDICTION CHART, NOV. '58

Mo.	E. AUSTRALIA	W. EUROPE	S.R.	Mo.									
0	2	4	8	8	10	12	14	16	18	20	22	24	45
45	GMT												45
28	-----												28
21	-----												21
14	-----												14
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0	2	4	8	8	10	12	14	16	18	20	22	24	45
45	E. AUSTRALIA -- W. EUROPE L.R.												45
28	-----												28
21	-----												21
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7	-----												7
0	2	4	6	8	10	12	14	16	18	20	22	24	45
45	E. AUSTRALIA -- MEDITERRANEAN												45
28	-----												28
21	-----												21
14	-----												14
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0	2	4	8	8	10	12	14	16	18	20	22	24	45
45	E. AUSTRALIA -- N.W. U.S.A.												45
28	-----												28
21	-----												21
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0	2	4	6	8	10	12	14	16	18	20	22	24	45
45	E. AUSTRALIA -- N.E. U.S.A. S.R.												45
28	-----												28
21	-----												21
14	-----												14
7	-----												7
0	2	4	6	8	10	12	14	16	18	20	22	24	45
45	E. AUSTRALIA -- N.E. U.S.A. L.R.												45
28	-----												28
21	-----												21
14	-----												14
7	-----												7
0	2	4	6	8	10	12	14	16	18	20	22	24	45
45	E. AUSTRALIA -- CENTRAL AMERICA												45
28	-----												28
21	-----												21
14	-----												14
7	-----												7
0	2	4	6	8	10	12	14	16	18	20	22	24	45
45	E. AUSTRALIA -- S. AFRICA												45
28	-----												28
21	-----												21
14	-----												14
7	-----												7
0	2	4	6	8	10	12	14	16	18	20	22	24	45
45	E. AUSTRALIA -- FAR EAST												45
28	-----												28
21	-----												21
14	-----												14
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0	2	4	6	8	10	12	14	16	18	20	22	24	45
45	W. AUSTRALIA -- W. EUROPE												45
28	-----												28
21	-----												21
14	-----												14
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0	2	4	6	8	10	12	14	16	18	20	22	24	45
45	W. AUSTRALIA -- N.W. U.S.A.												45
28	-----												28
21	-----												21
14	-----												14
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0	2	4	6	8	10	12	14	16	18	20	22	24	45
45	W. AUSTRALIA -- N.E. U.S.A.												45
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45	W. AUSTRALIA -- S. AFRICA												45
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45	W. AUSTRALIA -- FAR EAST												45
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PEOPLE WHO KNOW . . .

THE PILOT

Ever since Icarus made the first attempt at flight, man has turned his eyes towards the heavens.

Today the sounds of man-made flight are a commonplace thing, and with ever increasing air power has come ever increasing responsibility to the thousands of passengers and air crew members who travel the airways daily.

The responsibility for maintaining strict air schedules and maximum safety during arrivals and departure at the various air terminals throughout the world, is largely handled by means of radio. Without radio many of the safety devices used daily at these air terminals would not exist.

Radio plays a major part in today's air travel, and the Australian valve most used in air to ground communication, is, of course, Radiotron.



RADIOTRON 5786

Used in Aviation

Distance Measuring Equipment.

Manufactured by

AMALGAMATED WIRELESS VALVE CO. PTY. LTD.



VCS-88

VHF

Frank P. O'Dwyer, VK3OF
190 Thomas Street,
Hampton, Vic.

September saw some nice DX pulled out of the bag, possibly the more important being the reception of ZS8 by VK8BE—no details to hand; the working of KH8 by VK4 and VK9, and the hearing of DUILW and others in VK8. JA was worked consistently by VK4, 6, 9 and northern VK2. VK6 enjoyed almost daily openings with commercials VOSK and Radio Peking frequently to S9 plus. Oct. 2 found the band open most of the day, F2 signals followed by T.E. in the evening around 1945 W.A.S.T. During this opening VK2-4 and 6 were all working JA. One opening prior to this ran into the wee small hours, commencing around 2130 and ending about 0130. Who went out, the JAs or the VK6s from tiredness?

Following the first hearing of JA4HM, S8 on Sept. 11 at 1845, heard by 3AZY, the VK3 gang had to wait until Oct. 5 when JA sigs were first noticed at 0815 E.A.S.T., then shortly after some to S9 plus, sounding like near locals; an hour later, they were still beaming in. Several metropolitan stations made their first JA contacts and many of the newcomers heard their first DX, but had no luck with their low power in the QRM. Russ 9XK was on the ball when he suggested to the VK3 gang that they listen for JA signals around 7 or 8 a.m.; this followed on Russ hearing JA stations calling VK3 during the evening of Sat., Sept. 13, but there were then no takers amongst the VK3 boys. The evening of Sat., Sept. 13, also found Z3BG listening to 7ZAJ, but he could not take advantage of it, tx being inoperative. Sept. 25, 0545-0815, early bird Z3BN listened to numerous DX sigs whilst beaming north, but they remained unidentified because of language difficulties. Several excellent Aurora appeared during the month but no Aurora DX was noted despite calls to the south.

LOGS.—The report that the response to the request for log returns was good is incorrect and is only approx. 20 per cent. of the known number operating during the year. Logs being processed by Jock 3ZDG and his willing staff have come from VKs 2WH, 2ARG, 3ZDG, 3ZAE, 3ZDJ, 3ZFA, 3ZAI, 3ZAG, 3ZAT, 3ZBP, 3AHL, 3ALZ, 3OF, 4NG, 4ZAG, 4ZGJ, 6ZAX, 6ZBP, 6ZAZ, 6BE, 5MK, 9XK, 9NT. The log of Hughie 5BC is believed to be in Melbourne also. Where are all the others? Buck up, fellows, do not delay any longer. Something is being done at this end and not by those who initially accepted the responsibility. If you are interested in 50 Mc. it is important that your name appears in the "log received" list. If we wish to retain the frequency allocation of 50-54 Mc. then we all, as a group, must fight 100 per cent. for it. If we do lose it, let us go down fighting. Should your log have been sent in and is not listed, please notify 3ZDG so that he may try and locate it.

Lance 4ZAZ sends some interesting comments on VOSK and Radio Peking.—3OF.

VOSK.—The Voice of South Korea, near Seoul, broadcasts news in English at 1815 hrs. E.A.S.T. and has been heard on the following frequencies: 49.8, 46.25, and 44.8 Mc. We are reasonably sure that these are spurious radiations from the station operating on 11.9 Mc. There is no harmonic relationship and the station on 11.9 Mc. is a.m. A beautiful parasitic in his final would produce f.m. If it is an authentic fundamental his deviation on modulation index varies a lot, at times he is almost pure a.m., at others he is about 150 Kc. wide. Further weight to the assumption that it is a bug is brought about by the fact that I have not been able to get any better copy off a wide band f.m. receiver that I borrowed for the purpose of checking. I think that he uses a well known system of modulation known as "double sideband-frequency shift-variable amplitude-non intelligible-frequency modulation" (developed on 7 Mc. after years of research!).

Radio Peking.—About 45 Mc. would be a fundamental or the 3rd harmonic of the 15 Mc. gent. Inclined to favour the 3rd harmonic theory. Perfect a.m. on this signal. Raw carrier on 49.8 Mc. Seems to originate in Asia or Korea. When very strong, he has little brothers about 100 Kc. apart for a half megacycle or so on each side of 49.8 Mc. Teletypes, the rest of the stuff comes from between 43 and 49 Mc. is anybody's guess. Teletypes, f.m., a.m., unmod., freq. shift keying, anything you like at times.—4ZAZ.

50 MEGACYCLES

A lot of v.h.f. operators may be wondering what is being done in the fight to keep the 58 Mc. band.

At the present time the VK3 V.h.f. Group is drafting an application for an extension of 50 Mc. occupancy to cover the year of International Geophysical Co-operation, i.e. next year. The principal arguments to be submitted are (1) The valuable contributions a number of VKs are making to P.B.P.; (2) 50 Mc. is unlikely to be used for t.v. for some time yet.

With reference to (1) a word of explanation is in order. P.R.P. (Propagation Research Project) is run by the A.R.R.L. under a government grant. Its director is Mason P. Southworth, WIVLH. P.R.P. requires as many DX reports from 50 Mc. DX operators as it can get. VK at present is not too well represented. You can join this worthwhile project by sending a copy of your DX Log to A.R.R.L., Propagation Research Project, 530 Silas Deane Highway, Connecticut, U.S.A. In return you are forwarded copies of P.R.P. News which is brimful of 50 Mc. DX news, also the official reporting forms which you fill in fortnightly. In order to justify our occupancy of the band during I.G.C., you will realise that VK should be well represented in P.R.P. VK is the only country in the world to report on Aurora Australia.

The response to F.E.'s call for logs has been poor. So poor that this Group has been obliged to send out a letter to all defaulters. Please treat this letter in the right spirit. Remember, without your log, no case for permanent retention of 50 Mc. as a band can be developed.

—VKBALZ, for the VK3 V.h.f. Group.

NEW SOUTH WALES

This month we are pleased to report that the signal of Dave 2AWZ is now back on the air. It is hoped that you will soon be racing around in the little red car again Dave.

As expected, the lecture on and demonstration of oscilloscopes, given by Bob 2QZ, on 5th Sept. was an outstanding success. Bob brought along various types of "home-brew" scopes and those who attended left the meeting with a good deal more knowledge than they had before attending.

In VK2 we have been for some months developing a converter which has now been made available to members in a kit set form with complete detailed instructions for construction. The converter uses a 6BQ7A, a 6BL8 and a 12AT7 and has a noise figure of 7, which is very satisfactory. The converter minus crystal has been made available in the kit set form at its cost of £8.

The monthly Mobile Fox Hunt in which John 2ANF assisted by Bob 2QZ was fox turned out to be the usual exciting evening. There was a good attendance of hounds, the fox being first caught by Jim 2PM assisted by Phil 2ER, then Ron 2ZBK assisted by Alan 2RX (three times), and Bob 2OA, driven by John 2ZAV, once. When the fox went to ground he was located first by Jim 2PM who dead-heated for first on the night's activities with Ron 2ZBK with Winchle 2OA in second place.

Your scribe for the past two months now dips out and you can expect a big improvement in next month's notes which will be written by Dave 2AWZ.

VICTORIA

6 Metres.—Local activity for this time of the year is very good and there is usually one or more stations monitoring the band at most times. Perseverance had its just reward on the morning of Sunday, 5th Oct., when the first DX break-through for quite a few months occurred and Melbourne stations worked JA stations at S9 for the best part of an hour.

Quite a bit of the discussion about the band concerns moves for the retention of 6 metres after the New Year and Jock 3ZDG and Ian 3ALZ have been burning the midnight oil in an effort to present a watertight case to present to F.E. As a result of all this work, the V.h.f. Group held an extraordinary meeting on Sat., 28th Sept., and a lengthy set of arguments was listed in favour of retention of the band. This list was read at the general meeting for October and a copy was forwarded to the Federal Councillor for VK3. Copies are

also being sent to all other interested parties, both in and out of VK.

Nineteen stations participated in the Sept. scramble, a record number to date, which was won by Jock 3ZDG with 17 contacts.

Field Day.—The first of the v.h.f. field days for 1958-59 is scheduled for November, although the date has not yet been decided on. This should be finalised at the October v.h.f. meeting and will be published on the 3WI broadcast. Rules for the coming field day season appeared in Sept. "A.R."

2 Metres.—The winners of the first two metre scramble were 3ZEO and 3ZFA, one disappointing feature of the scramble was the lack of out-of-town activity and it is to be hoped that the scramble will not remain a Melbourne only affair. These scrambles are held from 1945-2015 hrs. on the second Sunday of each month, so dust the cobwebs off that 2 metre gear and be in the next.

V.h.f. Meeting.—The Sept. meeting consisted of a demonstration of noise figure comparison using a silicon diode noise generator by John 3ZAI, and a demonstration of aluminium soldering by Bob 3ZAN. Bob used one of the new type self contained portable gas cylinders and blow torch and die-cast welding rods, the joints were made quickly and defied the efforts of the group to break them. Bob brought along a P.M.G. Research Laboratory report which showed that in general the joints formed have very good electrical properties and arc at least strong as the joined metal. Using these soldering methods, Bob showed some very neat element clamps which were made from dural tube and some nuts and bolts.—3ZAI.

QUEENSLAND

DX? DX? Plenty of the stuff, lots and lots of JA stations, a few KH8 and a lonely VK9. All the gang had their share, the newer boys on the band being most popular. New VK calls heard on 50 Mc. in Brisbane are 4ZBY, 4ZBI, and 4BN. 4HD still working all and sundry from the heights of Mt. Buderin. Nice signal Max. The VK4 gang did not hear anything of 3AHJ on the date he said he would be in Brisbane, must have QSTED on the way. Yours truly (4WD) received the A.J.D. Award, No. 545, during the month of Sept. Card state, first 50 Mc. holder from overseas country. Also advised 4ZAZ claim received. 4NG ran into a heap of bad luck, his application sent early this year got LOST between Aust. and Japan. Bob's second application is on the way now. He now has all his QSLs for W.A.J.A. Award, also received his S30 Award from Suginami Radio Club. Said there is no English on it.

Douglas 4ZCA is putting a signal on 50 Mc. soon, QTH west of Rockhampton. 4ZBF/4ZAZ have been fixed mobile Mt. Coot-tha, said it is a good spot for DX, no noise, only signals. Did you blast all the other cars away Allan? Bruce 4ZBD at new QTH, Clontarf, working JAs off a dipole on the picture rail in the room. Nice work.

V.h.f. Group working hard to retain 50 Mc. for as long as possible, getting logs together, etc. Lance 3AHL was in town, contacted Jack 4JO re V.h.f. Group doings. 4NG and 4ZAZ heard in Brisbane, but did not hear the local gang calling them. We are all looking forward to working the VK gang again, getting tired of working JA. It will be great to be ear-bashed by the old gang once again, hear you soon I hope. I nearly forgot to say we have had DX most of the month, from flutery signals to S999 plus, plus, plus.—4WD.

SOUTH AUSTRALIA

Very few v.h.f. enthusiasts operating on 288 Mc. at the moment. From this QTH only Bill 5WR and Brian 5ZGT have been heard and they were crossband to George 5ZGA on 50 Mc.

144 Mc. still revolves around contacts with Hughie 5BC; most contacts scheduled around 2000 hrs. when Hughie is available. Brian 5ZBX, George 5GB, Reg 5QR and Curl 5ZBL also on the band at odd times.

50 Mc.—Two new calls to this band, Lance 5ZBY on 51.01 using a four element yagi, and John 5ZCJ using a 2E2B in the final. John's rx at the moment is fairly broad, but hopes to have a selective rx shortly. Ken 58P heard testing on the band with a dummy load, last heard Ken about 3 years ago. Keith 5MT still active but will shortly change QTHs and then will be purely mobile or fixed portable. Keith has been re-building all his rigs for mobile operation.

Lance 5ZBC in regular contact with George 5ZGA and testing various microphones, also heard Gilbert 5GX with modulation troubles. A further newcomer to the band is Barry 5ZBZ working fixed portable and mobile using a 12AT7 overtone doubler to a 5763. Barry's YL became his XYL on Saturday 4th. Congrats, old man. How lucky can you be? Not

(Continued on Page 18)

S W L

Ian J. Hunt, WIA-L3007
211 St. George Road,
Northcote, N.16, Vic.

This month we begin our notes by appealing for support for the magazine. If you have any Hints and Kinks, please forward them to the Editor.

Unfortunately I cannot include our feature S.w.l. of the Month in this issue as no one has provided me with the necessary information. How about some of the VK2 gang telling us their history?

QSL of the Month.—Only six cards were entered in this month's contest and Ian Hunt scraped home very narrowly in the voting with a card from UBSFG. A card submitted from UASKAE was a close second. Again I ask that other Groups participate in this section of our notes by running a contest of their own and advising us each month of the result.

Whilst on the subject of cards, I might mention there is news in the DX section of PJ2AQ and OR4VN who may be well worth chasing.

Now for our Interstate news.

NEW SOUTH WALES

Don Grantley again keeps this State on the map. He has made many preparations for the VK-ZL Contest and so should come up with a good score. A holiday in Sydney will follow. He is contemplating a solution to the antenna problem by way of a G4ZU beam, whilst a Q5er and mobile receiving gear in the shape of modified Command rx's are other projects on the way. He has been very busy making out reports and has dispatched over 700 to a total of 125 countries. We hope you get 100 per cent. returns Don.

VICTORIA

September Group meeting.—At this meeting 17 members were present. Two new members in Bob Goulet, of North Carlton, and Terry Knight, of Nunawading, were welcomed. Reports received from members indicated the usual great interest in activities. One effort worthy of mention was the fact that one of our blind members, Frank Nolan, heard VK-3ZDG, VK3ALZ, and VK5ZCR on 6 metres using the t.v. rx at home. After general business was dispensed with, we were privileged to receive a talk from George 3WJ on the subject of construction of Amateur medium frequency tx's. George brought along his own well-designed and beautifully made tx as an example and held us spellbound for almost two hours with a most interesting and instructive talk. It was one of the best talks the Group has ever received and for his efforts we wish to thank George most sincerely. We suggest he could write it up as a magazine article. (Editor please note and chase him up.)

His talk to us would also be a good rehearsal for a similar talk at a general meeting.

Ken Robertson was among the country s.w.l.'s represented at the State Convention and played cunning on the Sunday morning to the extent of winning the 2 mx fox hunt. Don't let those city slickers into the secret of how, Ken. Yours truly, together with Bob Wallace, from Bandiana on the border, set up the recently acquired 122 set and under the guidance of 3YS managed quite a few contacts.

Queries about the VK3 Group and s.w.l'ing in general have been received from Ivan Richardson, of Geelong, and Addison Lowes, of West Heidelberg. Ivan uses an AR7 and Addison a 3-valve regen rx. We wish these boys luck in their s.w.l'ing and will provide answers to their queries as soon as possible.

QUEENSLAND

Jack Smith, of Welston, Brisbane, has dropped us a line and so we now know there are still some s.w.l.'s up in the sunshine State. What's happened to all you chaps anyway? Let's hear more of you from now on. Jack hasn't told us anything about his gear yet, but appears to have a great interest in seeking these rare QSLs.

SOUTH AUSTRALIA

A letter from Bob Simmonds, of Iron Knob, which I had misplaced has now come to light, and so provides news to round off our notes this month and also make the tally four States for the month. Bob and Kev Hill make up the total s.w.l. population of the town. They both have 1155A rx's plus a 3-valve regen. and a Hallcrafters. The impressive list of stations he sends indicates a good location with just a little QRM from the h.t. line from Whyalla. The B.H.P. Co. Ltd. generates the power for Iron Knob and Iron Baron at their blast furnace in Whyalla, jumps it as 33,000 volts to a sub-station in Iron Knob which then supplies 240v. to the town.

Bob includes a suggestion that the s.w.l.'s could also get behind the I.T.U. Fund appeal. How about it chaps? I think it's a good idea and have already noticed the names of quite a few associate members in the lists published. You can send your donations to the headquarters of the Division in which you reside for onforwarding to Federal Executive.

So with that I must finish these notes for yet another month. Before doing so, I would like to express sympathy on behalf of all s.w.l.'s throughout Australia to Maurice Cox, the newly elected Secretary of the VK3 Group. As mentioned in last month's notes, Maurice is unfortunately ill, the illness being polio. We do hope sincerely Maurice that you make a complete recovery and you may rest assured that the best wishes of all s.w.l.'s are extended to you. We hope that it's not too long before you are back with us at our meetings again as your usual cheery self.

EARLY COPY

The closing date for copy for the
January issue is 1st December.

still as keen as ever; 3AOM, have nothing specific of George this time; 3CX, who has completed his W1 marathon and sent the cards away for credit; 4DO, who is coming to Sydney to see what makes the VK2 boys tick; 4RW for some late information on the FK8AS deal; 4XJ now finding 28 Mc. coming to his liking; 5RK went to the trouble of sending in material from 5RX and 5LD; keep them on the job, Ray. We would have had 5WO in the list too, but skip took him out and brought VK3 and VK6 in instead at the critical time; 6VK, who is very interested in s.b. activities; 9XK still doing well on 50 Mc. and not using the h.f. bands so much. The s.w.l.'s we have WIA-L3001 keeping the VK2 S.w.l. Group on the ball, WIA-L2022 with a total of 153 countries tucked away, BERS195 who raised some interest with receipt of the FN8AD QSL. I need one for VK4QL Eric. Ian Thomas who is now WIA-L3085, but QRL studies, and Rod de Balfour who is happy with band conditions for Sept. We must not of course forget our overseas helpers, W4KVX and SM8C21. 73 and don't forget the earlier deadline.

V H F

(Continued from Page 18)

many KYLs would allow radio on a honeymoon, and I wonder just how many contacts you'll have in VK7 Barry. Two more of the fraternity are Interstate at the moment. Graham SZGA mobile VK3 for a month, and AJ SZCR portable VK3 for a fortnight. Hope you work some of those JA's fellows. Incidentally, Al now has a 55 ft. high mast for his 4 element. Hughie 5BC reports hearing JA1GY on 50.5 Mc. using m.c.w. Haven't heard that station here, but believe it is using kilowatts. Only Ja reported here was heard by Ron 5MK on 6th at 9.15 a.m., the signal was in and out at 57 talking Jap. Reg 5QR has completed his table-topper for 50 Mc. using a Command tx chassis, the v.f.o. portion was left intact and the rest re-built with an 829B in the final with 15w. input and phase modulation. Reg apparently has b.c.i. problems.

Rob 5RG has left this land for VK3 where he hopes to become active on v.h.f.—5ZAW.

AMATEUR T.V.

The mention in the VK5 notes last month that one of the VK5 gang was interested in Amateur t.v. transmitting on 288 Mc. brought a quick response from Bill 3BU. If Bill could find out who it was he would like to drop him a line because he is always on the lookout for anyone interested in a.t.v. He has joined the British Amateur TV Club and has received film strips and hopes to receive lecture tapes from them soon. Another Geelong Ham, 3ABK, is also active on a.t.v. and they hope to have a video QSO soon on 288 Mc., then they will try "DX" with the Melbourne boys. Bill is endeavouring to contact others interested in a.t.v. and hopes with the W.I.A.'s help to exchange information with other enthusiasts and perhaps form a T.v. Group similar to the British one. 3BU is on 7.1 Mc. at 1800 hours E.A.S.T. most days of the week and can listen on all bands or play tape at 7%, 3%, 1% single or twin track if anyone would like to exchange tapes on a.t.v.

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Gilbert & Elliot Islands Colony Government invite applications from men, preferably married, for the vacant post of Radio Officer or Radio Technician.

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Gratuity payable £A30 for each completed three months of service. Contract terms two years (renewable) with opportunity of permanent appointment.

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Duties include maintenance h.f., v.h.f. communications and broadcast equipment, knowledge of marine radar installations advantageous.

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NOTES

FEDERAL

RETURN OF FEDERAL SECRETARY

The Federal Secretary, Doug. Bowle (3DU) returned to Australia from his overseas tour on Monday, 6th October, 1958.

During his tour abroad, Doug. visited many overseas Amateurs and had discussions with various Radio Societies, such as the R.S.G.B. and A.R.R.L. Doug. also visited Moscow where he was entertained by the Moscow Amateur Radio Society.

Doug. attended the Bad Godsberg Conference as the official W.I.A. representative.

More news and details of Doug's. overseas tour will be made available when to hand.

OVERSEAS NOTES

United States. As from the 11th September, 1958, the American Amateurs have lost their 11 metre band. This band has now been allotted for use by medical equipment.

A.R.R.L. has submitted a proposal for the amendment to the existing regulations to extend full operating privileges to maritime operators operating between United States ports. This will allow operation on any band and not restricted as it is now.

During the recent A.R.R.L. DX Contest the authorities conducted a number of power checks on Amateur Stations with the result that a number of well known Amateurs were recorded as using inputs in excess of the allowable 1 k.w.

Several of these Amateurs have had their license cancelled for varying periods of time, and in addition their names have been struck off the DXCC List by A.R.R.L.

Ceylon. Recently news was received that 457 Amateurs have had their licenses cancelled. Since that time a number of unlicensed Amateurs have been abusing the authorities for their action with the result that the Government has directed that all transmitting equipment is to be seized.

I.G.Y. OBSERVATIONS

"Ghost Signals." Co-operation is being given by Amateurs in the observation of the "ghost signals" previously reported on Russian satellites. This ghost signal or antipodal signal appears for about three to four minutes when the satellite is about half way round the world in respect to the observer and the signal again makes its appearance when its position is approximately line of sight.

CONTEST CALENDAR

Compiled by W.I.A. Fed. Contest Cam.

★

"CQ" WORLD-WIDE:

Dates: C.w.—0200 GMT, Nov. 29, to 0200 GMT, Dec. 1.

Bands: All h.f. bands (including 11 mx).
Rules: See "A.R." Oct, p. 43. (Note Rule 8, Sec. 6 and 7.)

R.S.G.B. TELEPHONY CONTEST

Dates: Nov. 22 and 23.

Bands: Restricted.
Rules: Same as for 1957 except for scoring bonus for working G3 stations.

ROSS HULL MEMORIAL V.H.F.:

Dates: 1st Dec., 1958, to 31st Jan., 1959.
Bands: All v.h.f. bands.
Rules: Same as for 1956-57.

Special Award for greatest distance over 3,000 miles.

NATIONAL FIELD DAY:

Date: Sunday, 25th January, 1959.
Bands: (1) H.f. (2) V.h.f.
Rules: To be published Dec. 1958.

B.E.R.U. C.W.:

Date: Probably January, 1959.
Rules: As for 1958.

OK DX CONTEST:

Date: December, 1958.
Bands: All h.f. bands.

For those that are interested, they should listen either plus or minus 53 minutes from the time the satellite has made a close pass. Previous indications have been that the signal can be heard at better strength during the evening and has been observed on approximately 50 per cent. of the days that the satellites have been in orbit.

Great Britain. R.S.G.B.'s. I.G.Y. program of providing reports on propagation conditions has been carried out by some 60 G Amateurs.

The R.S.G.B. received no financial support in this project and the lack of finance limited their programme to some degree, however individual Amateurs co-operated fully and a wide field of observations were covered, some of these being:

Trans aural path propagation of h.f.

Ionospheric propagation on 50 Mc. and the tropospheric propagation in the 70, 144 and 435 Mc. bands.

VALVES FOR INDIA

Queensland: VK4 Amateurs may send their donations of valves to: Box 6381, G.P.O., Brisbane, Qld.

FEDERAL QSL BUREAU

Tom Laidler, VK5TL, hastens to correct an error which appeared in his letter leading to a note in this column in October "A.R." apropos the location of Northern Territory stations. Tom now says, "VK5AE is at Alice Springs, not Darwin. There are five or six listed stations in Darwin, but have no information as to their current activity." Tom expects to be active from Renmark in November.

The two most active Fiji stations nowadays are VR2DA and VR2DG. The former is owned by Pete Alexander (ex-VK2PA), and the latter by Ben Pooley (ex-VETAFP). Ben works for P. & T. in Suva and states he will be in VR2 for a further two years. Pete admits to a sentence of a further four years. Both stations QSL all contacts and reports. VR2DG uses only 15w. to a long wire on 14 Mc., while VR2DA uses 100w. on both 7 and 14 Mc. bands.

Cards through the Bureau "took a tumble" during August and September to the tune of 1000 less each of the months mentioned.

Notes for this column have also declined, chiefly because my chief providore, Eric Trebilcock, BERS195, was so overcome by the surprise and entirely unexpected victory of Collingwood in the Victorian Football League Grand Final recently. It is rumoured that Eric had to receive first aid treatment at the ground and has not yet sufficiently recovered from his shock to enable him to read c.w. with accuracy or to put pen to paper.

—Ray Jones, VK3RJ, Manager.

NEW SOUTH WALES

The Sept. general meeting could have had a "house full" notice outside Science House. For the first time for many years, extra chairs were required to seat the 120 members present. The Secretary read a letter of resignation from the Division's Treasurer, Ced Smith, VK2CD. Ced advised he would no longer be able to carry on this important task on Council. We wish to thank him for the job he has so capably done for the last 12 months, when he instituted new ideas in the financial side of the Division's activity.

Bob Luther has been appointed to fill the post as Treasurer and has been co-opted as a full Council member.

New members continue to join the ranks, bringing the Division's strength to an all-time record of just under 1000.

The President, Pierce Healy, read correspondence which had passed between Council and the Dept. of Education. Council has advised the Dept. of the training facilities available to students. The Dept. was interested in the classes run by the Division, both in lecture form in Sydney and the correspondence course available to persons who are unable to attend the lecture course.

Further business was suspended to allow members to listen to an excellent lecture by Maurice Findlay on "7 Mc. Mobile." Maurice's lecture was well illustrated by slides showing circuits and diagrams of equipment suggested for this increasingly popular form of Amateur activity. A complete mobile installation was displayed, including a centre loaded 9 ft whip antennae. At the October meeting John 2JU will lecture on stero-phonics sound.

HUNTER BRANCH

The 1958 Hunter Branch Annual Dinner and Field Day are now history and the very successful dinner held for the first time since the

hostilities proved that the promulgators were right. So look out for a bigger, brighter and better one next year, chaps. It was purely luck and 52 sat down to an excellent repast after the Rev. Joe 2ANL said Grace. President Lionel 2CS toasted the Queen and welcomed the guests. The latter was responded to by Chris. 2PZ. Alan Fairhall, 2KB, Minister for the Interior and Works, in proposing the toast to Amateur Radio and the Wireless Institute of Australia, gave many insights to contentious matters concerning us and if heeded by all and sundry, it will be better for Amateur Radio. He expressed surprise that since the War our ranks have only increased from some 2,000 to 3,500 and wondered what was the reason. Are we going out of our way to interest the young fry in our studies of the electronic arts (I also dislike the word hobby). In the matter of the I.T.U., Alan is so far the best "arm twister" heard to date, yes even better than Pop. Max 2OT, representing official W.I.A., responded in his usual manner.

The guest speaker, John 2JU, based his address on "Looking Ahead." No need to say how well John was received despite the fact that he resorted to poetry on a couple of occasions. Among matters he touched on in-

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VICTORIA

cluded the advance of the transistor power from sunlight reaching interesting possibilities; increasing use of thermocouples to produce power; light amplifiers being the ultimate in t.v.; stereo-sound, etc., etc. That concluded the session and the following are a few observations:

Several speakers praised the efforts of Social Sec. Gordon Sutherland and V.P. Stuart 2ZDF for the manner in which they did all the hard work and no doubt their XYLs will be pleased it is over for a year. Thanks boys for a job well done. 2JU emphasis that we must occupy the bands we have and preserve them for those who follow us and to see that we use the latest techniques. 2KB's statement that it was due to 2CS that he became an Amateur (just imagine Lionel holding Alan's hand and conducting him around his shack). Did anyone notice Jim 2PM's socks? A wire was received from Roy Parker of VK3 expressing best wishes for the Convention.

The official table was composed of 2KB, 2CS, 2JU, 2AUH, 2OT and 2PZ. Gosford Zone was led by Major 2RU; Blue Mountains by Bob 2ASZ; V.h.f. Group by Jim 2PM, and from far afield came Ben 2ABT and Ken 2XS. Those present included VKs 2AQR, 2ANA, 2PM, 2QB, 2ANL, 2AWD, 2ZMO, 2ZDF, 2ZDL, 2XS, 2KB, 2OT, 2SF, 2ZL, 2RJ, 2ZK, 2AFA, 2AHA, 2AEE, 2CS, 2XQ, 2ZPC, 2AOR, 2RU, 2BZ, 2ZAO, 2ASZ, 2FX, 2CW, 2JU, 2ABT, 2ASA, 2AHT, 2KQ, 2PZ, 2AUH, Messrs. Sutherland, Adams, Bailey, Davis, Jackson, McLachlan, Jayne, Rugg, Davey, Middledorp, Parry, Toohey, Nichol and Connors.

The field day was held on the Sunday but unfortunately I was unable to attend in the afternoon so results will be in your next "A.R." Quite a crowd was present and there was spirited bidding for quite a few articles. Bill 2ZL nearly lost his ARS to the highest bidder. The only new face noticed was Muriel 2ALA, who seemed to be enjoying herself making new and old acquaintances.

Due to several circumstances caused by amnesia by those concerned, we did not view the slides sent to us by Wal 2LIAUL/3 (VK-2AXH to you) and a long promised threat bore fruition. Maybe I have a suspicious nature, but maybe the fact that the lecturer was one of those concerned in the aforementioned disease was purely a coincidence. Anyway, it is not behind us. Seriously though, Lionel did provide food for thought and there is no doubt s.s.a.b. has its future, but I wish many who use it would make sure it is s.s.a.b. and not ex-s.s.a.b.. A dummy load is still a good way to test any tx. The usual goodly crowd listened to Lionel and a visitor was Bruno Richter (from Austria, ex-OE1BP). Gordon Sutherland, acting as Secretary, read the minutes. Associate Eddie personally thanked our Branch President, Lionel, for the fine lecture he gave to a father and son night of the OK's at Blackalls. Bill 2ZL took 2AQR as his son and the rest of his retinue included associates Max and Bob. Lionel spoke of the early days of Radio and exhibited his four-page licence of 1922. 2ZL left his 1912 one at home, but brought his spark tx. Me, I never mentioned I was only a little squirt with a 1929-er. It is lectures like these that sew the seeds of Amateur Radio and helps build up the Institute.

Next meetings chaps is the usual monthly one at Tighes Hill University of Technology at 8 p.m. on Nov. 14, and the usual social at Bill Hall's on 26th. See you.

VK3 SOUTH WESTERN ZONE CONVENTION
A very successful South Western Zone Convention was held over the October holiday week-end, when over 100 attended at Canberra.

The Canberra Radio Society, who were hosts to the South Western Zone, are to be congratulated on their fine effort in organising the Convention. Deserving of special mention were Ken Finney, Ted Pearce, John Roberts, Eddie Penikis, and Les Pitts. There were others but I offer apologies for being unable to remember names. Thank you all for a job well done.

Our thanks go to Mr. Jim Fraser, Member for A.C.T., who officially opened the Convention, also to our Divisional President, Pierce Healy, who made the trip to our Convention to represent Council.

The tour of Canberra was well received by all as was the Amateur Hour and Films on Saturday evening, not forgetting the ("beaut") dinner.

Sunday morning broke very wet, but this did not deter those who went in the scramble, and the 144 Mc. tx hunt. The Disposals auction went very well, all the bits and pieces being sold by auctioneer Ken Finney and his assistant, your scribe. There was some very nice gear on display in the home-brew section.

Sunday evening a Film night was held and supper served.

Results of competitions—Amateur Hour: 1st Jennifer and Barbara Weeden (highland dancing), 2nd Harry James (magician), 3rd Tom Simpson (violin). Scramble: 1st 2RS, 2nd 2AVW, 3rd 2AJO. 144 Mc. Hunt: 1st 2PN, 2nd 2ZAA. Best gear: 1st Eddie Penikis (s.s.b. rig), 2nd John Roberts (144 Mc. Converter), 3rd D. Evans, Assoc. (G.D.O.). Lady Travelling Longest Distance: Mrs. T. Simpson, from Griffith.—2AJO.

VICTORIA

Quite a large part of the last meeting was given over to the Publications Committee for the purpose of explaining to members the whys and wherefores of our monthly publication. As is to be expected, there is a considerable amount of work involved in producing our mag. and things are fast reaching the stage, so our Editor informed us, and he should know, where our organisation will have to sport itself a full-time Editor to co-ordinate

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the work. It is far too big as a spare-time job even now. The full Publications Committee was not on deck, but when you saw those that were and heard their stories, the Editor's prediction is really not so far fetched after all.

Without a doubt the Editor's job is by far the biggest and I think he would be willing to admit it but the Technical Editor, Ken 3AFJ, runs a pretty close second. Anyway, I am stealing their thunder, so let's hear in a few short words what they all had to say.

Ron 3RN opened the proceedings by outlining the work of the committee and pointing out that this lecture coincided with the publication of the 25th anniversary issue of the mag. He also covered policy and organisation and was supported in his remarks by very excellent slides provided by George 3AHN and his son John 3ZCB, who also operated the projector.

George 3AHN, the Divisional Notes Editor, followed Ron with examples, both descriptive and on slides, of the type of copy he receives. The ideal copy is written on half quarto sheets, is double spaced, has ample margin on either side, and has sheets numbered. The double spacing, etc., is to facilitate editing and the size to assist the machine operator who has little room to stand a larger sheet. The nearer we can approach the ideal the easier it is to turn copy into print and the cheaper the mag. is to produce. George showed us some slides of the good and not-so-good copy received.

Following this we heard from Ron 3OM on the drafting angle which is his particular baby. Ron is rather snowed under with this job at the present time and would appreciate assistance from anyone who is adept with the pen. Contributors could also assist quite a lot by submitting drawings in the proper form. Ron also had examples of the good and the bad to show us and it was easy to see where the troubles lie. Rather than try and explain what is required in a drawing, I think it would be better to pass on Ron's advice that if you have an article to submit which is to be accompanied by drawings and are in doubt, then please don't hesitate to enquire as with proper direction of effort you can save the committee an awful lot of duplication of effort in re-drawing.

Next came Sid 3ASC, the book reviewer and collector of articles from overseas mags. Sid also corrects galley proofs. Sid's is an exacting task and involves him in quite a bit of running back and forth to the rooms for his tools of trade. With parking the way it is these days, his trips must be rather hazardous and could be costly if you don't watch out. Next time you read that book review or pore over that particularly juicy re-print, remember Sid and be thankful because a lot of careful thought and much culling of magazines has gone into the selection of these articles. As Sid explained a linguist would be handy on this job as quite a number of the mags are in foreign languages.

Yours truly came next with a word or two on the compilation of the Victorian Division notes and a little more about galley proofs which Sid and I share. These latter are previews of the print and have to be corrected for machine errors and operator mistakes if any. The copy has been edited prior to us receiving the proofs. My biggest worry is

collecting news for the notes. I try to keep to topics of general interest and would appreciate any tit bits that may be forthcoming, but up to date very little dice. I take it from this that you are completely satisfied with results or that you don't read the notes. It's up to you if you would like a change of material or scribe, so go to it.

Next we had the privilege of hearing from Australia's Oldest Man, George 3AOM, who carries out the secretarial duties associated with the committee's activities. George was quite a latecomer to Ham Radio as he didn't take out a ticket until well on in years. I suspect that his biggest incentive in making this move was the pleasure he now receives in Hamming with his son on one of the islands. In between doing this and snoring that rare DX, he finds time to carry out his very important duties as scribe. Being a retired school teacher was probably the reason why he was talked into this job and he does it with the touch of the expert.

Our Technical Editor, Distribution Manager and Finance Expert were also scheduled to talk but each was unavoidably detained and we didn't have the pleasure of hearing about their jobs.

The Editor summed up the proceedings by giving us a very small insight into his activities and dwell particularly on the preparation of the special edition. Here again more slides by George & Co. were used to assist and those assembled were left in no doubt about the work involved in this magazine producing business. At this stage a dark horse was introduced by Ron in the person of Sid 3AFL, the author of the article on the transceiver in the special issue. He had his rx with him and proceeded to give a very commendable demonstration of its capabilities.

The proceedings were rounded off very fittingly by George 3AHN with more slides, one of which showed the committee hard at work over supper at one of its recent late sessions. Quite a lot of this hard work and late sessions which have underlined the above remarks could be relieved by further assistance, so what about some of you blokes with time on your hands coming forward.

It was hoped to have a discussion on the question of new premises for the W.I.A. Victorian Division at this meeting, but after getting away to a good start, things bogged down and time was getting short, so further time is to be found at a subsequent meeting, probably the next. The sooner this matter can be resolved, the better, so brush up those ideas and try them out on your fellows before the next discussion. The questions waiting to be answered are: Do we or do we not need premises of our own? If the answer is yes, then how are we going to finance the project? Where should these premises be located? What sort of building would be suitable? Who knows of anything available that might suit? If we continue to rent, where do we go if we are forced to leave Queen St.? Don't forget, Mrs. May, she has quite a lot of business to conduct in the city on our behalf so we can't start thinking of the outbacks for rooms. Then the spot chosen must suit a majority of the members as to location, for meetings. Parking is another consideration. There is very little time to settle these questions, about six months to be precise, so get those thinking caps on.

Jock 3ZDG squeezed a few words on the retention of the 50 Mc. band into the few remaining minutes, but time beat him to the post.

New members admitted at the last two meetings were: Full Members: B. L. McCubbin, 3SO; A. T. Gooby, 3GV; M. Dalton, 3DF; M. G. Esam, 3AGE; J. Valle, 3PZ; G. N. Kidson, 3ADG; H. R. W. Rolls, 3ZCR; W. H. Fleming, 3HP; J. V. Hudson, 3VT; F. E. Hobson, 3ZEU; L. L. McInnes, 3AMK; A. Swindon, 3AKQ. ex-VS9AS, GSANK; Associates: R. L. Brentwood, R. G. Toward, B. T. Mansbridge, T. R. Hayward, G. De Caux, S. Logvynenko, R. E. Goulet, J. L. King, B. J. Tucker, Jr., F. L. Nott, M. W. T. Cherry (country).

Our Federal Secretary has returned from overseas and has promised us (he doesn't know yet) a lecture on his trip. It could be at the November meeting, so keep tuned to the Sunday morning broadcasts.

STATE CONVENTION

The week-end of the 20th and 21st September saw the State Convention of the Victorian Division take place in Melbourne. This was the first time in the last nine years that Melbourne has been the venue of the Convention and there was much speculation as to the success of the venture, but one cannot argue with figures and these show that not only was the Dinner and the Convention attended by as many as is the case in the country, but so also was the Sunday entertainment. To commence activities all those attending fother-gathered at a city hotel and after much chatter

and many acquaintances being renewed, sat down to dine. The President, Fred Bail, 3YS, welcomed all present, especially our guest of the evening, Mr. Max Hull, 3ZS (Federal President), and Mrs. Hull, and the ladies who had accompanied members for the evening.

Jim 3NY proposed the loyal toast; Graham 3QZ, of the Eastern Zone, proposed the toast of the Institute; and David 3ADW responded on behalf of the Division. Max Hull then gave the opening address. Unfortunately there was quite a lot of noise going on outside the dining hall, but undeterred, Max proceeded and spoke most ably and entertainingly on the various aspects of Institute life and in particular the I.T.U. Conference at Geneva. At the conclusion of this happy dinner the ladies proceeded to the theatre or to watch t.v., whichever was their choice, and members got down to the serious side of the Convention.

3YS declared the Ninth Convention open and received apologies from 3SS, 3AUX and 3AGV, and welcomed all those country members who had made the trip to Melbourne, these included K. Robertson associate, Graham 3QZ, David 3DY and John 3ACA, from the Eastern Zone; T. Rodda 3ATR from the Western Zone; Neville 3ANC, Midlands Zone; and from the South Western Zone came W. Wookey 3IC, W. Zimmer 3AWZ, J. Barber 3ZBR, B. Baulch 3ZCQ and D. Baulch 3ZCX.

Much useful discussion took place during the evening and the members' views were adequately expressed and their recommendations will be dealt with by Council.

Disposals was one of the items dealt with and in discussion it appeared that this matter was being adequately handled, particularly in view of the limited amount of equipment offering in this State.

On the question of the call-up at the end of the Sunday morning Broadcast, as raised by the South Western Zone, it was stated that more thought had been given this matter subsequent to the Convention. The main difficulty is of course the high noise level in Queen Street. It is hoped that improved operator technique will offset some of the difficulties of the call-up.

Perhaps the building fund was the most discussed item of the evening and many members spoke on the subject and no doubt there will be much more discussion in places other than the Convention table before a suitable answer to the problem is found. However, the Secretary outlined the result of the Building Committee's inaugural meeting and stated that any proposal would be investigated within 48 hours. You can be assured that there is much behind the scene activity in this direction and many investigations have already taken place, but should anyone hear of a suitable building within the inner metropolitan area they could ring Mrs. May at MY 1087 and it will be investigated as stated.

Interference from t.v. receivers was also discussed and this problem is to be referred to Federal Executive. Briefly that covers the main business dealt with during the evening. The meeting was declared closed shortly after 11 p.m.

On Sunday the Convention continued with a barbecue picnic at Willsmere Park and this function proved a great success—there were approximately 90 for lunch and over 100 for afternoon tea. The very unpromising weather which had preceded the Convention cleared and although a little damp under foot a full programme of events took place. Much activity was shown by a number of portable stations active on 7 Mc. In evidence was a number of 122's (making their appearance no doubt as a result of a recent disposals handout). In

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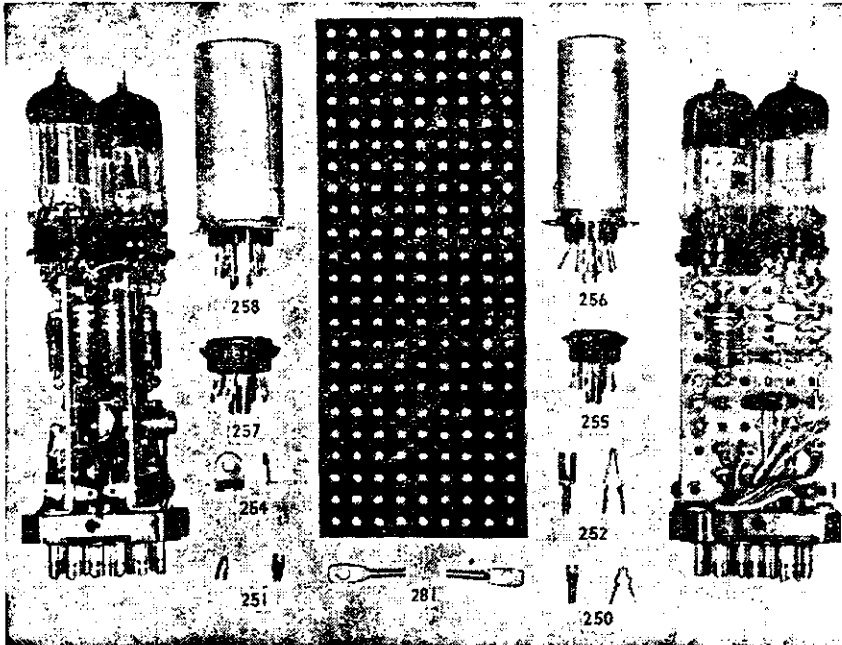
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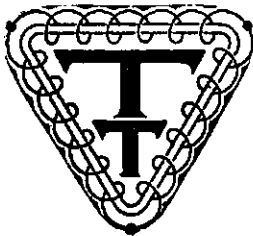


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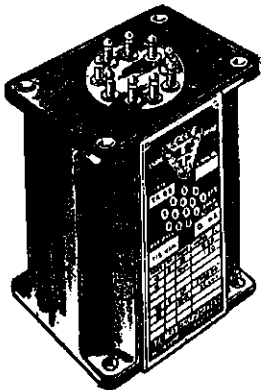
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the morning a two metre fox hunt was held and this was won by Maurie JMS. Ken Robertson, from Pt. Albert, won the 2 mx tx hunt and the 80 mx hunt was won by Bob 30J. A new event held in VK3 for the first time was the blindfold tx hunt on 288 Mc. This was won by 3DQ's KYL, Mrs. Donoghue. (You haven't a chance, Cliff, after this slueith-like effort.) For the young, sweets were distributed and one might say that it was obvious from the foregoing that this year's State Convention was a huge success.

To the organisers we say thank you, particularly to our Secretary, Jay 3JL, and our President, Fred 3YS. But most we say thanks to the members who supported us so wholeheartedly, and to the members who came with their KYLs and YLs from far afield, it was good to see you in the city. They tell me that at one stage in the park on Sunday afternoon there were 38 cars with loops, antennae, etc. Perhaps this will be a forerunner of yet another Convention in Melbourne at a later date.

MIDLANDS ZONE

It is pleasing to note that the "regulars" are still attending the hook-ups on the second and fourth Tuesdays in each month, although for the last two your correspondent has been forced to keep a listening watch owing to re-building of the tx, modulator and t.v.l. During a recent hook-up we had another listener, Tom Biggs, of Raywood, who has passed his exams and waiting issue of a licence. One stalwart supporter of hook-ups has now departed, but with our best wishes for his future occupation. He is Peter 3IZ, who has resigned from School Teaching to enter an electronics division of an overseas manufacturer, who has sent him on a world tour, commencing in the U.S.A., thence through Europe, England and other interesting parts dear to the heart of a DX man.

Another member of the Zone is also going on a world tour next year in connection with his occupation as City Engineer of Bendigo—Rex 3UR, who will be going on a tour very similar to Peter's, and will doubtless find time to meet some of the friends he has made overseas. Rex is an extremely capable man in his chosen profession, and will doubtless make the most of the trip from this angle and from his hobby, which rather gets the short end of the stick these days in the process of work.

Col 3FO has been active on 2 mx lately, but wishes to get to 80 mx soon for the fortnightly chatter. My spies advise that Maldon has the highest density of t.v.s. per head of population for any country district. This may be the reason for the lack of suitable signals from Maldon.

MOORABBIN AND DISTRICT RADIO CLUB

At the last club meeting members heard the tape recording by Commander Batterham on Navy Frogmen, kindly lent by Len Moncur. All agreed that this was one of the best talks they have ever heard, and voted for more of the same.

Activity on 40 and 80 mx has continued at a good rate and those non-members who are interested should seize the opportunity to increase their number of contacts for our Honorary Certificate of Membership. Don't forget to ask all your VK3 contacts: "Are you a member of the Moorabbin and District Radio Club?"

Meetings are continuing on the third Friday of each month by courtesy of 3EM at 267 Jasper Road, McKinnon.

QUEENSLAND

At the Council meeting held as usual at the Y.M.C.A. rooms in Edward St. members approved the purchase of parts for the six v.h.f. "Communicators" being constructed by selected members of the v.h.f. society. These units, it is anticipated, will be used in future emergency runs and will provide a workable basis for a stock-pile of suitable v.h.f. emergency gear for the Queensland Division. Provision is also to be made for v.h.f. operation at 4WI which, with the added improvements put in by Bert 4AO, will then permit operation on five separate channels.

Some spade work was put in by Alan 4ZAE and Ron Cartledge digging out all the information about the Old Observatory in Wickham Terrace. As most Hams know, this building was once used by Tom 4CM and the late Dr. McDowell for t.v. experiments in the late 1920's. In considering its past radio history, its location and its value as a well known landmark, the boys thought that it would make a fitting city hdq. where at least Council meetings could be held. This proposition was put to a Council meeting where it was favourably received and an approach is now to be made by our President, John 4FF, to the City Council

regarding the acquisition of the Old Observatory. No results are to hand yet.

The Xmas Party is being organised and is scheduled for the second Saturday in December. Keep the date in mind and watch "QTC" for details. The last party was down a bit in attendance figures so this year give it your support and come along. A good time is assured.

All cards to be handled by the Outward QSL Bureau may be sent to D. B. Hughes, C/o. P.O. Clontarf Beach, Clontarf. A rapid service is assured.

The general meeting at the State Service rooms in Elizabeth Street saw a good roll up of members to hear Everett 4AL give a very informative lecture on "Mass Production of TV and Electronic Equipment." The processes involved were "eye openers" and the boys thoroughly enjoyed the evening. A vote of thanks was passed to Everett by the President.

The chairman of the V.h.f. Society, Bruce 4ZBD, reported that quotes had been called for quite a number of items required in the construction of the Communicators. At present there is some little delay about seeing the necessary 9.6 Mc. crystals. The next v.h.f. meeting will be held at John's (4FR) QTH where these units will be constructed. All interested are cordially invited to attend every third Friday night at 8 p.m. at 4JO's shack.

Bruce 4ZBD put forward proposals regarding the use of c.w. on 80, 11 and 10 metres by L.A.O.C.P. holders. Jim 4OB then moved that c.w. be permitted on 80, 11, 10, 6 and 2 mx with m.c.w. on 6 and 2 mx. This, to be allowed, if the applicant has passed a five word per minute test.

It was noted that some items of correspondence addressed to F.E. were not acknowledged and correspondingly an agenda item was formed as follows:

"All outstanding correspondence addressed to F.E. be supplied with progress reports as to what action is taken bi-monthly."

The last 2 mx hidden tx hunt was again won by John 4FP who, assisted by his usual navigator, found the tx just off the Old Cleveland Road in the bush at the end of Promenade Road. Rick 4VR had the gear nicely hidden, having cunningly parked his car with covering beside a parked caravan. Quite deceptive—nice going Nick!

TOWNSVILLE

How is that so many chaps can forget the last Thursday night in the month, which is the meeting date of the club? At the last meeting there was only a few of the stalwarts present. The Secretary tendered his apologies in advance for the next two meetings because of shift work.

John 4DD has now his voice back and punishing the 10 mx band calling CQ. Ted 4EJ almost had two thumbs on the one hand due to an accident at work when he split the member on the guillotine. Glad to hear it is healing well and does not impair his DX activities on 10. Bob 4ZAY and two others going up for the morse this time; hope they are

successful. Len 4GD and Eric 4EL get in cahoots on the band and try to outcall each other for DX on 10 mx.

Graham 4BX, a shadow of his former self, just shows what hard work and plenty of travelling will do in chasing the line noises in the various towns. Come out my way sometime and really hear what the noise level rises to. The Z boys are really getting into their stride for this summer openings on 50 Mc. Japan can be heard most nights. So the QSL Bureau will be overworked this summer with cards.

Esmond 4GZ does not now suffer from QRM since Vern shifted to new QTH. Owen 4OV, at Mt. Isa, heard making skeds for the boys passing Mt. Isa with their mobile gear. Latest to pass through being Eddie 50W from Darwin, while Joe 4BI soon expects to leave for D.C.A. Longreach and will have to do some rebuilding and give present gear back to rightful owners, cannot take the gear so far away, hi. 4WI broadcast on 14 Mc, a failure the last few Sundays, even 9WI only just audible. What is this jealousy in the islands, Frank? Could not hear the full news broadcast.

MARBOROUGH

4DJ getting a prop. pitch motor to turn his two quads; has been on d.s.b. on 40 mx, now building a 50 Mc. converter for the summer season. 4CB contemplating a huge tri-band beam with vertical elements, a la "QST". Arch is tuning up his 66 ft. wire on all DX bands and getting results. 4AI heard on 21 Mc. c.w. Alan hasn't dismantled his new rig yet, so there's hope it may stay in one piece.

4BG changed mods. to AB2 and no longer under-modulating. Getting back on to DX bands after a break. 4B7, of Bundaberg, had bad luck to have his car smashed up just after leaving here on way home. Vic. suffered a broken left big toe, so looks like he'll be off c.w. for a while. 4LN and 4HZ, of Gympie, also paid flying visits lately.

SOUTH AUSTRALIA

Last meeting heard Maurie Phillips, 5ZU, a technical officer of the E.T.S.A., give a large assembly of members, intending members and visitors a most informative lecture on Communications on High Tension Power Lines, in particular just how this was done over the network linking Port Augusta with control in Adelaide.

As the basic techniques embody similar principles to some we use each day from our less pretentious shacks, the interest was keen, although some listeners were perhaps a bit disappointed when they saw the size (and mentally calculated the weight) of the so-called coupling condensers, which would preclude Ham experimentation of such a system.

As Maurie explained, the need for a system like this was established when the Port Augusta Station output became an appreciable component of the State's generating capacity, so



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the need to effectively control the co-ordination between it and Osborne, as well as the lines between them, became of major importance.

Normal voice communication channels, both direct between the two points, together with "party lines" to sub-stations, telemetering for the central control, remote switch operation from control to sub-stations, automatic fault location and alarm, are just some of the things this complex system provides.

It is all done by using the metal conductors as transmission lines, and all at voice frequencies on a single sideband, suppressed carrier method of signalling.

Some of the larks used to make one crystal provide umpteen simultaneous frequencies gave us a few ideas, for that self same crystal was controlling both transmission and providing beats for de-modulation in receiving.

Transmission line theory came in for its share of eyebrow lifting too, for if any of you have tried to work out these things, you will know that a certain gauge wire at such and such spacing, will give an impedance of so and so, provided it is held firmly and with innumerable spacers to do just that, whereas in this high tension line business, the lines are not so controlled, have also to be transposed every now and then, and of course sway quite a bit in the breeze. The problems attached to this alone presented quite a few headaches to the designers.

Some excellent diagrams illustrated the lectures, these being thrown on the screen by Gordon using an epi-dio---epi---cyl---oh thing, and some pieces of the equipment were on display, including one of the hard worked (defunct) crystals. A tape recording of some conversations over the network and the signals used for control were heard to complete the picture.

John 5JC, who moved the vote of thanks, expressed everyone's appreciation of the informative address and thanked Maurie for the work he put into its preparation.

After smoko and QSL distribution by Norm and Jim, we reverted to normal business, which included the acceptance of the following new members: C. Appelby, 5ZBB; B. H. Wall, 5ZCA; K. D. Halsell, 5BS; and Associates: B. G. Daw, G. J. Klipper, W. Geue. Welcome to the fold fellows, pleased to have you with us.

Following some discussion the deferred action from the previous meeting re the Sub-Division Subscription to I.T.C. was put to the meeting and a sub of £25 from funds was authorised. Correspondence once again low, so John had but one letter to read out, with Federal Councillor Rex left to do most of the talking.

Two former operators now South, who lived and operated in Northern Territory for some time submitted their ideas re asking for VK8 for that area and it was decided to set the ball rolling via F.E. to see what could be done.

Gordon 5XU spoke of the need to watch operation and have nothing to do with pirates, there being a bad example recently which came before the notice of the Advisory Committee.

Reference was also made to the need for suppression of harmonics and advising anyone in doubt or in trouble to contact the technical committee who, under Ray 5BT (phone LF 5725) were in a position to help, and indeed are formed for that purpose.

At conclusion of the meeting your scribe was "invited" to take Doc home (he was afoot for once—too wet to bring that nice shiny buggy out) so we loaded up complete with the three other navigators from Gawler and set sail for the Big House. This entailed going down Currie Street and turning into West Terrace where the multiplicity of road marks and lights make it necessary to concentrate if a right hand turn is to be made, but having so many navigators on board we just approached the corner with nothing more serious than about four instructions on how to do it! Result? Shot straight through without turning and finished up going via Henley (or nearly so). The rude remarks of the four navigators and what they would have done cannot be written, only acted, and as we are not on t.v. we leave it to you from there.

Tom 5TL has devised a new way of getting to his Nailsworth office from the home QTH. He dresses to resemble a schoolgirl and can thus travel on a special bus dropping him off at the door. An apple each day for the teacher also helps. Argumentative bloke is Tom, for heard him dispute with Gordon 5XU the Hebraic or Gaelic Ancestry of a member who was querying a value of something or other.

Lance 5XL reports interest again awakening in breast of John 5FB, keep at him Lance and he will thaw out and resume activity on the bands. Keith 5KH heard on 80 mx phone recently, very nice too, watch out Keith they will keep you up all night on that band.

Jack 5AM working on a new triband cubical quad, using a very novel way of obtaining correct size and spacing and all on an 18 inch

boom. You must do an article on that Jack, for it is a winner and answers most of the queries. You said it wasn't original, but don't let that prevent you from putting pen to paper.

Joe 5JO still in hospital and general condition causing some concern. He will have to go quietly for quite a while.

Wal SDF has put the key away again since the new modulator came good and is now back to normal. Keith 5MT, temporarily at least, confining activities to the d.c. bands during a transitory period following change in QTH and some travel.

WESTERN AUSTRALIA

After the usual monthly business had been disposed of at the last monthly meeting, 6RM and 6KW took the floor to deliver lectures. Ron showed how simple additions to the modulator will allow a high level of modulation to be run without dangers of splatter causing interference to other stations. Rolf told of the fun and games he had in obtaining stable operation of his 8146s on 28 Mc. He described the circuit he is now using to neutralise his final. This consists of a bridge circuit, which can be adapted to any final tube.

Sunday, 21st Sept., Wally and Mrs. Coxon entertained Council members at their home in Darlington. This meeting is usually held close to Xmas, but, as the weather is generally unpleasantly warm around Xmas time, Wally and his XYL decided that a much more pleasant day would be had about this time of the year. We are indebted to Wally and Mrs. Coxon for a most enjoyable time.

The 40 metre scramble had a record number of participants this year, there being 50 stations on the air; this included one which was not worked by anyone to my knowledge. It sounded as if this particular station was keying a g.d.o. I couldn't get the call sign anyway; there was too much frequency shift. Sorry feller! Winners were 8RU (city), 8TH (coun. try), and 6KJ/P (portable section). I decided to come on at the last moment and thus cause some snappy operating on the part of all stations. However, the operating was so snappy that all stations on the air at the time, with one exception, were worked apparently. That particular station had the same idea as I did. Ideas of coming on for the last five minutes only next year have been scrapped after listening to a detailed description of the sticky end which awaits me should I carry out this plan!

Found 6BO feverishly wielding a paint roller in his lounge room the other day. Rolo appears to be equally at home with bricklayer's trowel, hammer and saw, or paint brush as with a stick of chalk. Believe some more building operations are scheduled to start soon.

6TH has been heard muttering darkly about 6BE6 mixers and sideband filters, so expect he is going to give a.s.b. a try, as he has been threatening to do for some time. 6CA has made it to 80 mx by means of a No. 19. Nice to see you on the band Kerry. 6DW has been transferred to Perth and is taking up residence in James St., Bassendean. The use of 'em in one street! Believe super town now boasts at least six call signs, and active ones at that.

Much feverish activity among several of our Z boys, with Morse sessions, etc. It seems that some will be applying for the full ticket in the near future.

Chuck 6CF has got his receiving set-up working and is expected back on the air. Chuck is another who has been busy house-building, and has had no time for Ham Radio.

Would like to remind you that this State is lagging in I.T.U.C. contributions. The time is fast approaching when the delegate will be leaving. News from overseas, even from the U.S.A., re proposed changes in frequency allocations is most disturbing. The Ws have already lost exclusive use of v.h.f. bands 220 up. No matter whether your interest is in DX, rag chewing around your own State, or in experimenting on v.h.f., it is essential that you make your presence felt at the approaching convention, through your own representative. Incidentally, if your contribution has not been acknowledged through this magazine, don't be worried. Some delay in forwarding cards from our I.T.U.C. co-ordinator to F.E. is unavoidable.

TASMANIA

NORTH WESTERN ZONE

Our usual bi-monthly meeting was held last month with really a good muster of members. Three visitors were welcomed with hopeful invitations to become members. Our zone strength is growing rapidly.

General business was rapidly disposed of, followed by the regretted resignation of our President, Ted 7EJ. Ted is moving to Hobart and words of thanks and appreciation for all he has done in the Zone were spoken by

several members. He was also wished the best of everything by all. Lee 7KC was elected to fill the vacancy—best of luck, Lee.

Donations to the I.T.U. Fund were again "plugged" by the Secretary and President. I trust the desired results will be forthcoming.

Suggestions were brought forward to continue instruction for Associates and it was decided to hold meetings in alternate months for such purposes. An activities committee was appointed to arrange lectures, etc., also display of members' equipment with suitable orations on their expectations.

It was decided to place a "live" exhibit in the Burnie Chamber of Commerce Hobbies Week Exhibition. Burnie members have it all under control.

Three of we associates sat for the A.O.C.P. examination last month and are still anxiously awaiting results. Keep your fingers crossed for us!

Some of our YLs and XYLs waited on us once more with supper and their labors were much appreciated. Also I think they enjoyed the fun of the auction which followed. Ted did a really first class job for his last run (another auctioneer will have to be found) and Zone funds showed a further gain.

Sam 7SM reported that he now has only one more State to "get" for his W.A.S. Certificate. Sort of the last straw, eh, Sam? Peter 7PF, who I believe is doing a spot of QTH juggling, hopes to be on the air soon on 2 mx and also on the lower bands. He had a 2 mx converter and tunable i.f. at the meeting. The converter looked the goods on a baking dish for a chassis.

Listening on the various bands indicates that Spring has brought a lot of members out of Winter hibernation. There shouldn't be any trouble getting contacts now.

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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 6th 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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FOR SALE: I.f. and Audio Unit: 6C4 co-ax input to 1600 Kc., 12SK7 1600 Kc. i.f., 6SA7 mixer, 12SK7 455 Kc. i.f., 6SQ7 det.-audio, 6V6 output, 12SK7 b.f.o., 5Y3GT and OA2, £8/10/0. Tuning Unit to suit above: 12SG7 r.f., 6AC7 mixer, 6C5 osc., plug-in bandsread coils for 80, 40, 20, 15, £7. 2 Metre Rx: 6J6 p.p. r.f., 6J6 mixer-osc., two EF39s and one EF50 9.7 Mc. i.f. stages, EBC33 det.-audio, 6V6 output, Eddy-stone Dial, £10. J. Milway, Tarraleah, Tasmania.

FOR SALE: 1 RAX Receiver, 7-27 Mc., £18. 1 home-brew Q5er to suit same, £10. 1 RAX 0.3-1.6 Mc., £16. Bruce McCubbin, 3 Kildare St., Burwood, Vic. BW 1587.

SELL: Eddystone Model 840 Communications Receiver, 480 Kc. to 30 Mc. Reconditioned as new, £60. Cunningham, 384 Glenferrie Rd., Malvern, Vic.

TOWER, guyed, 40 feet high in 10 ft. welded sections, £20 or offer. C. Luckman, 2 Milton Street, Canterbury, Vic. WF 8653.

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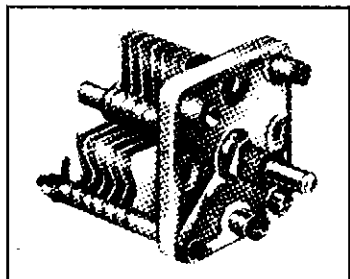
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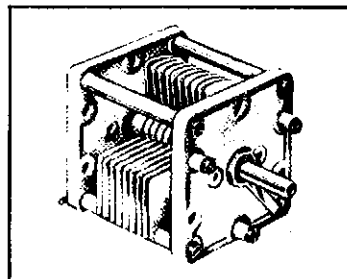
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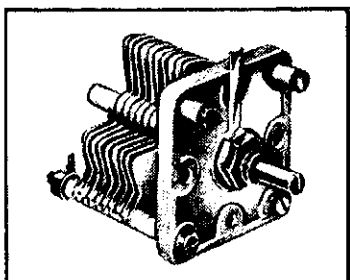
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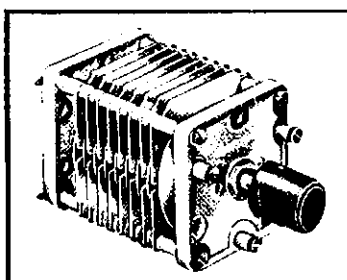


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EDITORIAL



NO SANTA CLAUS?

Nearly 60 years ago the Editor of the "New York Sun" received an unusual letter. It came from a small child, Victoria O'Hanlon, and commenced:

"Dear Editor,
"I am eight years old, some of my friends say there is no Santa Claus. Please tell me the truth."

The "Answer to Virginia" as the editorial published in the "New York Sun" was called has become justly famous.

Although basically directed to a child, it contained a theme which is universal in its application.

"The most real things in the world are those that neither children nor men can see. You can tear apart a baby's rattle and see what makes the noise inside, but there is a veil covering the unseen world which not the strongest man nor even the united strength of all the strongest men that ever lived could tear apart. Only faith, fancy, poetry, love, romance can push aside that curtain and view the supernatural beauty beyond."

How then are these "most real things" co-joined to Christmas?

Down the annals of time, man has mingled all of them with the seasonal festivities and for the want of a better name called the result, the Spirit of Christmas, the Spirit of Goodwill

among men. It has mattered little whether the conveyor of tidings has been Santa Claus, Father Christmas, Father Frost, St. Nicholas or any other, the theme has ever been the same—"Peace on Earth, Goodwill among Men." And following the lead, man in his humble way has echoed the refrain.

But what of the Radio Amateur? Perhaps he above all is especially privileged. Because his hobby knows not the bounds of physical or man-made barriers, his words, with their message reach the remotest spots of this earth. With his greeting, the Amateur conveys a sincere wish that those who hear him will delight in the Christmas Present and prosper in Christmases Yet To Come. With words like these echoing from the void others will feel that they are included in the occasion and share in its joys. They are being caught by the intangible bond of friendship, that most real thing in the world, that binds men into a universal whole.

To all then, both within our Institute and without, SEASON'S GREETINGS. May this festive season be all that you wish and may your future be prosperous.

To everyone everywhere—

A Merry Christmas.

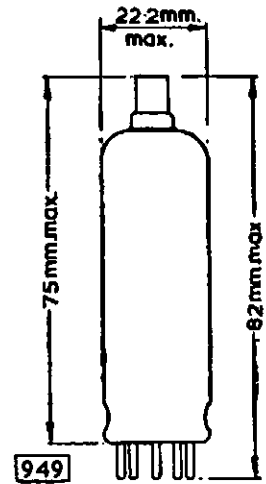
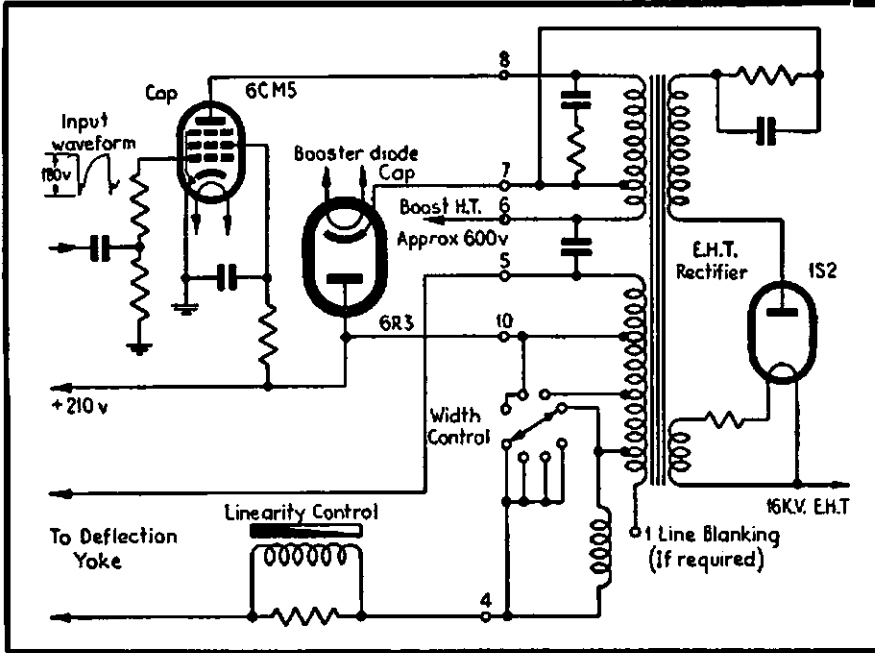
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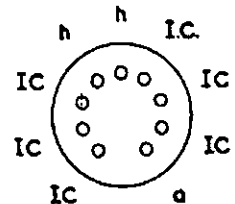
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QUARTZ CRYSTAL FILTERS

Including Part Six of Modifying the AR7 Receiver

SECTION ONE

BY G. M. BOWEN,* VK5XU

IN order to align a crystal filter successfully some understanding of the basic principles involved is required, besides an enthusiasm and an abundance of patience. So for the sake of those younger Amateurs, who are usually much brighter than we are anyhow, a quick survey of the main points will be given.

It is not generally known that Pierre Curie was one of the first scientists to extensively study the "piezo-electric effect of quartz crystals. He was able to show that the mechanical stressing of a piece of ground quartz crystal produced voltages of opposite polarity at the parallel faces.

These voltages were greatest when the slice was cut parallel to any of the crystallographic axes, the X, Y and Z axes as they are called. Modern BT, GT, etc., cuts are merely combinations of these three axes designed to reduce the effects of such poor properties as variation of frequency with temperature, discontinuity of oscillation, etc.

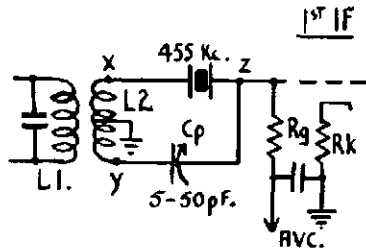


Fig. 1. L2 - Low Z winding.

Conversely, it was shown that if a voltage was applied to electrodes on the faces, distortion of the mass took place. Voltage pulses of short duration produced a damped mechanical oscillation with subsequent oscillating voltage outputs across the pulsing circuit. The frequency of these depended upon the mass of the crystal and its various dimensions and was relatively free from external circuitry.

Finally early in the century, this resonant oscillation output voltage was applied to the control of radio frequency oscillators.

In 1920, we find the first application of the "filter action" of a quartz crystal to improving the selectivity of radio frequency receivers and from that date until World War II, most of the basic circuits now in use were devised by the research engineers of the manufacturing firms marketing communication receivers.

The modern parallel to this type of filter is the magneto-mechanical method with its nickel-disc magneto-stricting oscillating bar, incorporated in the Collins "mechanical filter." This transfers the energy from a magneto field

whereas the quartz crystal filter transfers it from an electric field.

Basically, the vibrating quartz crystal corresponds to a series resonant circuit with an exceedingly high Q, due to its high elastic property. The electrical equivalent of its mass is the inductance, L; of its elasticity, the capacitance, C; of the heat dissipated in the dielectric and friction of the molecules, the resistance R, of a typical series L.C.R. circuit.

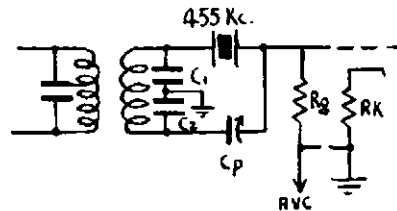


Fig. 2. C1 C2 equal.

Hence, the less the motion is damped, the higher will be the Q for a given quartz slab. For best results then, the slab should be freely suspended in a vacuum, but since the former is impossible, quartz holders, when high frequency stability is required are made so that the slab or bar is held between two screw points or suspended by thin wires. The electrodes consist of thin layers of aluminium, silver or gold, plated as evenly as possible to reduce the weight.

In general, X-cut bars, approximately 20 mills, thick $\frac{1}{8}$ inch wide and $\frac{1}{2}$ inch long are used in crystal filters of the type that this article centres around. They are included into a bridge-balance circuit which was first developed by Morrison, of the Bell Telephone Laboratories. Modifications to this type of circuit have since been made to introduce essential refinements such as variable rejection and variable selectivity.

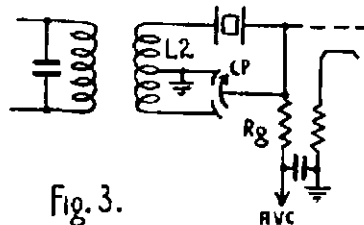


Fig. 3.

Reference to the various diagrams will disclose some of these modifications, but there are many others which provide interesting reading.

The AR7 crystal is mounted in a holder with a small air gap; the holder mounting and associated wiring naturally contributing to the value of the external capacitance (C). The SX28 crystal is enclosed in a specially designed polystyrene holder and the capacity

of the holder has been reduced to a minimum. The holder is wired directly into the circuit, thus further reducing the stray capacitance which lowers the efficiency of the filter.

By spluttering the electrodes onto the parallel faces of the crystal the value of the crystal capacity can be increased to a value approaching 0.05 pF. This high value enables bandwidths of 5 to 10 Kc. to be achieved with suitable circuit design. The ratio of crystal capacity (C) to holder capacity (C_h) determines how close the antiresonant frequency f_a can approach the series resonant frequency f_s, and hence how close an interfering signal can approach 455 Kc. before it cannot be "notched" out.

Figs. 1 to 5 should be studied carefully, together with the corresponding text before embarking on the task of aligning the filter.

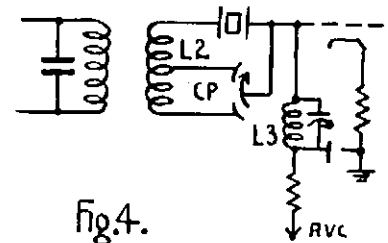


Fig. 4.

ACTION OF THE PHASING CAPACITOR, Cp

Fig. 5a shows the ideal condition for the action of a crystal filter circuit. The signal at 455 Kc. is passed and the side frequencies attenuated, but the skirt has a large flare and the attenuation of strong adjacent signals is insufficient to reduce interference. However, the curve is symmetrical and this indicates that the crystal has no holder capacity or its value is neutralised in some way.

In practice, the capacity of the holder C_h can be as high as 20 pF. (which will include all associated wiring, etc.) and energy therefore will be passed on all frequencies as though only a 20 pF. capacitor coupling were used between the i.f.t. and the grid of the i.f. tube. The 455 Kc. signal is passed as through a short circuit (Fig. 6).

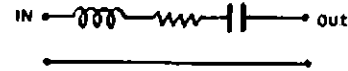
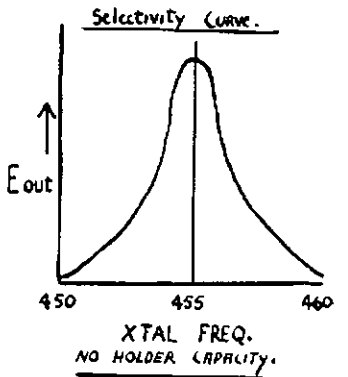
To remove the unwanted feed-through via C_h, energy is fed via C₂ as shown in Fig. 1. The secondary of the i.f.t. has a low impedance winding of a couple of hundred turns and is centre-tapped to produce antiphase voltages at X and Y with respect to ground (Fig. 1). By adjusting C₂ to the same value as C_h, the same value of voltage, but in opposite phase, will appear at Z on all frequencies.

However with the crystal resonating in series mode at 455 Kc. it will provide a short circuit path as already indicated in Fig. 5a. In effect, the

* 73 Portrush Rd., Toorak Gardens, South Aus.

capacity of the holder has been neutralised.

Now suppose a strong signal at 455.5 Kc. is causing interference. By the adjustment of C_p to values above or below C_h the selectivity curve of Fig. 5b can be obtained. It is not necessary to give the mathematics of the circuitry,¹ but it can be appreciated from

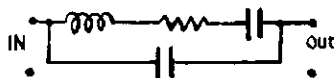
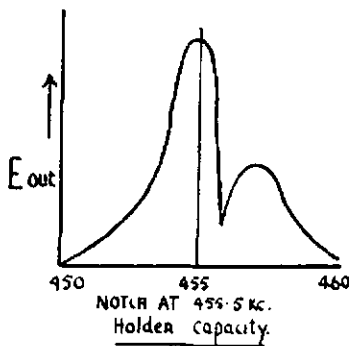


ELECTRICAL EQUIVALENT CIRCUIT
TYPICAL VALUES

- L = 2 HENRIES
- C = 0.20PF TO 0.05PF
- R = < 2000 Ω
- Q = > 50,000

SERIES RESONANT ACTS AS A SHORT CIRCUIT TO SIGNAL AT 455 Kc.

Fig. 5a.



ANTI RESONANT FREQUENCY OCCURS AT 455.5 Kc.

PARALLEL RESONANT CIRCUIT ACTS AS A VERY HIGH IMPEDANCE AT 455.5 Kc. SERIES RESONANT [XTAL FREQ] STILL ACTS AS A SHORT CIRCUIT TO 455 Kc. Signal on 455.5 Kc "Rejected"

Fig. 5b.

our knowledge of reactance modulators that the reflected reactance across the L.C.R. of the crystal can be either capacitive or inductive. When capacitive, the "notch" will appear higher in frequency, and when inductive the notch will be lower in frequency than 455 Kc. (See Fig. 5b.)

Hence by choosing a value for C_p which will be variable either side of C_h it is possible to attenuate the 455.5 Kc. signal to a value where its level does not cause interference.

A thorough understanding of the above is necessary to align a crystal filter successfully and in addition the following. So if you are still with me, let's proceed to the matter of selectivity.

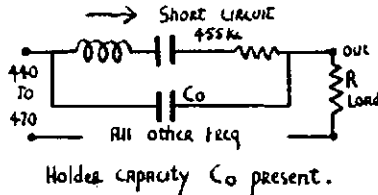


Fig. 6

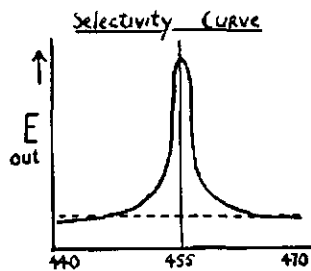


Fig. 6a.

SELECTIVITY

In Figs. 1 to 4 no attempt has been made to show this desirable feature. A good crystal will have a half-power bandpass of less than 250 c.p.s.

The crystal, correctly phased, is a short circuit, hence it will want to "look into" low impedance input and output circuits if the energy is to be passed. High impedance input and output circuits will load the crystal circuit as a high resistance will do to a series LC circuit.

By referring to Fig. 9a it can be seen that the loading of the crystal filter can take place either at the input or the output, to effectively broaden the selectivity curve. The secondary of the i.f.t., if made resonant at 455 Kc. will present a high impedance to the signal and hence load the crystal circuit and

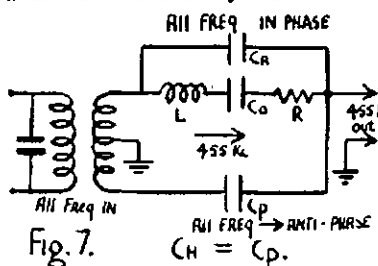


Fig. 7.

broaden the selectivity. The band-width will depend on the components in use, but can be made 5 Kc. at the half-power point. (Fig. 9b.)

This value is adequate for any phone signals, but undercoupled i.f.t.'s. can achieve the same result so it is not usual to strive for greater than 2.5 Kc. in the "broad" crystal selectivity position. For greater selectivity, C_h detunes the secondary from resonance, hence lowering Z and increasing the selectivity. This method is the one used in the SX series Halicrafters receivers. C_h is not continuously variable but has fixed values to give the required band-pass widths of "broad, medium and sharp."

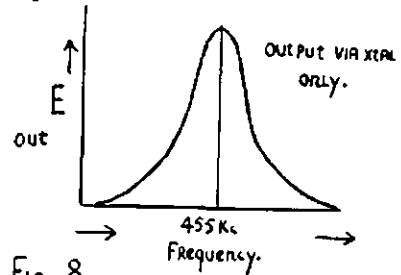


Fig. 8.

Fig. 10 shows a similar schematic to that used in the Hammarlund and the AR7 receivers. The slight dissimilarities do not affect the working of the filter as a unit but enable different patents to be held. In the AR7 there is no low turn tapped coupling to the output of the filter as shown here. The crystal couples as in Fig. 3b.

R. is a 3.5K potentiometer used as a rheostat which can be shorted out as shown. L3 and C3 provides a series resonant circuit at 455 Kc. having a high impedance which thus broadens the selectivity. As R. is brought into the circuit the Q of L3C3R. decreases and the effective impedance is lowered, the circuit eventually is detuned from 455 Kc. to a lower frequency if R is made

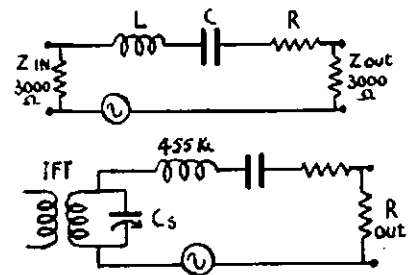


Fig. 9.

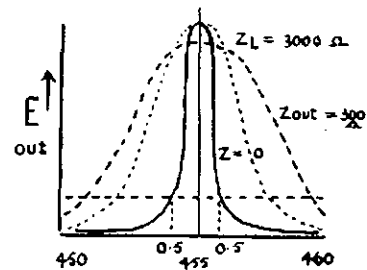


Fig. 9b.

¹ See "Radiotron Designers Handbook," p. 1060-1061.

RULES OF THE AUSTRALIAN DX CENTURY CLUB AWARD

too large. Thus the selectivity is increased to give a bandwidth of 200-300 c.p.s. where a good crystal will "ring" with a modulated signal and speech becomes unintelligible.

Hence it is necessary when aligning, to have L3C3 exactly on 455 Kc. or the output will not give a symmetrical curve.

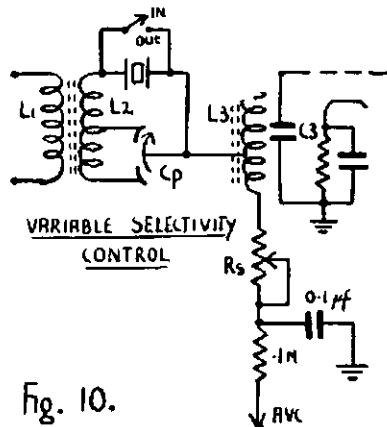


Fig. 10.

As R_5 is adjusted to give broad or sharp selectivity the output to the grid should not show any appreciable drop in signal strength. The peak in Fig. 9c does not decrease to the same extent as the sidebands "fill up".

On the input side L2 is a low turn centre tapped coupling coil, its impedance chosen to match the impedance of the crystal and its associated wiring. Being untuned except by the two halves of C_1 , and not resonant anywhere near 455 Kc., L2 acts merely as the secondary of a step-down transformer and has little effect on the operation.² However in Fig. 1 it can be seen that C_1 is across the coil and therefore phasing adjustments will alter the input parameters. This is overcome by the use of a "differential" split-stator capacitor in the circuit of Figs. 3, 4 and 10. As C_1 is moved, the effective capacity to earth across the coil L2 will remain constant although the phasing capacitance value will decrease as C_1 is turned out of mesh.

L2 is usually tightly coupled to the primary coil L1, which is resonant at 455 Kc. The number of turns and the degree of coupling being correct, there should be no increase or decrease of signal strength when the crystal is "switched in" and sidebands will be reduced.

It should be well appreciated that adequate screening of input and output circuits is absolutely necessary for the best results from a filter of this nature. Any bypassing of signals from one stage to the next ruins its operation. To this end it is thus better to have the filter at the low level end of the i.f. amplifier section. Immediately following the converter is preferable and for yet another reason—to reduce the "ringing" of the crystal due to noise pulses.

In the AR7, this has been achieved by good design, while in the SX28 it follows the first i.f. stage into which is incorporated a Lamb-type of noise silencer.

1. The Australian DX Century Club Award is open to any Australian Amateur who has established two-way contact with one hundred or more countries in the World and complies with the following rules.
2. All contacts must have been made since the return of licenses after the 1939-45 war.
3. The official countries list as published annually (and amended from time to time) in the Federal Notes of "Amateur Radio," shall be used for the purpose of determining countries.
4. All contacts shall be made with other Amateur Stations operating in the authorised Amateur bands, or with stations licensed to contact Amateur Stations.
5. Contacts made with ship or aircraft stations will not be allowed but land mobile stations may be claimed provided the location at the time of contact is clearly shown on the confirmation.
6. In the case of countries where Amateur Stations are officially licensed by Government authorities, credit may only be claimed for stations using regular government assigned calls.
7. In the case of countries where Amateur Stations are not officially licensed, the onus shall lie with the applicant to prove that the confirmation submitted is for a contact with a station in the claimed country.
8. Stations of a portable nature which are using their own call sign followed by the prefix of the country in which they are operating may be credited under Rules 6 and 7 above, provided that the confirmation submitted indicates the particulars of such operation and the other requirements are in accordance with these Rules.
9. Each confirmation submitted must show the date of contact, type of

emission used, the report, the band and the location of the station.

10. Confirmations must be submitted exactly as received from the station contacted and altered or forged confirmations will be grounds for disqualification.
11. Out-of-band operation used to contact a station will result in disqualification and be retrospective in the case of members.
12. All stations must be contacted from the same Australian call area and by the same licensee, although if the call sign is subsequently changed, contacts will be allowed if still within original call area and by the original licensee.
13. Confirmations submitted which show both phone and c.w. reports may be accepted for both sections, if the dates of each contact is shown and emission is indicated.
14. Should a country be deleted from the official countries list at any time, members and intending applicants will be credited with such country if the date of contact is before the date of such deletion.
15. Certificates will be issued for "All Phone", "All C.w.", and "Open" contacts with a hundred countries and stickers will be subsequently issued for each additional twenty countries confirmed over the one hundred.
16. Successful applicants will be listed monthly in "Amateur Radio". Subsequent to the first application, members must submit additional confirmations of not less than five at any one time, for additional credit.
17. Applications for membership shall be addressed to the Awards Manager, G.P.O. Box 2611W, Melbourne, and accompanied by sufficient postage for return by registered mail. Confirmations must also be accompanied by a list of claimed countries and stations, showing relevant details or explanations where necessary.

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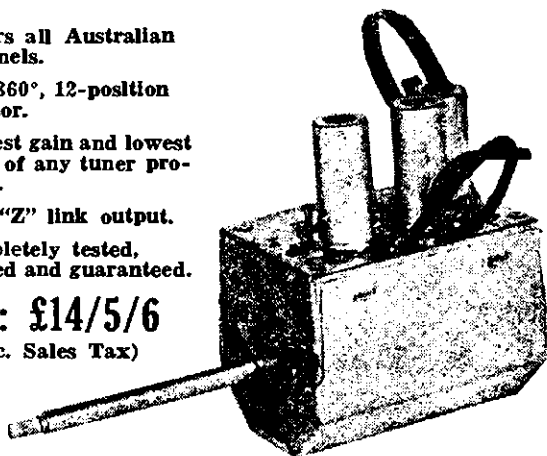
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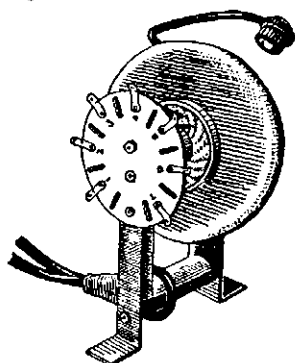
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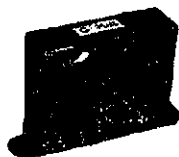
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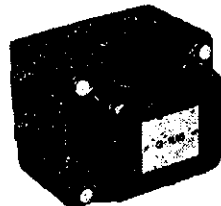
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AN AUTOMATIC MORSE KEYS

BY D. G. HAWTHORNE,* VK3ZCD

THIS article briefly describes an automatic Morse keyer and the associated equipment used as a source of practice Morse. Commercial and marine stations had been used, but these suffer the disadvantages of interference, intermittent operation, and more important, no means of speed variation to suit the trainee's skill. The recent purchase of a keyboard perforator resulted in the construction of suitable automatic transmitting equipment.

The system uses the Wheatstone code, a modification of the International Morse Code designed for use in automatic equipment. It differs from Morse only in the method of presentation. Whereas standard Morse uses a variable length pulse for information, the Wheatstone code uses separate pulses signalling the beginning and completion of each character, the time in between the pulses corresponding to the length of the Morse character.

travelled a further 1/20 inch, the space hole reaches its brush, Fig. 1d, and the current flow stops the switch operation. There is then a pause of 1/20 inch tape travel till the next mark hole reaches its brush, Fig. 1e. This 1:1 mark-space ratio is the same as that for Morse "dits". Similarly, the staggered "dah" perforations result in the 3:1 mark-space ratio required for the Morse signal.

The keyboard perforator used to punch the tape, is a Teletype model obtained through disposals. It has a standard typewriter keyboard, except the punctuation marks are replaced by keys for various operating signals. The heart of the instrument is a precision punch assembly. It contains ten columns of punches, each column having a mark, sprocket, and space punch. The tape moves in a guide slit in front of the punch block, the left-hand punches are selected by "swords", metal rods

these being capable of omission or modification as required. The first section, using valve 1, is an Eccles-Jordan trigger used as an electronic switch for translation of the Wheatstone code. The second section using valves 2 and 3, is a simple, but effective, electronic key. The final section is a 800 c/s. audio oscillator. The operation of the individual units is as follows:

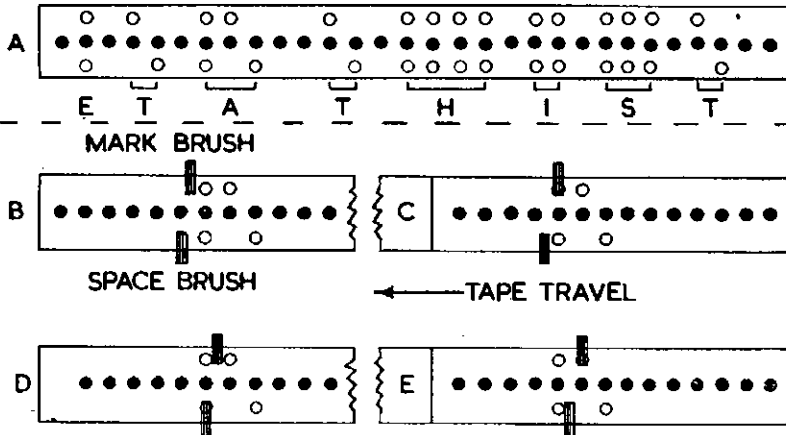


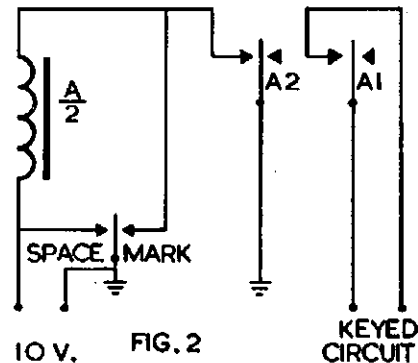
FIG. 1

In the writer's apparatus, these commencement, or mark pulses, are used to operate an electronic switch, and the completion, or space pulses, end the switch operation. The code is stored on a perforated paper tape, an example being shown in Fig. 1a. The top row of holes correspond to the mark signals, the bottom row to the space signals, and the middle row are sprocket holes. These sprocket holes are spaced 1/10 inch apart, this being equivalent to two units time, the length of a Morse "dit" being taken as one unit. It will be seen that opposed mark and space holes correspond to a "dit", staggered holes to a "dah", one sprocket hole separation between the last space hole and the next mark hole corresponds to the interletter space. A separation of two sprocket holes corresponds to the interword space.

In this equipment perforations are sensed by small spring brushes making metallic contact with the tape-guide. The space-brush is placed 1/20 inch beyond the mark-brush, Fig. 1b. When a mark hole arrives at brush, Fig. 1c., current can flow through the brush and operate the switch. When the tape has

which can move into a position between the back of the punches and a hammer. The hammer moves a short distance forward each time a letter is struck, the distance being too small to operate the punches unless a sword is in position. The keybars have projections which can depress selector bars, which, in turn, operate the swords. Imagine the key for the letter G is struck. The projections depress the selector bars corresponding to the 1st, 3rd, and 5th mark swords, and the 2nd, 4th, and 5th space swords. When the key is fully depressed, a set of contacts close, energising a solenoid which operates the hammer, causing it to force the selected punches through the tape. While the hammer is moving forward, a mechanical system determines the length of the perforated letter. On releasing the key, the hammer, swords, and punches return to their rest positions and a ratchet-wheel pulls the tape the required distance to the left. By use of a combination key, the interletter space can be omitted, enabling special characters to be formed from suitable letter combinations.

The keyer, circuit Fig. 3, can be divided into several sections, some of



(1) Eccles-Jordan trigger.¹ A relay operated translator, shown in Fig. 2, had been tried, but the response was not sufficiently rapid to operate on the momentary current pulse from the brushes. The valve circuit overcomes this because of its almost instantaneous value of the grid resistance causes V1A to preferentially reach the conducting state, the potential drop across R1 maintaining grid V1B below its cut-off potential.

The current drawn by R3 and R6 is insufficient to operate the relay A. The start signal short-circuits R6, reducing the V1B anode current to zero. The resultant rise in its anode potential applied to grid V1B via R4, allows V1B anode current to flow, this in turn actuating the relay. The lowered V1B anode potential, due to the current through R2, maintains V1A in the cut-off condition. This "switch-on" state is stabilised by the feed-back circuit; any tendency for V1A anode current to flow is countered by an increase in the V1A grid bias. The circuit can revert to its original state when the space brush short-circuits R6. If R6 is no longer short-circuited by the mark brush, the V1B anode current is reduced to zero, the resultant rise in V1B anode potential being transferred to the grid of V1A and allowing current to flow. At the same time the relay opens, and, due to the stabilising action of the circuit, the V1B anode current remains zero till the next mark pulse causes repetition of the above sequence of events.

(2) Electronic Key. This is a modification of a circuit² due to Jack Gallagher, W5HZB. It consists of a thyatron oscillator and a double triode pulse-shaping circuit. In the rest position, C3 is held charged to about 35 volts, the cathode potential of V2B, by means of grid current conduction. The bias control holds V2A in a cut-off state,

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

and hence the relay remains open. (The trigger can be ignored for the present analysis.) On closing the dash contacts of the key S_k , C3 is rapidly discharged by the thyatron, and recharges through R19 and the speed control, R20, after the capacitor potential falls below the thyatron extinction point. The cycle can be repeated if the contacts are kept closed, the repetition rate being determined by the charging time of C3.

The fall in C3 potential causes a decrease in V2B anode current, the resultant rise in its anode potential, relayed to grid V2A by R13, allowing current flow in V2A, this actuating the relay. As C3 recharges through R19 and R20, the increased flow of V2B anode current, and corresponding fall in V2A grid potential will cause cut-off of V2A and opening of the relay. The critical V2B potential for V2A cut-off is set by the value of R10, this setting determining the mark-space ratio for the dash.

On closing the dot contacts, the potential drop across R16 causes the thyatron to extinguish before C3 is fully discharged. This results in a faster repetition rate without alteration in the space duration. The latter is determined by the constant interval required for C3 to charge from the critical potential defined earlier, to the firing potential of the thyatron. This is fixed by the values of R19 and R20, and is independent of previous events, provided the discharged potential is less than the critical potential. The dot-dash ratio is set by R16, which could be replaced with a 2.2K resistor without noticeable deterioration in quality. Note.—Dirty key contacts will cause erratic operation by introduction of additional resistance in the discharge circuit.

The electronic key has a self-completing characteristic, i.e. the contacts need only be closed for the fraction of a second required to discharge C3. If the trigger is not required, the circuit can be broken at the R5/relay junction. The speed range of the key is approximately 12 to 35 words per minute. The only precaution is to maintain the thyatron heater voltage above the manufacturer's minimum of 5.8 volts. The speed is dependent on the cathode temperature, and if the voltage falls below the minimum, the keying becomes erratic.

(3) Audio Oscillator. This a resistance-capacitance oscillator tuned to 800 c/s. It is keyed by interruption of the a.c. return path of R26 and R27. L is an audio choke used for simultaneous keying of other equipment; it was not installed in the writer's unit. The audio frequency can be changed to 1000 c/s, by replacing R25, R26 and R27 with 47K resistors. The audio output is monitored by high impedance phones placed across R29.

(4) Power supplies. A supply of 300 volts at 20 mA. is required for the high tension line. It is advisable to not differ more than 10 per cent. from this value, this being the tolerance of supplies and components allowed for in the design. The electronic key supply is not critical, the only noticeable effect for voltages as low as 230 volts being a decrease in speed and a need for re-adjustment of R10. The heater requirements are 6.3 volts at 2.1 amps. Care must be taken to avoid excessive resistance losses in the heater leads.

(5) Hand-key mechanism. This is designated as S_k in the circuit. It can be a modified bug key as described by W5HZZB. The writer's key consists of two Army keys, WT No. 2, mounted

back-to-back on a piece of Meccano. The knobs have been replaced by bakelite paddles, the spacing being ca. $\frac{1}{4}$ ". The key arms are not connected mechanically. The left-side key is used for "dits" in accordance with standard bug design.

(6) Keying Head. This is unique. The writer's model is powered by a small synchronous motor, the speed variation being obtained by a variable ratio friction drive attached to a 1:50 worm drive from a disposals tuning unit (BC191E). Use of a $\frac{3}{4}$ inch diam. capstan gives a tape speed of between 35 and 75 inches per minute, i.e., 14 to 30 words per minute. The brushes are made from four strands of 26 gauge phosphor-bronze wire attached to bolts used for setting the position. Further information is available on request, the complete description being too detailed to warrant inclusion in this article.

The only serious trouble experienced in the design was the construction of the brushes; these are operating properly at present, though the writer's skill at metal-work is not sufficient to make the brushes reliable enough for communications purposes. No difficulty was found in the adjustment of the head, and the quality of the Morse is perfect.

Commercial equipment normally uses vibrating "peckers", synchronised with the tape drive, to sense the holes in the tape. Though more complicated than the brush system used by the writer, it overcomes the serious problems of timing ambiguities and reliance on good brush contact.

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2. Gallagher, J. D., "A Thyatron-Controlled Electronic Key," "QST" 37, No. 12, p.24.

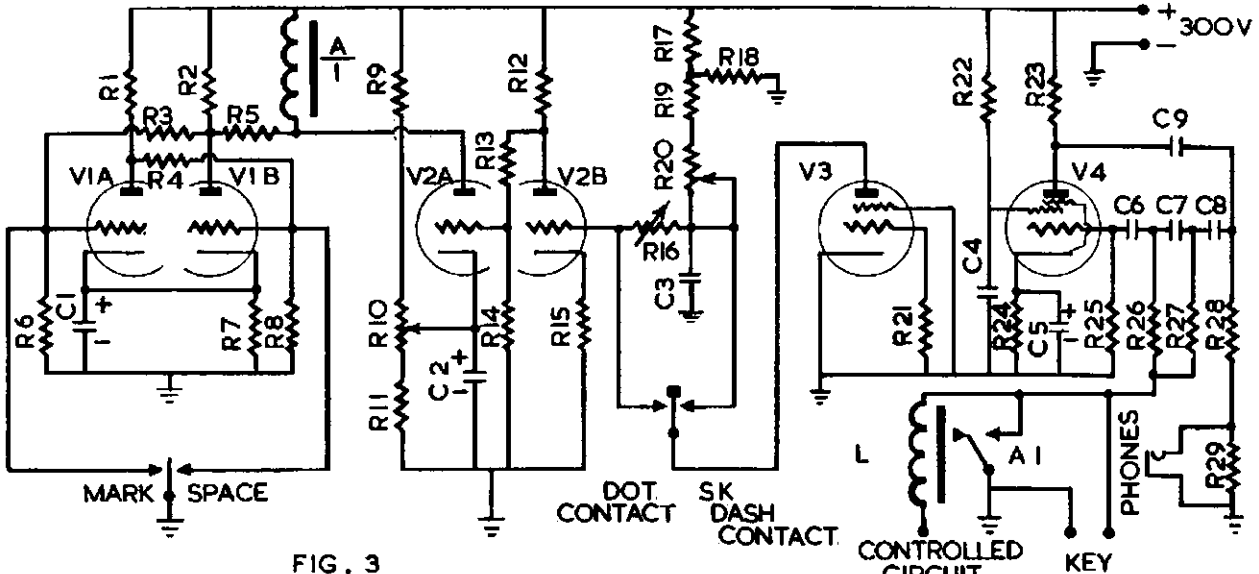


FIG. 3

- C1, C2—8 μ F., 350v.v.
- C3—0.5 μ F., oil/paper.
- C4—0.1 μ F., 400v.
- C5—25 μ F., 40v.v.
- C6, C7, C8—2,000 pF., mica.
- C9—0.01 μ F., 600v.
- R1, R2—47K, 1w.
- R3, R4, R12—560K, $\frac{1}{2}$ w.
- R5, R13, R14, R19, R22—1M, $\frac{1}{2}$ w.
- R8, R15—100K, $\frac{1}{2}$ w.
- R7—15K, $\frac{1}{2}$ w.

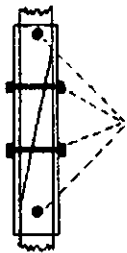
- R8—82K, $\frac{1}{2}$ w.
- R9—25K, 20w., wire-wound.
- R10—5K, 4w., wire-wound.
- R11—15K, $\frac{1}{2}$ w.
- R16—5K, carbon.
- R17—220K, $\frac{1}{2}$ w.
- R18—20K, $\frac{1}{2}$ w.
- R20—Carbon, linear taper.
- R21—30K, $\frac{1}{2}$ w.
- R23—470K, $\frac{1}{2}$ w.

- R24—2.2K, $\frac{1}{2}$ w.
- R25, R26, R27—36K, $\frac{1}{2}$ w.
- R28—47K, $\frac{1}{2}$ w.
- R29—22K, $\frac{1}{2}$ w.
- L—Audio choke.
- L—Audio choke (see text).
- Relay—From BC357, 1 mA., 10K coil resistance.
- V1, V2—6SN7GT.
- V3—2D21.
- V4—6SH7.
- Sk—See text.

HINTS AND KINKS

DISMANTLING A MAST

The mast to be dismantled was constructed of 2" square oregon, planed all round, and stood approximately 40



Saw timber diagonally, length one foot. Two pieces 2 inch angle steel.

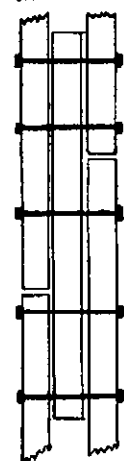
Four 5/16 inch bolts 2 3/4 inches long. (Two through each way.)



Usual joint.

(About 2 feet long.)

Three 3/8 inch bolts 6 inches long.



Cut each side different length. (About 1 ft. difference quite satisfactory.)

Five 5/16 inch bolts 6 inches long.

Paint all joints before re-assembling.

Suggested the bolts be coated with aluminium paint to avoid rusting.

feet high; utilising three pieces of timber slightly in excess of 20 feet, in the conventional manner.

Because it was not practicable to remove the 20 ft. (or thereabouts) lengths, the timber had to be cut to about 10 feet lengths.

The top length was cut diagonally, with a cut about a foot in length, and was later reconstructed with the aid of two pieces of 2" angle steel and four 5/16" bolts, as sketched.

The lower section was cut so that each side was left with an overlap of one foot and a three foot piece of the same sized timber bolted in the middle, when re-assembled, using five 5/16" bolts at the points indicated.

The length of the mast is not affected by the cutting and it has stood for three years after re-assembly; indicating that the method is satisfactory.

It has again been dismantled and will be re-erected on the same lines, using a ladder as a "jury rig" to swing it up on its bolt-mounted base, in due course.

No additional guys are needed, six having been found sufficient to hold a 137 feet wire against all winds.

It is, of course, necessary to paint the cut points before re-assembly and also to paint the angle steel, both inside and out.

—T. Laidler, VK5TL.

INSULATED FEED-THROUGH

If you are wiring any equipment and you desire rigidity and insulation through the chassis, simply obtain the plastic tube portion of a used ball-point pen refill. Drill a hole through the chassis and the job is neatly done! If necessary the tube can be cemented neatly into place with polystyrene which has been dissolved in ethylene dichloride.

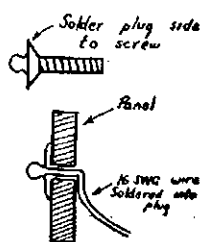
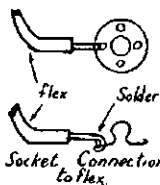
—Ian Hunt, WIA-L3007.

CONNECTORS

Connections are required for a variety of use in radio equipment and especially in Amateur Radio gear. Such uses are the connecting of aerials and coupling links, speakers and phones, the tapping of tuning coils, etc.

To perform these functions screw terminals, banana plugs, telephone jacks, alligator clips and wafer switches have been used.

A neat and cheap substitute for most of these items is found in the snap fastener or press stud used for women's and children's clothing. These, which sell for threepence a dozen, are made of plated brass and form a miniature spring-retained plug and socket.



The plug part may be fitted to a screw for panel mounting by soldering the head of a 1/4" Whitworth counter-sunk brass screw to the back of the plug. The socket section can be connected to a flexible wire through the one thread hole of the four which is not adjacent to the spring and turning back and soldering.

Also the plug part may be fitted to a panel by soldering a solid wire into the hollow of the plug, passing the wire through a neat hole in the panel and bending down sharply behind.

For tapping an inductance the base of the plug portion may be folded around the wire and soldered to it. In this way the connectors may replace a wafer switch and reduce the distributed capacity of an inductance.

—J. Gazard, VK6JG.

USING FILM REELS AS CAPACITIVE HATS

Have you ever tried using a 16 mm. movie film reel as the capacitive hat for a mobile whip? These reels are readily modified for simple mounting, and perform effectively as capacitive loading units. You may even be lucky enough to obtain one or more slightly damaged reels at no cost by visiting a film library or concern that rents home entertainment films.

In the original form, a reel consists of two round discs joined at the centres by the hub on which the film is wound. Only one of the discs is used for capacitive loading purposes and, as a result, the reel should be split into two sections by removing the hub. Enlarge the hole at the centre of one of the discs to accommodate a bushing or other suitable hardware, slip the assembly down over the top section of the whip, and you are in business.

This idea was actually suggested by W5YZL. It has worked out so well in practice that I thought it worth passing along.

—E. V. Blayze, Jr., W5TVW, "QST" Feb. '54.

[Editor's Note: See "Top Loading Capacitance," in the Radio Amateur's Handbook, chapter 19, for additional data on capacitive hats and the effects of capacitive loading on loading coil inductance.]



VACUUM MOUNTED CRYSTALS

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

THE FOLLOWING FISHING-CRAFT FREQUENCIES ARE AVAILABLE IN FT243 HOLDERS, 6280, 4095, 4535, 2760, 2524.

5.500 Kc. T.V. Sweep Generator Crystals, £3/12/6.

ALSO AMATEUR TYPE CRYSTALS—3.5 AND 7 Mc. BAND.

Commercial—0.02% £3/12/6, 0.01% £3/15/6. plus 12 1/2% Sales Tax.
Amateur—from £3 each, plus 12 1/2% Sales Tax.

Regrinds £1/10/-.

CRYSTALS FOR TAXI AND BUSH FIRE SETS ALSO AVAILABLE.

We would be happy to advise and quote you as to the most suitable crystal for your particular application, either in the pressure or vacuum type holder.

New Zealand Representatives: Messrs. Carrel & Carrel, Box 2102, Auckland.

BRIGHT STAR RADIO

46 Eastgate Street, Oakleigh, S.E.12, Vic.

Phone: UM 3387



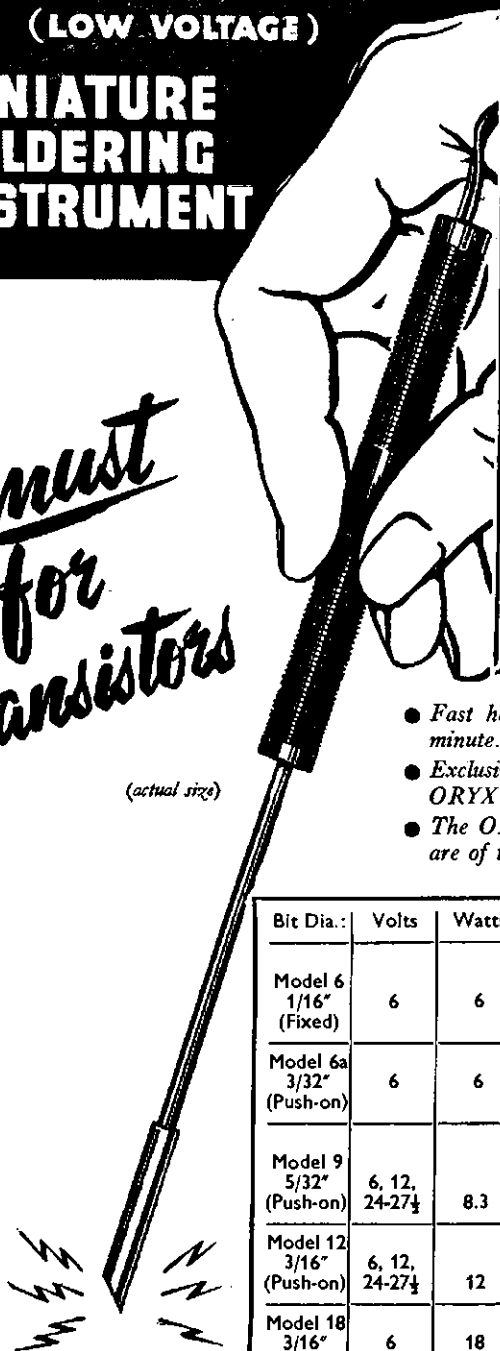
ORYX

(LOW VOLTAGE)

**MINIATURE
SOLDERING
INSTRUMENT**

*A must
for
Transistors*

(actual size)



PROTECT YOUR TRANSISTORS WITH ORYX

There is a danger of damage when soldering to transistor leads, due to A.C. leakage currents. The use of a low-voltage transformer supply, with earthed secondary is therefore recommended. Take care also that too much heat is not applied to flying leads. The ORYX iron, and a heat-sink such as heavy pliers gripping the lead between the contact point and the transistor, will ensure protection.

- Fast heating element, ready for operation in less than one minute.
- Exclusive design features resulting in universal acceptance of ORYX as the standard miniature soldering instrument.
- The ORYX long life element will outlast several bits which are of tight push-on fit.

Bit Dia.:	Volts	Watts	Nett Weight	Length	Recommended Use
Model 6 1/16" (Fixed)	6	6	0.25 oz.	6"	Electrical measuring instrument fine assemblies, hairsprings, R.F. pick-up and speech coils, hearing aid sub-assemblies, etc.
Model 6a 3/32" (Push-on)	6	6	0.25 oz.	6"	As for Model 6 (for extremely delicate work only).
Model 9 5/32" (Push-on)	6, 12, 24-27½	8.3	0.25 oz.	6"	Hearing Aids, Radio and TV Sub-assemblies, Coils, Electronic Instruments, Model Construction, Electro-Medical, etc.
Model 12 3/16" (Push-on)	6, 12, 24-27½	12	0.5 oz.	6.25"	Radio, Television, and Telecommunications assemblies.
Model 18 3/16" (Push-on)	6	18	0.75 oz.	7¼"	For heavier work, heat capacity equivalent to that of most 80 watt soldering irons.

MANUFACTURERS SPECIAL PRODUCTS PTY. LTD.

47 YORK STREET, SYDNEY

MELBOURNE: Amalgamated Wireless (Australasia) Ltd. ADELAIDE: Newton McLaren Ltd.
PERTH: Nicholsons Ltd., Carlisle & Co. Ltd. HOBART: Noyes Bros. Ltd. BRISBANE: Chandlers Ltd.

MSP3.58

AWARDS

D.V.Q. AWARD

For those interested in awards, here is a new award given by the Radio Club of Quebec. It is called the D.V.Q., French abbreviation for Diplome de la Ville de Quebec, Quebec City Diploma.

To be eligible, each applicant must give proof of having contacted at least five different stations in the City of Quebec; for other countries than Canada and U.S.A., a total of three stations is necessary. C.w. or Phone, or a combination of C.w. and Phone makes no difference in obtaining this award.

Just send your log abstract and one Reply Coupon to: Alex Desmeules, VE2AFC, 186 Aberdeen Street, Quebec City, Canada.

J.A.R.L. AWARDS

J.A.R.L. is issuing the following certificates for confirmed two-way contacts and short wave listeners. Those who can satisfy each of the following items will be awarded a certificate.

QSLs dated after 30th July, 1952, the date when Japanese Hams came back on the air after World War II, are available. All authorised bands and all types of emission may be used.

Send your QSLs to the Oversea Committee, J.A.R.L., P.O. Box 377, Tokyo, Japan, with a check list. Shortly after, you will have a fine certificate for the result of your efforts.

(1) **A.J.D.** (All Japan Districts) will be awarded to any Ham who can prove contact with a station in each of 10 JA call areas. The application must be accompanied by 10 I.R.C.'s for non-members and 5 for members of J.A.R.L.

(2) **H.A.C.** (Heard All Continents) will be awarded to any SWL who can submit a Ham Station's QSL card for

six continents of the world. 5 I.R.C.'s for non-members and no fee for members of J.A.R.L.

(3) **W.A.J.A.** (Worked All Japan Prefectures) will be awarded to any Ham who can prove contact with the 46 separate prefectures in Japan. 10 I.R.C.'s must be included in the application for non-members and no fee for members of J.A.R.L.

(4) **J.C.C.** (Japan Century Cities) will be awarded to any Ham who can prove contact with a station in 100 different cities in Japan. There are over 400 cities in Japan. 10 I.R.C.'s must be paid for non-members and no fee for members of J.A.R.L.

(5) **Certificates for S.W.L.'s.** These certificates also apply to SWL's who can prove having heard the stations mentioned above. Other conditions are the same as for transmitting stations.

TWENTY-FIRST B.E.R.U. CONTEST Better Response from Australasia

The coming of age of the B.E.R.U. Contest was celebrated by Amateurs throughout the Commonwealth on January 25-26, 1958, in no uncertain manner. More came on the air, made more contacts and sent in more logs than last year which was considered to be among the most successful of all previous contests. There was a rise of 25 per cent. in the number of logs received.

In the High Power Section the first three placings were: ZS6DL, 1st, 4669 points; ZC4IP, 2nd, 4145 pts.; VE3KE, 3rd, 3977 pts. Australasian entries: VK2GW, 13th, 2475 pts.; ZL4BL, 1500 pts.; VK2APK, 1145 pts.; VK5MY, 1120 pts.; VK2PV, 1055 pts.; VK2BA, 1005 pts.; ZL1BJ, 998 pts.; ZL1RD, 890 pts.; VK2AYA, 785 pts.; VK9JF, 620 pts.; VK4XW, 210 pts.; and VK2HZ, 150 pts.

The Low Power Section was won by ZS6R with 2538 pts.; ZD2DCP, 2nd, 1994 pts.; ZB2I, 3rd, 1946 pts. Australasian entries: VK3ZC, 920 pts.; and ZL1MT, 775 pts.

CAPACITIVE NEUTRALISING HINT

The capacitive neutralising circuit for screen-grid tubes shown in Fig. 1 will be recognised as the basic arrangement described in Chapter 6 of "The Radio Amateur's Handbook" (see "Stabilising Amplifiers"). It differs from the Handbook system only in that the grid bypass, C1, is the variable control, while the neutralising capacitor, C2, has a fixed value.

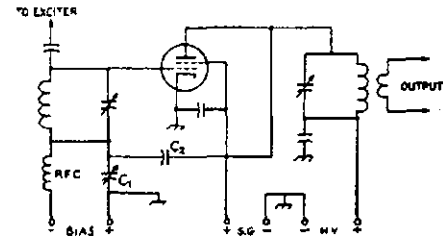


Fig. 1.—Circuit of a screen-grid amplifier using the capacitive neutralising arrangement suggested by WILU. Notice that a variable capacitor, C1, is used as the grid-circuit by-pass, and that the neutralising capacitance is of fixed value. Neutralising is accomplished by the adjustment of C1.

In practice, C2 usually has a very low value of capacitance—approximately 2 to 10 pF. Voltage rating for the capacitor must be the same as the amplifier plate voltage for c.w. work and twice this value when plate modulation is used. A variable capacitor that will meet these specifications is not always easily come by. However, a suitable fixed unit can usually be easily located or quickly fabricated from scrap aluminium. Of course, the fixed capacitor may be used as long as the grid by-pass capacitor, C1, is variable. Fortunately, compact wide-range padder capacitors that have adequate voltage rating for grid-circuit duty are available. The voltage rating required must equal the operating bias of the amplifier tube. The knowing Ham will select a conservative rating that allows some safety factor.

—W. S. Allen, WILU ("QST," Mar. '58)

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
VK6RU	2 211	VK3BZ	3 178
VK3WL	14 211	VK6KW	4 188
VK6MK	43 208	VK4RW	23 164
VK3ATN	28 204	VK3EE	10 163
VK4FJ	21 202	VK9DB	31 161
VK4HR	12 162	VK4WF	18 160

C.W.

Call	Cer. Cnt- No. ries	Call	Cer. Cnt- No. ries
VK3KB	10 245	VK3XU	48 213
VK3CK	26 235	VK3YL	39 203
VK4FJ	29 234	VK5BY	45 202
VK3FH	15 226	VK6RU	18 195
VK3BZ	6 222	VK2EO	2 191
VK4HR	8 218	VK5RX	23 176

Amendments

VK4RW	47 155	VK5JT	54 134
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OPEN

Call	Cer. Cnt- No. ries	Call	Cer. Cnt- No. ries
VK2ACK	6 250	VK3XU	61 221
VK4FJ	32 238	VK3HG	3 215
VK6RU	8 235	VK6MK	74 212
VK4HR	7 233	VK3JE	12 210
VK3BZ	4 231	VK3ATN	69 210
VK3WL	45 225	VK7LZ	23 201

Amendments

VK4RW	52 191	VK5JT	63 140
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AMATEUR RADIO SERVICE

605 ABERCORN STREET, ALBURY, N.S.W. Phone 1695

would like to take this opportunity to wish you all a

Very Merry Christmas

and a

Happy New Year

with good DX prospects.

We also thank you for your interest, and look forward to being of some assistance to you during the New Year.

(Signed) D. C. Haberecht, for A.R.S.

1958 REMEMBRANCE DAY CONTEST RESULTS

WESTERN AUSTRALIA RETAIN TROPHY

Congratulations to the Western Australian Division for the third time in succession with a narrow win from the Tasmanian Division.

The Memorial Trophy will again be held by Western Australia. A framed photograph of the Trophy will also be presented.

To Tasmania, the Contest Committee has made an award of a suitably inscribed Certificate for the Highest Average Log Score. Victoria also put up an excellent performance.

South Australia made history by having an average score of over the 1,000 points for the top six logs.

It was pleasing to see that New South Wales improved the log entry from 56 logs in 1957 to 90 logs in this present Contest. Even so, it is still very difficult for the larger Divisions to gather over 1,000 licensees together. In these States the percentage of "inactive" calls is as much as 25% and further thought should be given to equalising the conditions.

A pleasing aspect of the Contest was the increased entry in the Listeners' Section. Extra awards have been made.

—Federal Contest Committee.

STATE TROPHY

Western Australian 5404 points

STATE AWARD—Highest Log Average
Tasmania 261.7 points

CALL AREA AWARDS

Phone:	Points
VK1PM—R. E. W. May	970
3ATN—T. R. Naughton	1271
3ATR—T. B. Rodda	984
3ADW—D. A. Wardlaw	933
4DJ—G. F. Pooley	774
5EN—A. R. E. Nitschke	1109
5AF—A. S. Little	1003
6KW—R. W. Hugo	914
7GC—G. Cranby	702
9LE—L. K. Earp	314
0TC—T. J. Cordwell	672

Open:	Points
VK2QL—F. T. Hine	498
3XB—I. Stafford	409
4JF—F. C. Files	219
5QR—R. V. Galle	390
6UF—F. H. Turner	149
7CH—C. Harrison	463
9RR—R. R. Hooper	84

C.w.:	Points
VK2RS—D. C. Haberecht	1077
2BO—E. L. Andrews	941
3ALZ—I. F. Berwick	849
4DP—D. M. Portley	634
5WO—A. S. Condon	1144
5NO—L. H. Vale	1090
6RU—J. E. Rumble	1174
7KA—K. E. Millen	714
9XK—S. R. Coleston	848

Listeners:	Points
VK2—D. M. Grantley	1054
J. McAllister	778
VK3—A. C. Stebbing	815
C. T. Taylor	793
VK4—Nil	
VK5—F. W. Aslin	706
VK6—A. W. Clowes	983
VK7—R. A. de Balfour	1131
VK9—Nil	

NEW SOUTH WALES

VK2RS Open	1077	Total Score	18841
1PM Phone	970	Average/6	925.5
2BO Open	941	Licensees	1207
2AHH Phone	891	Log Entry	90
2AHM Phone	856	Percentage	7.46
2JU Phone	818	State Points	2330
State Log Average		209.3

Phone:	Points	Phone:	Points	Phone:	Points
VK2YN	517	VK2ER	162	VK2JF	43
2VV	451	2AJS	158	2ABO	42
2AIA	410	2NV	144	2AHA	40
2AQF	345	2ADT	143	2AVI	36
2AWN	315	2ADL	142	2AVJ	33
2GI	313	2JS	133	2APQ	31
2ACD	268	2QV	131	2AOR	25
2AWX	268	2AJL	126	2AFY	25
2OH	267	2JW	109	2AQQ	23
2AEB	254	2AOV	102	2PL	23
2RI	244	2ALU	86	2MP	22
2WT	241	2PM	81	2VT	21
2YU	239	2XT	80	2ACO	19
2ADM	209	2AAJ	77	2HK	18
2AFA	207	2XP	63	2HM	12
2JA	190	2AJO	59	2AQR	11
2SR	177	2BTS	54	2AXG	8
2BB	170	2DB	53	2CS	8
		2WI	48		

VICTORIA

VK3ATN Phon.	1271	Total Score	18499
3ATR Phone	984	Average/6	951
3ADW Phone	933	Licensees	1149
3DQ Phone	869	Log Entry	72
3ALZ Open	849	Percentage	6.27
3OM Phone	800	State Points	2110
State Log Average		256.9

Phone:	Points	Phone:	Points	Phone:	Points
VK3AIT	723	VK3AKF	213	VK3AXW	87
3VF	626	3AJP	205	3EF	88
3JC	608	3AGG	201	3ADU	72
3ABT	465	3KR	194	3HL	69
3LW	447	3SM	188	3TH	67
3APJ	440	3ATS	185	3XE	66
3ACN	425	3HE	184	3CO	60
3ASB	423	3RN	164	3II	60
3APS	412	3ZZ	163	3AUG	46
3KC	381	3AGV	147	3JO	42
3NN	352	3AZR	138	3AWF	37
3ARJ	292	3AXU	123	3GE	34
3AFF	280	3PX	113	3RZ	29
3TG	265	3AUL	113	3ASC	28
3ZU	160	3DY	110	3WQ	19
3YQ	234	3CE	100	3AWZ	18
3ADV	218			3PZ	13
		Open:			
		VK3SR	104	VK3OH	60
		C.w.:			
		VK3ZA	238	VK3OJ	84
		3AEP	231	3ARV	80
		3NK	123	3KB	74
		3HG	92	3GZ	62
		3RJ	89		

QUEENSLAND

VK4DJ Phone	774
4DP Open	634
4PQ Phone	584
4RH Open	533
4MF Phone	438
4AF Phone	327

Total Score	7299
Average/6	548.3
Licensees	401
Log Entry	47
Percentage	11.72
State Points	1404

State Log Average 155.3

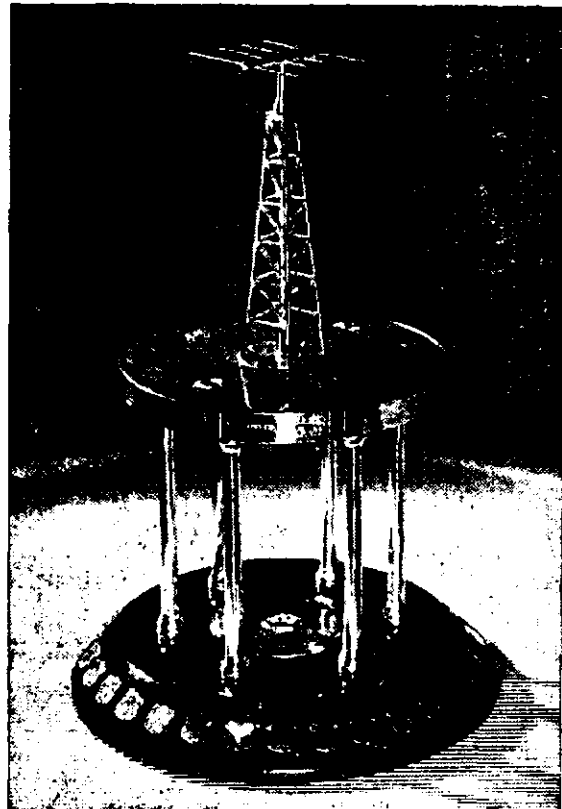
Phone:	Points	Phone:	Points
VK4HA	295	VK4ER	47
4BB	257	4LE	41
4TF	250	4FP	40
4WJ	248	4TY	39
4SN	246	4CN	35
4DI	219	4NG	31
4PU	209	4RW	29
4PM	192	4XR	26
4RJ	143	4ZZ	24
4PS	132	4EC	20
4PW	118	4MO	19
4OV	91	4NJ	19
4XJ	81	4HZ/P	13
4ZP	76	4AQ	12
4EF	73	4EA	12
4PX	72	4PD	9
4XO	61	4BJ	6
4ZM	50		

Open:	Points	Phone:	Points
VK4DO	262	VK4XP	88
		4BI	83

C.w.:	Points	Phone:	Points
VK4JF	219	VK4CJ	81
		4AW	40

SOUTH AUSTRALIA

VK5WO Open	1144	Total Score	18767
5EN Phone	1109	Average/6	1004.5
5NO Open	1090	Licensees	435
5AF Phone	1003	Log Entry	76
5KM Phone	879	Percentage	17.47
5JN Open	802	State Points	4283
State Log Average		246.9



Remembrance Day Trophy retained by West. Australia

Open:	Points	Phone:	Points
VK2ASZ	792	VK2AJQ	238
2PN	693	2AGH	158
2XU	643	2HC	138
2OU	573	2EG	131
2VN	442	2OE	131
		2ANU	102
		C.w.:	
		VK2QL	498
		2VB	205
		2XQ	193
		2EL	147
		VK2OW	145
		2HO	105
		2HV	53
		2IC	47
		2ZC	44
		VK2HZ	97
		2RJ	46
		2ATE	45
		2JM	37
		2SG	10
		VK2AS	43
		2GW	33
		2RA	30
		2ARZ	17

SOUTH AUSTRALIA (Continued)

Phone:			
VK5QL	708	VK5OC	216
5EF	800	6QW	211
5JC	456	5TJ	208
5LQ	453	5LL	192
5BH	444	5SX	190
5LC	406	5BG	180
5OK	377	5KY	147
5BF	368	5SS	138
5XM	367	5CO	133
5RR	364	5AX	120
5ZB	354	5CE	113
5XY	337	5JG	113
5LB	231	5UA	106
5LT	304	5TM	103
5FJ	285	5MS	97
5AP	265	5UF	94
5EU	251	5VA	83
VK5XV	75	5MK	71
5CJ	69	5CJ	69
5WI	81	5WI	81
5XU	58	5XU	58
5XA	40	5XA	40
5ON	45	5ON	45
5RI	39	5RI	39
5KD	34	5KD	34
5DO	32	5DO	32
5PS	31	5PS	31
5JR	19	5JR	19
5DF	18	5DF	18
5WM	18	5WM	18
5WR	17	5WR	17
5DU	13	5DU	13
5KU/P	10	5KU/P	10

Open:			
VK5FY	285	VK5WC	213
5RG	281	6HM	56
C.w.:			
VK5QR	300	VK5MZ	110
5XK	289	5RK	74
6MY	281	5TW	60
5JT	231	5RX	53
5LG	213	5DK	24
		5FM	10

WESTERN AUSTRALIA

VK6RU	Open	1174	Total Score	12530	
6KW	Phone	914	Average/6	795.7	
6WD	Phone	734	Licenseses	242	
6CL	Phone	688	Log Entry	89	
6DX	Phone	647	Percentage	36.78	
6BE	Open	617	State Points	5404	
State Log Average					140.8

Phone:			
VK6FW	604	VK6FD	94
6SM	534	6WZ	93
6KJ	399	6AQ	85
6ZZ	329	6KE	85
6EJ	301	6MG	83
6LG	277	6FL	67
6RW	199	6RC	67
6WU	188	6WI	63
6GB	182	6HR	58
6PW	179	6JH	56
6CN	145	6MK	48
6KO	144	6KG	48
6TB	143	6MO	40
6WL	137	6NF	40
6RH	137	6GD	37
6CP	117	6GM	36
6FB	116	6LM	33
6CA	100	6HK	32
6GW	98	6RS	31
6BO	94	6BC	29
		6EW	20

Open:			
VK6MA	418	VK6JM	227
6GU	251	6TL	60
VK6AF	34	6BR	22

C.w.:			
VK6UF	149	VK6WT	41
6VK	128	6MY	40
6AJ	89	6RP	34
6WV	57	6KV	33
6DJ	46	6BA	32
		6WH	31
		6DF	27
		6LU	27
		6XC	23
		6XF	19
		6JK	13

Unacceptable Log: VK6ZAA, 24 pts.

TASMANIA

VK7KA	Open	714	Total Score	12040	
7RC	Phone	702	Average/6	668	
7RN	Phone	697	Licenseses	125	
7DW	Phone	657	Log Entry	46	
7JB	Open	629	Percentage	36.8	
7AI	Phone	609	State Points	5099	
State Log Average					261.7

Phone:			
VK7PM	555	VK7WA	293
7RL	519	7LL	263
7SM	462	7BQ	193
7JO	455	7BT	157
7SF	449	7XL	88
7MF	447	7AB	83
7RX	376	7JP	74
7DR	306	7RM	66
VK7CK	49	7CT	47
		7BJ	41
		7BA	33
		7JD	24
		7KS	13
		7RK	12
		7LE	11

Open:			
VK7LZ	574	VK7NC	188
7LJ	489	7BJ	156
7OM	262		

O.w.:			
VK7CH	463	VK7RY	57
7KM	381	7ZZ	33
7BZ	137	VK7DS	20
		7AL	18
		7SR/P	13

PAPUA-NEW GUINEA

VK9XK	Open	848	Total Score	2268
9DB	Open	712	Average/6	378
9LE*	Phone	314	Licenseses	77
9NT	Open	293	Log Entry	6
9RR	C.w.	84	State Points	555
9HI	Phone	17		

* Cocos Island.

State Log Average

ANTARCTICA

VK0TC Phone 672

LISTENERS SECTION

NEW SOUTH WALES

D. M. Grantley	1054	J. E. Mackie	433
J. McAllister	778	D. W. Shephard	374
L. S. Curthoys	717	B. J. Harwood	370
N. L. Dash	674	P. J. Carter	338
J. Douglas	540	B. J. Smyth	280
H. C. Craig	518	D. Richardson	40
B. F. Cartwright	455		

VICTORIA

A. C. Stebbing	815	E. W. Treblecock	374
C. T. Taylor	783	I. D. Thomas	277
J. M. Hillard	635	R. Louitt	228
P. Milne	520	G. R. Morris	189
I. R. Woodman	508	D. H. Jenkin	188
P. A. Barclay	444	M. A. Cadzow	159

SOUTH AUSTRALIA

F. W. Aslin	708	W. J. Clayton	442
G. H. Herden	605	Miss J. Martin	305
R. J. Simmonds	608	D. Brasher	28

WESTERN AUSTRALIA

A. W. Clowes	883	Disqualified Log:	
C. J. Anderson	592	F. H. Price.	

TASMANIA

R. A. de Balfour	1131	C. Russell-Green	489
R. K. Emmett	615		

NATIONAL FIELD DAY CONTEST

The draft rules of this Contest having been ratified by Divisions, the rules will be as published in the September issue (p. 16) of "A.R."

It is hoped that the amended rules will entice more participants in this event. There are sections for h.f. and v.h.f. this time.

Remember the date: Sunday, 25th January, 1959. Have your portable equipment ready to enter this Contest.

BOOK REVIEW

V.H.F. HANDBOOK

By Orr and Johnston

This publication by Radio Publications, Wilton, Connecticut, U.S.A., and edited by two known W6 v.h.f. men, is a must for the serious Australian v.h.f. enthusiast.

It contains approximately 200 pages, liberally illustrated by photographs and drawings of v.h.f. equipment. There are twelve chapters, covering all aspects of v.h.f. technique.

With very few exceptions, the equipment described can be constructed from components available in Australia.

Australian price is 34/3, 1/9 postage. Our copy from Technical Book and Magazine Co., 295-299 Swanston St., Melbourne.

PREDICTION CHART, DEC. '58



AMATEUR CALL SIGNS

JULY, AUGUST, 1958

NEW CALL SIGNS

VK— New South Wales
 2HV—G. E. Veasey, R.M.B. 160, Hume Highway, Bargo.
 2AGP—E. A. Parker, Aust. Missionary College, Cooranbong.
 2A00—A. L. O'Donnell, 207 Burraneer Bay Rd., Carlingbah.
 2A0P—M. R. Robinson, 18 Coast Av., Cronulla.
 2ATZ—I. Zainuddin, 35 Laura St., Newtown.
 2ZBM—J. G. Moch, 7 Cadboll St., Lismore.
 2ZDA—R. J. Abernethy, R.A.A.F. Station, Richmond.
 2ZFM—B. C. Milne, 22 Robert St., Narrandera.
 2ZJK—K. W. Jeffcoat, 180 Wellington St., Bondi.

Victoria

3TL—J. K. L. Matchett, 645 Riversdale Rd., Box Hill.
 3VD—C. M. Barrett, Station: 29 Dryburgh St., West Melbourne; Postal: 300 King St., Melbourne.
 3VT—J. V. Hudson, 46 Donald St., Highett.
 3ADG—G. N. Kidson, 1 Myrtle Gr., Blackburn.
 3AMK—L. L. McInnes, 142 Roberts St., Yarraville.
 3API—L. J. Laughton, 4 Burns Court, Shepparton.
 3AQM—Melbourne University, Electrical Engineering Dept., Carlton.
 3ARO—R. C. Palford, St. Helena Rd., Greensborough.
 3ZCL—C. K. Blake, Station: Henty Highway, 3 miles N.E. of Hopetoun; Postal: Box 182, Hopetoun.
 3ZFE—M. R. Boudry, 323 Dorset Rd., Boronia.
 3ZGA—L. A. Maschetti, 20 Glen St., Werribee.
 3ZGJ—J. W. K. Adams, 12 Albert St., East Malvern.
 3ZGL—R. F. Lloyd, 171 Cheddar Rd., West Keon Park.
 3ZGR—H. R. W. Rolls, "Rowilla," Goomalibee, via Benalla.
 3ZGS—M. Subocz, 103 Westgarth St., Northcote.
 3ZGX—K. J. Benson, 30 Bridge St., Hampton.
 3ZGY—C. Y. Tham, 1517 Burke Rd., East Kew.
 3ZGZ—R. N. Ferguson, Nichol's Point, via Mildura.

Queensland

4ZBV—J. P. Hayden, 151 Maygar St., Windsor.
 4ZBW—B. M. McDonald, Base Squadron, R.A.A.F., Townsville.

South Australia

5BA—Brompton Boys' Radio Club, Cr. 3rd and West Sts., Brompton.
 5BB—A. H. Behenna, 38 Stanley St., Crystal Brook.
 5DG—D. P. Giles, No. 8J, S.T.U., R.A.A.F., Edinburgh Field.
 5GX—G. Wilde, 112 George St., Norward.
 5VQ—J. E. Elliott, Cornwall St., Berri North.
 5ZBB—R. J. Langdon, Cr. Railway Tce. and Trumara Rd., Marino Rocks.
 5ZBV—C. A. Appleby, 7 Wolsley Tce., Woodlands Park.
 5ZBY—L. Horvath, 69 Penang Ave., Edwardstown.
 5ZCB—T. R. Friebe, 29 Telford St., Hillside.
 5ZDC—R. W. Parker, 55 Sixth Av., Ascot Park.

Western Australia

6DL—D. Laws, 18 Coleman Cres., Melville.
 6XC—H. O. Wanke, 50 Carew St., Katanning.
 6XR—P. D. Roberts, 60 Park St., Katanning.
 6ZBD—W. K. Holey, Gardiner St., Moora.
 6ZBT—G. W. Cattach, South Western Highway, Yarroop.
 6ZBV—B. R. Fryon, Geraldton House, Marine Tce., Geraldton.
 6ZBY—R. G. Glover, 9 Recreation Rd., Waroona.

Tasmania

7ZZ—I. A. Nichols, 9 Cressy St., Newtown.
 7ZAL—R. C. Milne, Richmond.
 Territory of Papua and New Guinea
 9RM—R. H. Murphy, Karanga Rd., Wau, New Guinea.
 9RR—R. R. Hooper, Port Moresby, Papua.

CHANGES OF ADDRESS

VK— New South Wales
 2GY—J. V. W. Olsson, 154 Kareena Rd., South Miranda.
 2HG—J. F. Mackel, 12 Hinkler Cres., Lane Cove.
 2UT—J. A. Todd, 31 Simla Rd., Dennistons.
 2UY—S. J. Burke, Lot 4, Patricia Ave., Charles-town.
 2WF—W. A. D. Forman, 248 Warringah Rd., Beacon Hill.
 2XK—W. J. Wilson, 278 President Ave., Gympie.

2ZD—W. J. Leetch, 20 Edward St., Wagga.
 2ZS—W. J. Smith, Dymond St., Bargo.
 2ABW—E. G. Baker, Havendale Av., Penshurst.
 2ACG—A. Morris-Rees, Blacks Rd., Paxton, via Cessnock.
 2ADB—A. A. Cheetham, 2 Bellevue Parade, Carlingbah.
 2ADV—C. McC. Hicks, "El Rancho," Forster.
 2ADX—T. T. Hopgood, 589 Fisher Rd., Broken Hill.
 2AGI—R. K. Phillips, 15 Gayling Rd., West Pymble.
 2AHY—E. E. Hayles, Dental Hospital, Chalmers St., Sydney.
 2AJU—J. M. Moyle, Sun-Herald Bldg., Broadway, Sydney.
 2ALL—J. L. Leeds, Darling St., Menindee.
 2APW—W. Wood, 99 Hume St., Goulburn.
 2AQC—P. R. Ladd, 69 Bobbin Head Rd., Turramurra.
 2ASR—S. N. Graves, 61 Chester St., Merrylands.
 2AXW—L. N. F. Wade (Lt./Col.), Marine Pde., Maroubra Beach.
 2ZAR—R. A. Ridgely, 35 Bray St., Dundas.
 2ZAU—K. Woodward, Curtis Place Flats, Moorehead St., Redfern.
 2ZCM—S. B. McGregor, "Delamere," Ross St., Newport Beach.
 2ZDB—A. J. Bowman, 107 Cronulla St., Cronulla.

Victoria

3BL—W. T. Lucas, 21 Enfield Av., East Preston.
 3BP—D. J. Terrill, 113 Walker St., Ballarat.
 3GP—R. C. Steele, 12 Roselea St., Sth. Caulfield.
 3IZ—P. D. Williams, 3a Alma St., Warrborough.
 3JS—B. J. Coles, Station: Lot 256 Murnamurra Drive, East Kellor; Postal: C/o. P.O. Niddrie.
 3TC—L. M. Renshaw, Lot 8, Merry St., East Ringwood.
 3YD—R. W. M. Ross, 471 Buckley St., West Essendon.
 3ABX—V. D. Bond, 8 Beauty Av., Mt. Beauty.
 3ACJ—V. P. O'Brien, Station: 20 Tucker St., Horsham; Postal: P.O. Box 40, Horsham.
 3AED—P. A. Delahenty, Lot 11, Alice St., Mt. Waverley.
 3AIO—W. R. Ion, 21 Margate St., Beaumaris.
 3AJN—J. Hill, 352 Auburn Rd., Hawthorn.
 3APH—P. E. Playsted, Lot 9, Jordon Gr., Glen Waverley.
 3APY—P. J. Dettmann, Station: 63 Duke St., Castlemaine; Postal: 45 Hutton St., Kyneton.
 3ARY—R. E. Yeats, 28 Elizabeth St., Clayton.
 3ASC—S. T. Clark, 68 Jensen Rd., East Preston.
 3AZB—L. R. Burston, 11 Mount Pleasant Drive, Mt. Waverley.
 3ZDK—K. J. McLachlan, 157 Church St., Brighton.
 3ZDL—D. H. Goldworthy, Lot 2, Crawford Rd., Clarinda.

Queensland

4CD—C. McDonald, 78 Talford St., Rockhampton.
 4KB—R. L. Shilton, 34 Naughton St., Rockhampton.
 4NM—N. G. Mills, 86 Dover Rd., Margate.
 4OH—H. T. Overend, Mossman St., Mossman.
 4UK—F. R. O'Sullivan, 173 Walker St., Bundaberg.
 4WI—Wireless Institute of Aust. (Qld. Division), C/o. A. H. Hinkler, 249 Buckland Rd., Wavell Heights, Brisbane.
 4WT—N. J. G. Watling, Flat 4, 81 Eyre St., Nth. Wd. Townsville.

South Australia

5FM—H. N. Bowman, 10 Linden Av., Hazelwood Park.
 5MI—W. R. Nottage, 7 Sweet-water St., Seacombe Gardens.
 5PK—T. Hainsworth, Otterley Av., Bridgewater.

Western Australia

6CK—C. Hayes, Box 40, Meekatharra.
 6ZAH—L. E. Gooding, 41 Kennard St., South Perth.

Tasmania

7MZ—H. W. Hancock, 195 Upper Steele St., Devonport.
 7PF—P. D. Frith, 131 Tarleton St., Devonport.

CANCELLED CALL SIGNS

VK— New South Wales
 2GP—D. A. Page, 65 Hassans Walls Rd., Lithgow.
 2IQ—A. J. E. Robertson, 108 Brook St., Coogee.
 2AEZ—E. A. Marstella, 84 Railway St., Gosford.
 2AIC—A. G. Svenson, R.A.A.F. Station, Dubbo.
 2AYO—R. C. Palford, R.A.A.F. Station, Dubbo.
 2ZUD—R. H. Dell, C/o. S. Davison, Cunnigar.
 Victoria
 3EA—E. Anderson, 130 Osborne St., Williamstown.
 3EP—M. R. Robinson, 129 Hedderwick St., Essendon.
 3FN—B. M. Ferguson, No. 2 Second Court, McGowan Ave., W. Preston.

3XA—D. V. Hope, 4 Elm St., Blackburn.
 3ABC—W. H. R. Treloar, 82 The Right, Heidelberg.
 3ADE—B. P. Everett, 95 Victoria St., Warragul.
 3AHE—H. J. Bassi, 70 Moore St., Traralgon.
 3ASE—D. G. Anderson (Cpl.), R.A.A.F. Station, East Sale.
 3ZEF—J. V. Hudson, 46 Donald St., Highett.

Queensland

4AH—A. L. T. Hadley, 12 Willis St., Annerley, Brisbane.
 4BW—A. Couper, Lloyd St., Mareeba.
 4ID—I. F. D'Arcy, 20 Bernard St., Brighton, Brisbane.

South Australia

5AG—A. G. Mulcahy, 25 Hart St., Semaphore.
 5UM—R. L. Umbarger, U.S.A.F. Team 421, A.A. C/o. P.M., Alice Springs.
 5WX—H. C. A. Woskett, Radio Maintenance Section, C/o. D.C.A., Oodnadatta.
 5ZGW—G. Wilde, 112 George St., Norwood.
 5ZBE—R. B. Connor, 60 Mathews Ave., Seaton.

Western Australia

6SC—B. J. Schofield, C/o. 6AM Broadcasting Station, Northam.

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Unmounted £2 10 0
 Mounted £3 0 0

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MAXWELL HOWDEN
 15 CLAREMONT CRES.,
 CANTERBURY, E.7,
 VICTORIA

KEN MILLIN, VK7KA



HERE is a Station that looks as good as "store bought" and sounds as good as it looks. Ken is an automotive engineer, but he stopped short of using a motor to drive this truck-mounted rig in and out of its cabinet.

In the main unit are the control circuits, main and minor rectifiers, Class B 807 modulators, fully shielded 813 p.a. band-switched from 80 to 10 metres with switched aerial couplers.

A modified Geloso exciter occupies the centre of the desk, flanked by two receivers: the AR7 has been "warmed up" with a low-noise front-end, ECH33 converter and series diode noise-limiter; and the left-hand unit, still growing, is based on a Goriier coil turret. The latter finds work for 16 valves, delivering a 3 Kc. pass-band in

* 6a Minallo Avenue, West Hobart, Tas.

the 100 Kc. second i.f. stage, with a Q multiplier and peaked audio.

Yes, there is a key and it gathers no dust!

Outside, Ken has a three-element 20-15 metre rotary, desk-controlled, with selsyns to point the way.

UNIFORMS DUST COATS

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L.T.U. FUND DONATIONS

The results of the above appeal to date are most encouraging, but we have still to achieve our target of £2,500 to enable us to send our delegate to the Geneva Conference in 1959. We had hoped to reach our target by December this year, but if this cannot be realised, donations after this date will still be very welcome—in fact, we will continue to take them as long as the member still subscribes. Many members have subscribed more than once—to those go our most grateful thanks, but this is no reason for those who haven't subscribed as yet to withhold their valued donation.

Please send YOUR donation in cheque, money order or postal notes to the under-mentioned address:—

Federal Secretary,
Box 2611W, G.P.O.,
Melbourne, C.I.

The following list is current as at the 7th November:—

- £20/0/0
R. Pike, VK2ACU.
Trade Donation—Ducon Condensers.
- £13/3/0
S.W. Zone Convention at Canberra.
- £5/5/0
W.I.A. Hunter Branch N.S.W., VK2AWX; L. D. Bowle, VK3DU; Dr. W. J. Hart, N.S.W.
- £5/0/0
Canberra Radio Society, VK1ACA; Griffith Radio Club, VK2AGJ; R. G. Garrett, VK9RG.
- £3/6/0
W. H. R. Stitt, VK2WH.
- £3/3/0
R. H. Cunningham, VK3ML.
- £2/0/0
G. Kempton, VK2CI.
- £2/2/0
A. F. Elliott, VK3AEL; Dr. B. R. Meldrum, VK5EM.
- £2/0/0
G. E. Heinrichs, VK0KT; C. Cowan, VK2PZ; P. Page, VK2APP; K. Woodward, VK2ZAU.
- £1/10/0
G. S. C. Semmens, VK3GS; K. A. Lawrie, VK5AK.
- £1/5/0
D. Robinson, N.S.W.
- £1/1/0
G. F. Cole, VK2DI; T. F. Pyke, VK2ZZ; C. A. Mackenzie, VK3ACM; N. McI. Cameron, VK3NC; A. Parkes, VK6MO; K. J. Lambeth, N.S.W.
- £1/0/0
J. Hazelwood, VK2AAT; A. Morales, VK-2AEM; J. Edge, VK2AJO; L. Pattison, VK2ALU; A. Barnes, VK2CE; A. Phipps, VK2EU; F. Adams, VK2ID; L. Sinclair, VK2MH; E. Arnold, VK2OJ; W. Symons, VK2ZMS; A. Mather, VK2JZ; K. Oliver, N.S.W.; B. Valentine, N.S.W. H. Selman, VK3CM; T. Barnes, VK3TB; P. Evans, VK3OZ; B. Learmonth, VK3QM; D. G. Anderson (ex-VK3ASE).
H. Tilse, VK4WO.
F. Bentley, VK5MZ; K. Yates, VK5RP; C. Waterlander, VK5WA; A. Martens, VK5MA; H. Vivian, VK5FO; J. Haseldine, VK5JC; L. Vale, VK5NO; L. Brice, VK5OK; R. Kopp, VK-5SX; H. Stacey, VK5XA; L. Werner, VK3XN; K. Ringer, S.A.
T. Berg, VK6ZAF; J. Moran, VK6JM; R. Coghlan, VK6RC.
G. Aschman, VK7GA; E. Burne, VK7GB; R. Kilby, VK7RK; R. Bulman, VK7RL.
- Under £1/0/0
W.I.A. N.S.W. Division, VK2WI (9/6); H. James, A.C.T. (10/-); E. Bennier, S.A. (10/-).
The progressive total receipts to 7th November are £1,807/17/3.

PERMITS GRANTED FOR TELEVISION EXPERIMENTS

- VK— New South Wales
- 2AKK/T—K. Whitmore, 27 Cecil St., Ryde.
- 2AWW/T—G. D. Wheaton, 788 Anzac Pde., Kingsford.
- 2AZN/T—J. L. Fogson, 57 Redgrave Rd., Nor-manhurst.
- 2ZCI/T—J. Dempsey, Farm 775, Yanco.
Victoria
- 3AON/T—A. J. Henry, 1 Rosshire Rd., New-
port.
- 3ATV/T—J. A. Hampel, Flat 4, 32 Hampton St., Hampton.
South Australia
- 5MR/T—J. R. S. Coombe, Pomond Bd., Stirling West.
- 5ZCR/T—A. C. Rechner, 36 Payneham Rd., St. Peters.

VHF

Frank P. O'Dwyer, VK3OF
190 Thomas Street,
Hampton, Vic.

Quite a month October, with consistent openings from JA to all mainland Divisions via both T.E. and F.2, with sporadic E openings up and down the eastern seaboard, through the longer hop VK4 to VK3, 5, 7. VK2 should have come into the picture by the time this is read, whilst the second week in Nov. should provide the first east-west openings either to ZL or VK6. Appetites are certainly being whetted for the Ross Hull Contest—many new stations will be taking part and competition should be keen. It is to be hoped that the JAs have been notified of the rules, otherwise the VK4 gang shall have a lot of explaining to do. Fortunately that will make the game easier for the other Divisions who still regard the JAs as DX and not as locals. Pity the rules were not published this year, reference only being made to the Oct. 1956 issue of "A.R." There are many "Z" call chaps on the band now who were not licenced then and who have not the "A.R.s" to check on. Harder still for the country Hams now interested in 50 megs. who will have to wait for an Interstate sporadic E opening or write to their Divisional headquarters for the information.

South Africa comes into the picture with a letter from ZSSJK to Col VK7LZ. Here is his news: "The dope on 50 Mc. activity in Australia is most interesting and I have arranged with the Editor of 'Radio ZS', our Amateur magazine, to have the details published and I hope it will go to press before the start of your Ross Hull Contest in December and January. In South Africa we do not have the same opportunity of working so many contacts, if we could only have sporadic E openings all through the year, then we would be happy. Most of the stations in South Africa are crystal controlled with a few changing over to the v.f.o. when they find others using the same frequency. The power used is mostly between 50 to 100 watts although we are applying for an increase in power. Like yourselves, we mostly operate between 50 and 51 Mc. with all the space left above for the space age. The antenna systems vary from the cubical quad to 3, 4 and 6 element beams with heights varying from 25 to 75 feet.

"Our best long distance contacts within the Union are between Durban and Capetown, and Durban and Windbuk (ZS3). We have found that the stations with the higher altitude seem to get the best results. On Friday, 17th October, ZS3G worked CT1CO, HB9BZ, VQ4EV and VQ5GF. Of these stations on this night, only VQ5GF could be heard in Durban. ZS3G, ZS6UR and ZEZJE work into the United States with the greatest of ease when the band is open, but at the moment it is very dead in that direction. I was very interested to learn about your "Z" licence and I feel that it would be a good idea if we could introduce a similar licence in South Africa and I am going to put forward the suggestion to our headquarters Council, but I suppose that red tape will hold up the granting of same.

"50 Mc. stations are active in all ZS call areas, ZS1 to 6, ZE2, VQ2, VQ3, VQ5 and CR7, whilst in VQ3 there is a listening station at present without a tx. Among the more active are ZS1B, SW; ZS2D; ZS3G, Z; ZS5HV, JK, GE, GO, PV, QV; ZS6UR, EB, ZK, AK1; ZE-2E, 1N, 2JK, KR, JB, 7JX; VQ4AA, EV, CW, VQ5GF. ZC4WR listens very regularly on 50 Mc. and replies on 28.335 Mc., you can get a cross band contact here, the same with a few of the 4X4 stations who are not licenced to operate on 50 Mc.

"On Sunday mornings on a frequency of 50 and 56.040 Mc. you will find a relay of ZS1HQ and ZS5L at 0830 GMT. This is done by ZS5HV and ZS5JK with our beams directed to VK land.

"The most active period for ZS operation is during the week-ends and during the evenings between 1700 and 2000 GMT. We have been hearing signals coming in from a north, north-east path round about 49.75 Mc. between the above hours and it has been during that period that we have worked into VQ4EV and VQ5GF. HB9 and F8 have been worked in Durban on c.w. but not at great strength. The VQ4 and VQ5 contacts were at 9 plus when they came in and we expect if the path

EXTENSION OF USE OF THE 50-54 Mc. BAND

As a result of an application from the Federal Executive of the W.I.A., the P.M.G. Department has agreed to the use of the 50-54 Mc. band by Australian Amateurs for an extended period to 31st December, 1959, conditional upon relinquishment thereof on one month's notice if such action should prove necessary.

See Federal Notes for further information.

[The following two letters were received prior to the above announcement being made. As one is an explanation and the other requests further assistance, I have included both.—Editor.]

VK4 EXPLANATION

On first reading the cryptic comments on the retention of the 50 Mc. band by several of the VK3 V.h.f. Group in the November issue of "A.R." I was inclined, as were, I am sure, other members of this Group, to take strong exception, but on consideration I feel it is incumbent upon me to comment further and to give some explanation to and on behalf of the VK4 V.h.f. Group.

We can hardly expect any more than antipathy from v.h.f. operators, for can it be truthfully said that at any time has the position which the Amateur is filling in reporting for I.C.Y. been comprehensively explained by an article in "A.R."? How many of us know in what form this information is required to be prepared to ensure some standardisation throughout VK?

Also, how many of us are aware of what action has been proposed to seek an extension of Amateur operation on 50 Mc. and what is specifically required of us to assist in the preparation of such a case?

At this late hour there is no place for recriminations, but we feel that the strength of this case may have been lost through lack of co-ordination.

Nevertheless this Group has not been idle in its efforts to retain the 50 Mc. band as our first requests for information along some of the above lines were submitted through Divisional channels in March of

1958, and it is regrettable that neither these nor subsequent requests for advice were answered.

To continue our efforts, this Group, in the meantime, circularised all known 50 Mc. operators in VK4 and we are pleased to record that almost 100% response has been received on submission of logs. To those "defaulters" in VK4 who have received a further circular, even though their log has been received in Brisbane, my sincere apologies and I trust the appearance of your call below will record our grateful thanks.

Your log has been held here until some clarification of the position could be obtained. These logs are on hand: VKs 4JO, 4CH, 4LK, 4HD, 4GG, 4WD, 4NG, 4ZAA, 4ZAK, 4ZAP, 4ZAT, 4ZAX, 4ZAZ, 4ZBD, 4ZBF, 4ZBH, 4ZBI, 4ZBJ, 4ZBL, 4ZDK, and 4ZGL.

To those readers who have not yet made the effort, I hope that this display of unselfish co-operation by Institute members and non-members alike all over VK4 (I must point out that some of these logs are books NOT a few sheets) will be an example and an inspiration to give a little of your time to assist this invaluable cause.

The case to keep 50 Mc. requires your log urgently—please join us in helping you!

D. E. Hughes, VK4ZBD,
Chairman, VK4 V.h.f. Group.

50 Mc. BAND LOOS

F.E. has informed us that the P.M.G. Department is at present considering our application for an extension.

Processing of logs has begun; 3ZDG is responsible for this processing and he is being assisted by 3ZAT and Max Hilliard.

We require many more logs to make the coverage as wide as possible. If you are an s.w.l. who has logged 50 Mc. DX, we would like to have your log. Please forward a signed copy of your log to VK3ZDG, I. McMillan, 1 Norfolk Rd., Surrey Hills, Vic.

We would also like to start a tape library of 50 Mc. DX. Anyone able to assist in this regard should contact 3ZDG or the writer.

Some time ago the Group directed a letter to all Divisions requesting support for our programme. To date we have been favoured with replies from only two Divisions.

I. F. Berwick, VK3ALZ,
for the VK3 V.h.f. Group.

breaks to your part of the world it will be the same. A lot of us use the key to get the initial contact and then switch over to phone once the contact has been established.

"I have not told you anything about the receiving equipment. A lot of the fellows use the RF26 unit ahead of their rx's, some are using xtal converters as supplied with the NC300, others are using home-built xtal controlled converters and more recently some are using the war surplus rx R208. We have more listeners than active operators. I hope that

it is not too long before we can exchange greetings with fellow VKs and ZLs on 50 Mc.—Ian, ZS6JK.

Seems as though we are all alike, have the same habits, the same hopes, and the same desires, no matter where the 50 Mc. man is located. Read the VK3 notes for information regarding test t.v. transmission on 54.289 Mc. beamed north from Melbourne. The co-operation of northern Hams in reporting reception would be very welcome and an aid in the struggle for the retention of the 50 Mc. band.

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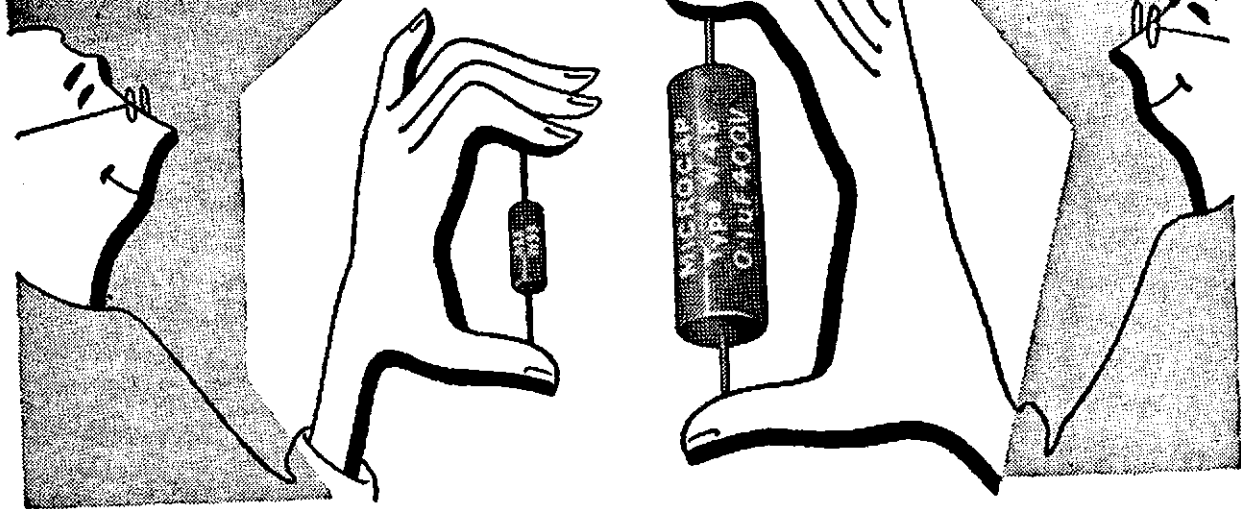
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VHF

(Continued from Page 15)

LOGS.—Logs have been received during the month from the following stations: VKs 2ZBI, 2ZBP, 2ZAC, 2AQI, 2ABR, 2ZCG, 2ZDP, 2ZFP, 2ZATN, 2AZY, 3BW, 3PG, 4ZDK, 5ZBX, 5ZCR, 5ZAQ, 5BC, 5RO, 5KA, 7LZ, 9BW and a second instalment from 4ZAZ. Jock 4ZDG thanks them all and requests that any further logs should, if possible, contain the following information: (1) Duration of opening, (2) area worked, (3) type of propagation if known, and (4) times and dates. The last may sound strange, but a few of the logs so far received did not contain that information, vital in itself for graphing into the active periods.

I take this opportunity to wish everyone a Very Happy Christmas and a Most Successful New Year. My thanks go to the many correspondents from Divisional v.h.f. scribes through individual Hams to the listeners, only without whose aid and co-operation these notes would be practically non-existent.—F. O'Dwyer, 30F.

NEW SOUTH WALES

Hi chaps, well October has been a very full month for v.h.f. activities and started off with a well attended meeting at which an excellent lecture was given by Keith 3ZAV on selenium rectifiers.

Converters.—The meeting date coincided with the fruition of a practical effort by the Group in producing 144 meg. converter kits, which were supplied to some 40 members. Considerable preparatory work was necessary to achieve the final result and credit must be given to Bob 2OA for design and preparation of circuits for the prototype unit. Also to John 2ANF who acted as an independent technical adviser, and to Barry 2ZAG for supply of condensers, 2PM procurement of chassis, 2ZCF coils, and 2ZCW, and 2ZAA who worked through after midnight packaging the parts. The committee sincerely hopes that these converters will assist more stations onto 144 megs. and further units will probably be available later.

Fox Hunt.—Who said a fox couldn't hide himself so well as not to be found in 1½ hours? Well, 2AZO/2ATO, John and Cec, did just this, however with an extension of time some did find the rubbish tip and the very obscure track which led into the scrub. 2PM/2ER came in first, followed by 2ZBG/2RX second.

Scramble.—Winner of the October Scramble was Dick 2ZCF who in usual form topped the score with 18, 2WV/2OA, 2RX, 17; 2ZCH 16.

Blue Mountains Day.—V.h.f. appetites were well satisfied on this outing and was attended in force by Sydney members. Cups were taken away by 2ZCF (scramble) and 2AWZ (fox hunt). Country members were present including 2DR and 2RV and much v.h.f. rag chewing resulted, voting the day a thorough success and a compliment to the Blue Mountains Group.

Coming Up.—As at the time of writing, several events scheduled for November are yet to occur, however results of these, including the Spring Field Day, will be given next month. During December there will be the usual meeting which will include an auction of your surplus gear and a lecture by Jim 2ZCW. There will be a special mobile fox hunt on Saturday evening, the 13th, starting from Thompson Street, Drummoyne, and finishing at 2PM's QTH for a Christmas supper party. Don't miss it. Also there will be the Merry Christmas Scramble towards the end of December.

Morse.—Our thanks go to Charlie 2AZK who has provided morse practice over the month, and we feel confident that most of his proteges will succeed.

80 Megs.—There have been some openings to VK4, however by the time you read this the band should have really come good again. Barry 2ZAG has completed the 58 Mc. r.f. unit for Dural and the remaining items are in hand by members.

144 Megs.—Quite a few of the gang have been on the sick list and include 2RX, 2PD, 2ABZ, 2ZCP, and 2AWZ, but are all on deck again. A welcome is extended to new stations Keith 2ZJK, Kev 2ZFC, Bob 2ZEL, and Arthur 2DB. Phil 2ZBB's family have an addition and we are pleased for Phil's XYL, who attends most of our fox hunts. Doug 2ASA and Stuart 2ZOF have been heard in Sydney. Dave 3ZAQ was farewelled and we enjoyed his operation on 144 megs.

Well so nears the end of another year, and on behalf of the V.h.f. Committee and Group, a Very Merry Christmas to all.—2AWZ.

VICTORIA

6 Metres.—October was the best month for DX on 6 for some time and quite a few breakthroughs, both to VK4 and JA, occurred. Com-

pared with October 1957, the 1958 season looks as if it will be much better. If the VK3 gang have any say in the matter, the 8 mx band will be open in the New Year as quite a hard core of resistance to the closing of the band exists. Ian 3ALZ, has sent letters to the A.R.R.L., J.A.R.L. and N.Z.A.R.T., pointing out that interference will arise to Amateur Services in those countries from Channel 1 t.v. stations and is awaiting replies.

Jock 3ZDG is busy processing the logs forwarded from the Australian States.

Commencing the 1st of December, an all white t.v. picture with sync. signals on 54.259 Mc. will be radiated from the Russell Street Telephone Exchange, with an e.r.p. of 300W. The signal which is beamed towards Brisbane, will be on the air from 1400-1700 hrs. E.A.S.T. Reports from VK4 are welcomed and should be forwarded to R. Neal, VK3ZAN, c/o VK3 V.h.f. Group, W.I.A., 181 Queen St., Melbourne.

Twenty-three stations were active for the October 8 mx scramble including JA3ADX, operating marine-mobile from the "Melbourne Maru". The winner was Jock 3ZDG, with 16 contacts; second was John 3ZAI, with 15 contacts, and Tim 3AZY filled third place with 14.

2 Metres.—Seventeen stations participated in the second of the 2 mx scrambles and the winner was Ray 3ZQ, with 12 contacts, 3ZCH and 3ZE were equal second with 11 contacts and 3ZFF third with 10 contacts.

1 Metre.—The initial burst of enthusiasm seems to have died down, but some contacts have been made during October from Melbourne to Moe and Geelong.

Field Days.—The December Field Day will be held on Sunday, 21st December. If you intend going portable, drop a line to John 3ZAI, who will make your location known on the 3WI broadcast.—3ZAL.

QUEENSLAND

VK4 very busy collecting logs, a good response to date. DX still good. Still lots of JA with some good openings to VK3 and VK5 plus a few brief ones to VK2.

Douglas 4ZCA heard from local Brisbane station 4ZBY working all locals. Max 4HD received his A.J.D. award during the month; said DX fair at Budderan Mt. 4NG and 4ZAZ still keeping the DX busy. Bob checking gear for Ross Hull Contest. Jack 4JO has built up some nice 50 Mc. plus 2 mx mobile gear, nice work, gear looks good, too. Bruce 4ZBD close to A.J.D. award off his indoor dipole; think it was a 4 el. beam the way the JAs call him; doing a good job urging and collecting logs to help ease to retain 50 Mc. Anyone requiring a kangaroo xtal for 50 megs., contact Mick 4ZAA.

Many thanks to country members for your 50 Mc. logs, much appreciated by V.h.f. Group. The gang have their beams south, looking, listening and waiting, won't be long, we hope.—4WD.

SOUTH AUSTRALIA

Well at last I can write about some DX contacts on 50 Mc. Our first opening was on Sunday, 12th, when the JAs came through be-

tween 1 and 2 p.m. The next opening was Wednesday 15th, 1235 to 1330 hrs. Two JAs were first heard working VK4, then into our QTHs. It would appear from a careful study of the weather map that these openings coincide with bursts of heat in the north of the State. In between these openings, Bob 4NG was heard and worked at various times and dates.

The 19th was fair weather day for Comps 5EF with a nice opening to VK5, working 6BO and six others. Managed to work Mick 6ZBP who is located at Wagin, about 150 miles north-east of Perth, before the band folded. I understand the VK6 boys had been hearing VK5s for a full hour before Comps made the initial contact.

The JAIs were in again on the 18th at 11 p.m. and the 20th at 6 p.m., and Ron 5MK logged a considerable number with his 150w., nice going Ron. October 28 was red letter day for Col 5RO, with family sickness, decided to stay home that day and between 1109 and 1600 hours worked 25 JAs, including those hard to get JA0s. The band again opened up between 1800 and 1900 hours.

VK5 takes pride for its efforts in introducing JA3ADX to the 50 Mc. band. Selki JA3ADX has been a regular contact for the d.c. boys, operating mobile marine. During his visits to VK5 he made firm friends with 5KC, 5ZAX, 5MK, 5RO and a few others, being v.h.f. types they quickly worked out a position on the ship 80 ft. above the water line where a 3 el. beam could be placed and promised Selki he would be fully equipped for 50 Mc. next time he was in VK5. Comps 5EF supplied a 522 which Keith 5MT modified. Bill 5ZAX supplied and built the power supplies and Ken 5KC with Bill supplied and built the converter. There was a last minute rush and the equipment was installed and working 8 hours before the ship was due to sail. I was fortunate enough to be JA3ADX's first 50 Mc. contact and am looking forward to his card. From information received, Selki is enjoying his 50 Mc. mobile marine contacts and it seems rather unfortunate that he may be transferred to another ship trading between JA and W land.

My stop press news is from Col 5RO who has just received an airmail letter from K6RNQ who with W6SUE heard a VK5 two letter call testing on 50.050 at 0730 S.A.T. on Oct. 27.—3ZAW.

TASMANIA

Col 7LZ is on 100 and 144 Mc. as usual. He now has a 288 Mc. xtal rig with a QV03/19 in the final going OK—a xtal osc. chain for the converter, but no r.f. or mixer stage as yet. The 288 Mc. beam should be finished shortly. 7FF is now at Devonport and has an excellent QTH. 7RL is at Stanley and can hear Channel 2 every day. Both promise to be active on 144 Mc. this season. 7FF is stirring up 144 Mc. activity on the N.W. coast. Only 7BQ and 7LZ are in Launceston now.—7LZ.

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Only one contributor commented regarding the use of QSO path and time in these notes and that was in agreement with my own thoughts so unless a change of mind takes place with DXers we carry on as usual.

During the month I had visits from four of my contributors—VK8CX, 4DO, 4EL and WIA-L2022, and was naturally pleased to see them, in the case of 3CX and 4EL not for the first time though.

With the growth of the number of the VK boys who are becoming interested in collecting DX certificates, I think somewhere in the magazine, and this page is probably the right spot, being the DXers, that details of certificates should be given. I see some details of Awards, 3RJ sees some, and readers see some on cards they receive. So what do you think Mr. Editor? I have one or two ready now. Maybe it could go under the Awards section.

[It is the policy of this journal to publish any new Awards that are issued as the details are supplied. Also any amendments or cancellations to existing Awards are treated similarly. At present the number of Awards in existence throughout the world is too great to list them all, even some each month. A comprehensive list of Awards appeared in the 1957 Australian Radio Amateur Call Book.—Editor.]

My suggestion in May "Amateur Radio" re having something stable for the granting of Awards instead of the "Country Rat Race", has been received well in many quarters, overseas and here. September issue of "Short Wave Magazine" makes comment on it, to whom my suggestion was forwarded by VK-2BA, and they are going to comment in a later issue.

NEWS AND NOTES

On my latest QSL from Danny Well whilst at VP2VB, a rubber stamp reads "Attractive Yasme IL Contributors Certificates are available to contributors upon specific request. Enclose 12 cents for Airmail, 6 cents regular." This is in addition to the rubber stamp which appeals for financial assistance for the DX-ception.

One of the outstanding DX boys, W8NBK, has decided to pull the big switch and is selling everything but his QSLs. (Can't see that one.)

If you missed the recent DXpeditions to VQ1, another chance will be given when VQ-4ERR, working s.s.b. and c.w. only, will be back there in late December.

I chased VQ1CG on 21 Mc. the other morning, but think he is just one of the many 'phonies that are turning up on the bands. He was not known by any of those watching the VQ1 movements.

ZD8JP should be heard on 21,220 Kc. soon, crystal controlled. He has been reported on 14 Mc. round 2200z.

If you have not received a QSL from HZ-1AB for February to April 1958 QSOs, try another card to W3IDU, who operated the station for that period. Many cards sent to him were apparently lost in the mail.

Z8GV is expected to operate from the Seychelles shortly. Dates at present unknown.

The following Russian stations are known to be active on phone: UF6FB, UG6AG, UG-6AL, UG6KAA, UG6KAC, UJ8AG, UJ8KAA, UL7BS, UL7HA, UL7HB, UL7FA, UL7GL, UN-1AB, UN1AE, UN1AF, UN1AG, UM8KAA, UM-8AA, UM8AC, UO5PK, UO5AM, UO5IT, UO-5AA, UR2AO, UR2BU.

CR6CA is active on 21 Mc. round 19-2000z and CR8DA on c.w. round 2100z.

FRTZC is reported on 14035 c.w. round 1500z on week-ends.

For those chasing WPX, OQ6PD is active on 21 Mc. phone 17-1900z week-ends.

If you have been chasing M1ZZ, don't waste your time as he is another dud.

EA9BU is active on 14060 Kc. at 2200z.

My previous comment regarding activity in Pakistan being forbidden was incorrect, as all is well there, but not so in Ceylon. It seems that only members of the Armed Forces can operate Amateur equipment.

* Call signs and prefixes worked.
z zero time—GMT.

MPABBW is active on s.s.b. on 14 Mc. round 2200z.

MPADAA in a QSL sez his Lat. and Long. are 25° 10' N., 52° 52' E. That will help you to spot where Das Island is, as it is not on most maps.

It is anticipated that this will be given separate country status by A.R.R.L. as it is entirely separate from Bahrain, and under entirely independent sheldom.

Do not pass FF8AC/GN by as he has been granted separate country status by the A.R.R.L. He is located in French Guinea.

V89MA can work 3.5 to 28 Mc. and is quite keen to try 7 Mc. Contact him on one of the higher bands, and if propagation conditions are suitable, he will be willing to try 7 and even 3.5 Mc. His only other country prior to our try on 7 Mc. was ZS. In case you are not aware, he is located in the Maldiv Islands.

CR0AC is active from Easter Is. on 14 Mc. c.w.

EA0AC is active on 14 Mc. varying spots, round 0700z and EA0AB seems to follow a similar pattern.

SM5WN/LA/P, LA2TD/P and LA2JE/P are all active from Spitsbergen. Have heard SM-5WN being called round 0700z and 2000z. Another possibility is LA4CG/P reported on 28 Mc. c.w.

LX1HM is active on 28 Mc. and he is OK for a QSL.

OY7ML was expected to show up on 14 Mc. s.s.b. on Nov. 16. Whether this was for a brief spell or not I do not know, but hope you s.s.b. boys found him.

V89AS/A was expected to show up from Oman during November.

Z89G is active on 21 Mc. phone and has been heard very strongly in Sydney in the late afternoon.

There is quite an amount of confusion at the present time of the authenticity of the ZA calls being heard. There is supposed to be no legitimate operation from Albania, but calls heard have been ZAIAM, 2AB, 1AB and 7Z. Corsica is now represented by F5CB/F5C.

He has been heard here round 0730 and 2000z on 14 Mc. and 2000z on 21 Mc., but does not seem very interested in working all who line up for him. Is not heard after one or two QSOs.

Kuwait is currently represented by 9K2AN, 9K2AT, 9K2AZ. 9K2AQ was G3FUJ.

CR10AA is still anxiously awaiting arrival of a generator, his batteries having given out. The progress report on this is that it has been placed aboard ship in Hong Kong in the custody of CR9AI's XYL and is stored in her stateroom. She and CR9AI are on their way back to Portugal.

VP6FP is active on 7 Mc. and higher, his QTH being Grand Turks Is.

8V0WB is keeping Rhodes on the air with phone, but a U.S. novice is now active on 21 Mc. c.w. using the call of 8V0WAE. Don't try any fast stuff on him. He is a very slow operator.

Tarkey has now banned Amateur Radio. In fact it has been banned since 1953, so there is little doubt in view of information available to A.R.R.L., and others, that any QSOs with Turkey since 1953 were with illegal stations and will not be eligible for DXCC (A.R.R.L.) credit.

VPIEE is operating both 14 and 21 Mc. phone.

VQ3HD is ex-ZD8BX. Apparently many are still looking for cards from his ZD6 activity, so as VQ3HD is quite active on a number of bands, you should be able to do something about it.

KA0J and KA0IK work 14 Mc. on alternate nights. This is Iwo Jima, so do not pass it by as an ordinary KA station as it earns separate country status.

Authenticity of 3W8FM is at present doubtful. He seems to be putting too strong a signal into Europe to be certain.

Do not pass all PY7 stations by as another Brazilian. PY7AFN, PY78C and PY7LB are active from Fernando de Noronha. Increased activity from here is possible as the locals become more proficient with their English. All cards should be addressed Phil Hendricks, RCA-PA, Fernando de Noronha AAFB, Patrick AFB, Florida, and mark your envelope "attention PY7".

Activity on s.s.b. from TI9, Cocos Islands is planned for March or April 1959 for about one week.

KR6LP is another that you should not pass by. He is located on a separate island, and by the rules of A.R.R.L. DXCC is eligible for credit.

Traelsi Oman is represented currently by MP2AT on 14 Mc. phone.

ZD4DT has been putting in a very strong signal to the East Coast round 2000z on 14 Mc.

A change has been made in the Danny Well itinerary from that published last month. The new one is Montserrat (finished here), An-

DX CORRESPONDENCE OPERATION OF VK0CC DURING 1959

DX Editor "A.R."
Dear OM,

I will be operating from Macquarie Island in 1959 (January to December) using the call sign of VK0CC. Operation will be on c.w., a.m., and s.s.b. Once a routine operating schedule has been established, I will endeavour to allot specific days for working DX stations and other days for VK working only. (I have already notified "QST" and "CQ" magazines that I will not QSL any station which breaks in on my VK QSOs.) By such an arrangement it is hoped that the needs of all will be satisfied.

VK4FJ has been kind enough to offer his services as my QSL Manager—hence prompt QSL is ensured. I feel that I am very fortunate to have Roy's services.

QSLs will therefore be via VK4FJ under the following conditions:

- (a) QSL cards received via the Bureau will be replied to via the Bureau.
- (b) Any QSLs accompanied with I.R.C. coupons will be replied to by direct mail.
- (c) All cards MUST clearly indicate the time of the QSO in GMT to facilitate rapid log entry checking.
- (d) QSL will be on a card-for-card basis only.

It is hoped that I can find time to work a lot of Hams throughout the world, especially those who require a VK0 s.s.b. QSO and QSL.

—Clive Cooke (VK0CC, ex-VK4CC).

gulla, Dominica, Guadeloupe, St. Vincent, Grenada, and due to arrive in Pacific in April.

W2CTN is now QSL Manager for the following: 0G1BG, KZ2TH, JZ0HA, VK2AYY/LH, FK8AT, VK2FR, VR2DA, VR2DK and VQ3CF. Apparently Jack doesn't want to work DX himself any more. He certainly is doing a good job for those he is handling.

ZC5AL has closed and is now VK2A00.

For those chasing YLCC, VESDOK, VE4GE, and DJ3YL can be added to your list (3AOM). V82 prefix becomes 9M2 as from Jan. 1. Whether V81 becomes 9M1, I am unable to say at this stage.

Operation from KE4, Soecoro Is., is still expected towards the end of the year.

Alaska, KL7, becomes the 49th state for W.A.S. award from Jan. 1.

Despite thoughts that UA1DZ was operating from Frans Joseph Land, it is not so, so don't let your blood pressure rise when you hear him.

Fellas, I am in trouble. I find I am getting more and more material for these notes, and space apparently not available. The list of s.s.b. stations some of you were looking for would not fit in the Mag last month. I doubt if space will be available this time and possibly some of the other sections of the page may be out also.

ACTIVITIES

7 Mc. 2AMB: VS1HU*, ZEJZC*. 2QL: VS-9MA*. BERB196: C02QR, DL, HB, HC4IM, JA-1BX5, JA4HM, JA8ZU, J47OW, KA9PW, KH6, KC8BT, OK, ON, SM, SF, UA, UA0, UB, VE, VS2CP, YO, YU, ZEJJO, many ZS. Red de Balfear, on phone: JA1BOW, ZE2AM, KH6J.

14 Mc. c.w.: 2AGH: UQ2BP*, KOEPO/KS6*, IT1TAI*, VQ2RG*, VP8CC*, UQ2BA*, OY7ML*, 4X4H*, VP2MX*. UA0FF*, LA8U*, SMSKX*, KR8BW*. 2AMB: VS9MI*, VP8CC*, ET2KY*, ZS8IX*, ZS5RX*, ZS5BF*, HS1C*, VP9IM*, XW8AI*, OX3UD, VQ2RG, F8AJ, T12WD, ZD-1FG, OD5J, CK1BZ, LUSLT, LUSALB, 90W: F8UAE*, KH6MG/ZK1*, VP7NA, VF7BT, FQ-8AP, KS6AG, F88Y. 2QL: FQ8HA*, VQ2GF*, VQ2GW*, VQ2RB*, OA4FM, CR7BN, ZS3JO*, OQ5IG*, FF8AC/GN*, OY7ML*, UG6AM*, UP-2KBC*, VS8MA*, BV1USB*, VF2MX*, XW8AI*, ZS9M, CR6AP, FQ8AN, ZD7SA, ZD2GUP, UG6AW, F88CH, MP4DA, CR6BX, FZCB/FC, 2ZB: ET2KY*, ET2TO, EA8AF*, T12PZ*, OQ-5BB*, 4K4WF*, ZC4LP, KC4USK*, IT1TAI*, YV5DE*, F8UAE*, ZEJJO*, HS1CK*, and many Europeans. 4DO: KX8BT*, VE*, DL*, UA-0KJA*, UA0OM*, F88ZB*, LUSHL*, CR6BX*, HB9*, LZ1WD, SU1HM, LA3TF, FF8AJ, XZ2TH, VS9MI, VQ3CF, VQ5GJ, 5WO: HC8*, OY7ML*, F08AT*, S0WPD*, VR1C*, ZC3AC*, VK2FR*,

VQ2VB*. 5RX: IT1CDS*. CR6BX*. VS9MI*. XW8AI*. FQ8HA*. FQ8AP*. OQ5EH*. CE3AG*. ET2KY*. many ZS*. 7LZ: UAIKAE/4*. UJ-8AF*. 4X4FW*. LZ1KZS*. VQ2GW*. VQ3HD*. VQ9AC*. UO5PK*. ET2US*. VU2JA*. LA4ZC*. BERS195: CE0AC, CO2CO, CN8LC, DLOBR, EA-6AW, ET2KY, ET2TO, FA3SS, FB8XX, FO8AO, FQ8AN, FS8AE, HK3JK, I5AAW, KC4USK, KM6BL, KR6RY, KZ5IF, KZ5LB, KS4AZ, LU-5AB, OQ5EH, OQ5R, OR4VN, PY2AL, SV-0WF, UD6AK, UD6AM, UH8KAA, VP7BT, VP-9DY, VP9Y, VQ2GF, VQ2MS, VQ3CF, VQ3HD, VQ4EZ, VQ4KPB, VQ4FM, VQ5GJ, VS6AE, VS9AC, VS9AP, VS9MI, VU2AJ, XW8AI, ZS-6IX, 4X4WF, 9K2AT, WIA-L2022: CO2US, ET-2KY, FA9VN, FF8BX, FQ8AP, KP4AZ, KS6AG, OZ9N, SV0WF, UAIKAE/6, UD6AM, VQ3GJ, VS9AC, Z44WW.

14 Mc. Phone: 2AGH: ZD6DT*. 2AMB: PJ-2AQ*. ZD6DT*. ZS6ANE, HK4DP, LU2HAE, KR6LP, FK8AU, OA4DA, VK0J. 3AOM: CT-1JG*. DJ3YL*. DLIAU*. F3YG*. GM3EST*. HK4AW*. HK7LX*. HP3FL*. IICUV*. KH6IU*. KR6L/VO*. TI2PI*. TI2WD*. XE2BM*. VE*. 4DO: KH6*. KR6LP*. FK8AU*. PY2CK*. LU-4DMG. 5WP: ZD6DT*. 7LZ: XE2NF*. CO-2OZ*. XE1RE*. HR2MC*. CX2CO*. CO2BL*. CE2CC*. KX6AF*. HS1C*. PJ2AQ*. TI2OE*. YN4CB*. YS1O*. OA4DA*. BERS195: ET2US, I5FL, KR6LP, VK0TC, VQ2VZ, ZD6DT. WIA-L2001: ZL5AE, KX6GJ, CO2F, PIJ, EA3CY, CE2CC, XE1RE, OK1KKR, VRIA, HP3FL, LU-2WB, TG9AD, GI3IVJ, CE3HL, WIA-L2048: I1ADX, 4X4CL, KR6LP, VK0TC, EA3CY, 9K-2AZ, WIA-L2022: CE3HL, CO2ZS, HR2MC, TG9AL, TG9AD, ZESJO, WIA-L2045: CO2BL, CE2CC, KH6MG/ZK1, KR6LP, KP4ZC, CE2CO, PIJ, VK0TC, VK0KT, KX8BT, TI2HP, KH4EW, ZETJR, ZS5PG, PJ2AQ, CX2CO. Rod de Balfour: G, GM, ON, F, I1XA, EA3, DL, PIJ, CN8MM, VQ2SB, ZD6DT, ZESJU, ZS1KG, BV-IUS, KR6LP, VK0TC, XW8AC, VK0AD, ZL-1ABZ, VK9LE, 9K2AU, AP2AD, XE2NF, TG-9AL, CO2US, CO2ZS, CX2CO, CE2CC, CE3HL, PY2CK, LU4DMG, and on s.s. KR6USA, KC-4USK, KC4USG, KH6AHQ.

21 Mc. C.w.: 2AMB: VQ2RG, VQ4FK. 2ZE: UR2KAE*, UQ2AQ*, VP6KL*, PY2AC*, OR-4VN*, CN2BK*, and many Europeans. 2QL: 9K2AN*, ZD2GWS*, CO2US*, UR2BU*, CX9AJ*, PY2AC*, KX6BT*, CE3AG*, VQ3HD*, ZS1AL*, VQ2RG*, CR7LU*, ET2KY*, VQ4FK*, VP1NW, TI2RC, VQ1CC, I5AAW, YK1AT. 4DO: UA-0GF, KX6BT. 7LZ: LA1VC/G*, ZC5IF*, GD-

4VH*, ZD1FG*, ZB21*, KX6BT*, PY2AC*, VQ-2RG*, KR6AK*, XW8AH*, ZS5JK*, CX2BT*, ZS6ATA*. WIA-L2022: CR7LU, ELIK, HA5BI, VP6KL, VP7BX, VP8CR, ZL5AC.

21 Mc. Phone: 2AMB: LU5XE, DJ. 5WP: SV-1AE*, ZE1JV*, ZS5JK*, VJ2SB*, JZ0PB*, CO-2ZS*, TG9AD*, VFSBL*, TG9AL*, HR2DK*, YNICJ*, HL9KT*, 5RX, VQ9GU*, 7LZ, VK-0IJ*, OA4ER*, DU1FR*, VP6KL*, BV1US*, KR6JF*, JZ0PB*, HL9KT*, XZ2SY*, ZLIARB/ZCS*, CE3HL*, LUSAH*, PY1BG*, PY5AM*, TG9HB*, ZE1JV*, HK4AQ*, OA4AO, CX2CC, ZS5FG, WIA-L2022: CO2ZS, HR2MC, JZ0PB, MP4BCC, YNICJ, ZS6AJH, 4X4JU. Rod de Balfour: the pickings of his list being UA1DZ, ZD1DC, ZS, VQ2SB, CN2BK, CN8IG, 5A5PO, FA8CF, MP4BCC, HL9KT, AP2AD, XZ2DY, KM, KX, KW, YV3BJ, HK4HW, HK3FV, ZP-5JP, OA4EU, CEABP, PY5AM, LUSAH, XQ-8AG, YN1JR, YNICJ, H18GA, HC1GC, HR2MC, TI2RCC, VP1NW, VP9L.

28 Mc.: 2QL: VQ2RG*, OQ5IG, JA*, CE-3AC*, UA0GF*, G*, VS9MA*, UA3HI, KW6CE, KP4ANZ, KX6CW, KL7. 4DO: W, JA, UA0GF, KH6. 4XJ: all in VK/ZL Contest: G*, GI*, GW*, GM*, ON*, SM*, DJ*, OH*, UR2BU, 4X4IX*, VQ2SB*, HK7LX*, TG9AD*, VS1GZ*, KR*, LU8*. JA*, CR7DU, ZE4JH*, ZS*. W*, VE*, on phone, and on c.w. additional were: OK*, UA1DZ*, SP3PL*, PA, CX9AJ*, VU2AJ*, VQ4FK*, U18AG*, OK1LM*, UB5UW*, UA1BE*. 5WP: HS1B*, OH*, G, CN2BK*, VU2AC*, MP-4BCC*, 4X4IK*, UR2BU*, ZP5JP*, LU8FP*, FK8AU*, ZS8I*. 7LZ: W, KH6BYR*. WIA-L2022: CO2US, KL7MF, TI2LA, UA0LA, VE, FK8AS, FK8AU, G, GI, HK7LX, LU2WB, TI-2OE, TG9AD, UA1DZ, ZS2DY, ZS5OA. Rod de Balfour: VE, JA, KA, FV2CK, HK7LX, CX-3BH, ZP5JP, HK7AB, VS1EJ, VS1AF, VS2DQ, DU1GF, FK8, 4X4IX, 4X4HK, VP3HAG, TG-9AD, YN1JR, CN2AX, GF, KW6CB.

QSL SITUATION

QSLs to hand are 2AGH: UC2CB, Y03FT, UA1BE, FY7PF, 3A2CD, HA5BI. 2AMB: FS7RT, 20W: 4X4GY, XW8AI. 3QL: UO5PF, HC4IM, XZ2TH, FS7RT, GC2CNC, VP2VB, ZC4IK, VP-2VG, EA8BF. 5RX: XE1RM, VP9Y. 7LZ: VS-9MA, PZ1AP, VP2DC. BERS195: CR7DQ, FU-8AE, MP4BCK, UA0AZ, UH8BA, VK0AT, XZ-2TH, 4X4GY, FB8CD/C, LU3EX, UA3CC, UC-2EB, U18KBF, VU2AJ, ZS5RO. WIA-L2063: VS1HU.

QTH OF POSSIBLE VALUE
 SV0WAE—H. T. Cogburn, HM/1, USCGC Cour- tier, WAGR410, APO223, New York.
 VP8BJ—QSL via R.S.G.B. Station Sth. Georgia. 9K2AT—Box 223, Kuwait.
 F2CB/FC—G. Baris, Caserne Batestti, Ajac-clo, Corsica.
 ZD7SE—C/o. P.O. St. Helena.

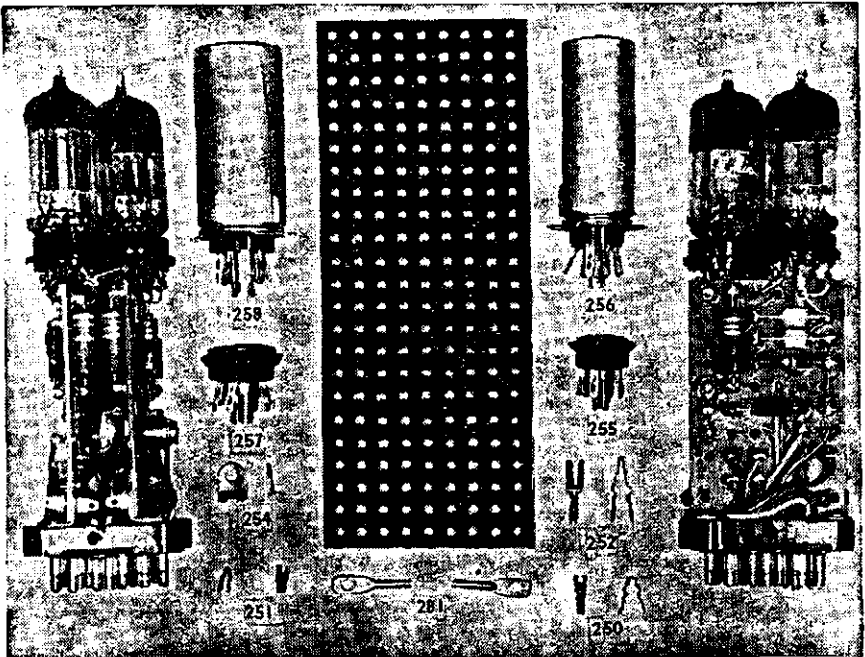
The next lot of notes will be the last from me as the guiding hand of this column. I originally took it from Hans for an estimated 12 months whilst he was away, but I find that with the growth of the VK2 QSL Bureau and these notes, both of which I am attempting to do to ensure all are happy, that the burden has become too heavy. Fortunately for me, without any extensive arm-twisting, John VK2ZR, has volunteered to fill the breach. He is well known on the DX bands, so I appeal to you to give him the support you have given me, so for the notes due end of December, please address them to John Pinnell, VK2ZR, 15 Summit Ave., Earlwood, N.S.W., and for those who have been ringing notes to me you can still do it by dialling UW 4248.

My thanks this month for their help go to W4KVX for the valuable DX Bulletin, 2A0H who is still adding new ones, at the moment being on 218, 2AMB pleased with his GS1RT QSL, 20W now with 123 countries up his sleeve. 2ZR who when I started this issue, like me, had no idea he would be commencing them in 1959. Many thanks John. 3AOM, I have no news of, other than his list, 4DO whose XYL wore her feet out window-shopping in Sydney, glad to see you both Hal. 4XJ who found 28 Mc. satisfactory for the VK/ZL Contest. 5RX once more for his QSP of 5WP and 5RX. Keep it up to John please Ray. 5WO who did not fade out on me this time, 7LZ now a happy man with Zone 35 tucked away at last. BERS195 who has had a spell at Nhill in November. What's it like for DX Eric? WIA-L2001, WIA-L2022 and WIA-L2048 all active members of the S.w.I. VK2 Group; WIA-L3063 making his rx earn its keep, and last but not least, Rod de Balfour from the "Apple Isle" with 85 countries for the month.

As this will be the issue you will all see before the festive season, the next one being too late, may I wish you one and all the best of season's greetings and many new ones for 1959.—73.

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 Fed. Secretary: L. D. Bowle, VK3DU, Box 2611W, G.P.O., Melbourne, C.I., Vic.
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 Victoria—Dave Wardlaw, VK3ADW.
 Queensland—Arthur Walz, VK4AW.
 South Australia—Rex Richards, VK5DO.
 Western Australia—Ron Hugo, VK6KW.
 Tasmania—Doug Fisher, VK7AB.
 Papua-New Guinea—Russ Coleston, VK9XK.
 Fed. Contest Committee: Reg. Harris, VK5RR, Secretary, Box 1234K, G.P.O., Adelaide, S.A.
 QSL Bureau: R. E. Jones, VK3RJ, 23 Landale Street, Box Hill, E.11, Vic.
 Awards Manager: A. G. Weynton, VK3XU, 5 York Street, Bonbeach, Vic.

NEW SOUTH WALES

President: Perc. Healy, VK2APQ.
 Secretary: Norm Beard, VK2ALJ, Box 1734, G.P.O., Sydney.
 Meeting Night: Fourth Friday of each month at Science House, Gloucester Street, Sydney.
 QSL Bureau: Box 1734, G.P.O., Sydney. Frank Hine, VK2QL, Manager; assisted by Allan Smith, VK2AIR.
 Zone Correspondents: North Coast and Tablelands: Noel Hanson, VK2AHH, Ryan Ave., West Kempsey; Hunter Branch: R. W. Rose, VK2AQR, 17 Brooks St., West Wallsend; Coalfields and Lakes: H. Hawkins, VK-2YL, 9 Comfort Ave., Cessnock; Western: W. Stitt, VK2WH, "Cambijowa," Forbes; South Coast & Southern: E. Fisher, VK2DY, 2 Oxlade St., Warrarong; Sth. Western: J. W. S. Edge, VK2AJQ, Wallace St., Coolamon; Tamworth: S. Smith, VK2APS, 50 Upper St., Tamworth.

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President: F. G. Ball, VK3YS.
 Secretary: J. R. Lancaster, VK3JL.

N.O.T.E.S

Administrative Secretary: Mrs. May, C.O.R. House, 191 Queen St., Melbourne.
 Meeting Night: First Wednesday of each month at the Radio School, Royal Melbourne Technical College.
 Divisional Sub-Editor: V. M. Jones, VK3YE, 7 New St., Surrey Hills, E.10.
 QSL Bureau: Inwards and Outwards—W.I.A., 191 Queen St., Melbourne, C.I., Vic.
 Zone Correspondents: Western: W. J. Kinsella, VK3AXW, Magdala, Lubeck; South Western: W. Wines, 48 Cranley St., Warrnambool, and W. Zimmer, VK3AWZ, 70 Skene St., Newtown; Far North Western: M. Folle, VK3GZ, 101 Lemon Ave., Mildura; Midlands: R. Jonasson, VK3ND, Farnsworth St., Castlemaine; North Eastern: L. Ellason, VK3ALE, 72 Orr St., Shepparton; Eastern: J. Spark, VK3AJK, 20 Marshall Ave., Moe.

QUEENSLAND

President: John Pickles, VK4FP.
 Secretary: W. J. Rafter, VK4PR, Box 338J, G.P.O., Brisbane.
 Meeting Night: Fourth Friday in each month at the State Service Union Rooms, Elizabeth Street, Brisbane.
 Divisional Sub-Editor: A. Simpson, VK4ZAE, Cr. Baden Powell and White Sts., Everton Park.
 QSL Bureau: Jack Files, VK4JF, Vanda St., Buranda.

Zone Correspondents: Maryborough: R. J. Glassop, VK4BG, 80 North St., Maryborough; Townsville: R. K. Wilson, VK4RW, Hogan St., Stuart, Townsville.

SOUTH AUSTRALIA

President: B. W. Austin, VK5CA.
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 Meeting Night: Second Tuesday of each month at 17 Waymouth St., Adelaide.
 Divisional Sub-Editor: E. C. Daw, VK5EF, P.O. Box 44, Gawler, S.A.
 QSL Bureau: G. Luxton, VK5RX, 27 Belair Rd., West Mitcham, S.A. (Inwards & Outwards)

WESTERN AUSTRALIA

President: L. Roeger, VK6HR.
 Secretary: J. R. Elms, VK6BE, Box N1002, G.P.O., Perth, W.A.
 Meeting Night: Third Tuesday of month at Perth Tech. College Annex, Mounts Bay Rd.
 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: P. E. L. Dunne, VK7PD.
 Secretary: K. E. Millin, VK7KA, Box 371B, G.P.O., Hobart.
 Meeting Night: First Wednesday of each month at W.I.A. Clubroom, 147 Liverpool St., Hobart.
 Divisional Sub-Editor: W. W. Watson, VK7YY, 58 Brooker Ave., Moonah.
 QSL Bureau: J. Batchler, VK7JB, 39 Willowdene Ave., Lower Sandy Bay, Hobart.
 Zone Correspondent: North Western Zone—Terry Tongs. Northern Zone—Ray Waldon.

PAPUA—NEW GUINEA

President: P. N. Nolan, VK9FN.
 Secretary: G. A. Greville, WIA-L9004.
 Divisional Sub-Editor: E. Clark, WIA-L9001, P.O. Box 204, Port Moresby.
 QSL Bureau: D. S. Brown, VK9SB.

FEDERAL

EXTENSION OF USE OF 50-54 Mc. BAND

As a result of an application from the Federal Executive of the W.I.A., the Postmaster-General's Department has agreed to the use of the 50-54 Mc. band by Australian Amateurs for an extended period to 31st December, 1959, conditional upon relinquishment thereof on one month's notice if such action should prove necessary.

Use of this band was granted for the Geophysical Year which at the time of application was to officially end on 31st December, 1958. The current extension for the use of the band will permit another twelve months in which Amateurs can continue their activities in relation to geophysical data collecting.

For economic reasons, the Department will not officially notify every licensed Amateur and have asked the W.I.A. that the provision be circulated through "Amateur Radio" and over W.I.A. Divisional Broadcasts.

CONTEST CALENDAR

Compiled by W.I.A. Fed. Contest Com.



ROSS HULL MEMORIAL V.H.F.:

Date: 1st Dec., 1958, to 31st Jan., 1959.
 Bands: All v.h.f. bands.
 Rules: Same as for 1958-57.
 Special Award for greatest distance over 3,000 miles.

NATIONAL FIELD DAY:

Date: Sunday, 25th January, 1959.
 Bands: (1) H.F. (2) V.H.F.
 Rules: As published in Sept. "A.R.," page 16.

B.E.R.U., C.W.:

Date: 0001 GMT, 17th Jan., to 2359 GMT, 18th Jan., 1959.
 Bands: 3.5, 7, 14, 21, and 28 Mc.
 Rules: As for 1958.

W.A.E.D.C.

Date: C.W.—2100 GMT, 9th Jan., to 2100 GMT, 11th Jan., 1959.
 Bands: 3.5, 7, 14, 21, and 28 Mc.
 Note: Owing to lack of support last year to the Phone Section, this section has been deleted this year.

OK DX CONTEST:

Date: December, 1958.
 Bands: All h.f. bands.

FEDERAL QSL BUREAU

Oscar Reyes Sosa, Carmen No. 277, Vibora, Havana, Cuba, an s.w.l. is anxious to receive a letter from any Australian s.w.l.

Davis A. Helton, WOPME, of Jefferson City, Missouri, U.S.A., writes: "I would like to pass some information that might be of value to 80 metre men in the VK/ZL area. For the past few years there has been a South American b.c. station harmonic that rolls in here on 3512 Kc. whenever conditions are favorable for any DX at all. I do not know if it can be heard in your area, but it serves as a good beacon at times during the evening hours and builds up to S7 in the mornings and takes out any VK or ZL who happens to choose that frequency. It is hopeless to try and work through it. VK/ZL signals are best here on 80 metres during the September/March period from 1100 to 1300 GMT . . ."

GGGNL is heard regularly on 14 Mc. c.w. and the operator, Maurice Frost, sends his best wishes to those VK operators who served with him in 456 Sqdn. R.A.A.F., during World War II. Maurice is now at 15 Northbourne St., Hayes Bromley, Kent, England.

The Liga Dos Amadores De Radio De Angola, Caixa Postal 484, Luanda, Angola, desire to hear from any VK station who has not received a QSL for an Angola contact. They will remedy the situation speedily they say.

The V.E.R.O.N. (Netherlands Section of the I.A.R.U.) Traffic Bureau, Box 8011, The Hague, Netherlands, sends a long list of the awards issued by that body. Anyone interested may obtain the information from the VK Awards Manager to whom the list has been passed.

Rob Gurr, VK5RG, ex-VK1RG of Macquarie Island, dawdled through Melbourne during late October and early November. Rob has taken an appointment with the New Guinea Public Service in a radio capacity and will be stationed at Port Moresby. Rob has moved all his gear including XYL and son and expects to be part of the scenery for many years. His call sign, which he expects to air prominently and frequently, will be VK9RO.
 —Ray Jones, VK3RJ, Manager.

FEDERAL AWARDS

DXCC—BRITISH PHOENIX ISLANDS

Up to the present the British Phoenix Islands have been omitted from the DXCC List of Countries and this has been brought about by the fact that there has been a misunderstanding of the actual conditions which exist there.

The position is that Canton Island, the principal island in the Group, and the one that has caused the difficulty, is under the joint

jurisdiction of Great Britain and the U.S.A. It is an international airport and personnel on this island are permitted to use the prefixes VR and KB6, depending upon their individual nationality.

Effective 1st November, 1958, therefore, the position is:

1. All credits already established for VR1 and KB6 stations located on Canton Island will be credited to British Phoenix Group.
2. Credits already established for KB6 stations operating in the American Phoenix Group will be credited to that group.
3. All future credits for British Phoenix Is. and American Phoenix Is. will be treated as two distinct countries.

It should be noted that all claims for American Phoenix Is. cannot be based on contacts with stations operating on Canton Is. This is primarily in British Phoenix and will be thus credited.

Records will be amended to give credit to British Phoenix Is. where DXCC members have already submitted QSLs for contacts on Canton Island. Anyone not having credit for American Phoenix may now proceed to secure the credit.

DXCC COUNTRIES LIST FOR I.A.R.U. USE

As already indicated, a list of countries for DXCC use on I.A.R.U. members is being prepared for submission to the other two members of the committee, viz. the R.S.G.B. and the A.R.R.L.

Pending the completion of this list and its ultimate acceptance by the committee, there will be no further changes in the W.I.A. List of Countries.

APPLICATIONS FOR W.B.E. AWARD

Intending applicants are again reminded that all applications must be accompanied by a money order made out in favour of the R.S.G.B., payable in London, for the sum of seven shillings sterling currency.

—G. Weynton, VK3XU, Manager.

SILENT KEY

It is with deep regret that we record the passing of:—

VK3DP—Jim Farrer, Oct. 25.

VK4HM—Harold J. Murphy.

NEW SOUTH WALES

Attendance at the October monthly meeting was the highest yet, some 150 members gathered to hear a lecture and demonstration by John Moyle on Stereophonic Sound. Business was cut short to allow time for this popular lecture. The main items were membership and a discussion resulting from correspondence to and from the Dept. of Education.

The President reported that the 1000th member was the Canberra Radio Society. The number was now over the 1000 mark, which included individual members of the Society. It was decided that a committee be formed to deal with the question of liaison with schools.

John Moyle covered the principles of recording and reproduction of stereo sound on discs and then demonstrated its effect by playing recordings designed to display the life-like reproduction of trains, motor cars, orchestras and opera. It was certainly effective, the thunder of trains in subways and shunting in goods yards brought startled faces to the doorway from a meeting held in another room. All agreed that the demonstration was so effective that the smell of smoke was the only effect lacking.

W.I.C.E.N. NOTES

The Wireless Institute Civil Emergency Network held an extensive exercise on Nov. 4. The exercises, held in conjunction with the Civil Defence Organisation of N.S.W., took the form of a discussion on liaison between W.I.C.E.N. and C.D.O. throughout the State.

The Civil Defence Organisation had requested their country controllers be present in the shacks of their local W.I.C.E.N. stations. W.I.C.E.N. had arranged for country Amateurs to also invite any civic authority along to listen to the network in operation. The network used two frequencies in the h.f. bands and two in the v.h.f. bands, VK2W1, the Division's station at Dural, was remotely controlled from a portable station located in the offices of the Civil Defence Organisation in the heart of the city.

The outward control link operated on the 5 metre band and was used to control and modulate the Dural transmitters operating on 3573 and 7050 Kc. simultaneously. The return link to C.D.O. headquarters was on 2 metres and returned the combined output from two receivers—one on each of the net frequencies—from Dural. The whole system was completely automatic in that the four transmitters and three receivers in use were all controlled by a single switch at C.D.O. headquarters.

Forty-one stations, stretching from the Queensland border to the Victorian border and into far west of the State, were in the hook-up. Some transmitted on 3573 and others on 7050 Kc. and despite a bad night with abnormally high static level, the exercise was a complete success.

The Director of the Civil Defence Organisation and members of his headquarters staff were able to speak from their office in Sydney to many of their representatives in country centres. In many of the country W.I.C.E.N. shacks, the local Mayor or his Deputy were able to hear for themselves the potential of the W.I.C.E.N. network in operation.

The exercise proved the effectiveness of remotely controlling the transmitters and receivers by means of v.h.f. links from a location where the noise level from neon signs, etc., would have made it impossible to receive any but the strongest signals from country stations. It also proved to many of our civil authorities the part W.I.C.E.N. can play in times of need.

HUNTER BRANCH

Things have now quietened down considerably after a busy month of Annual Dinner, Field Day, monthly and social meetings. A distinguished visitor in the presence of Muriel 2A1A, called at 2ZL and 2AQR shacks as well as calling in at our monthly meeting: congratulations, boys, you behaved like real gentlemen—astounding what the presence of the opposite sex does.

The usual monthly meeting was quite an informal affair and the following enjoyed an excellent session of slides of New Zealand: 2AHA, 2ANA, 2SF, 2CN, 2ZDL, 2RJ, 2ZMO, 2AEE, 2AFA, 2ADS, 2ZDS, 2QB, 2A1A, 2ZL, 2AQR with associates Sutherland, Bailey, Rugg, Davis, Gray, Broad, Connors, Jefferson, Bergman, MacLachlan, Stobbs, Hall and last but not least, Mrs. Otty (Netta to you) who came along to keep an eye on Muriel and Bill. Wal, the Terrigal Tiger, was in fine fettle and gave a commentary (per tape) on the first eighty slides which were of the north island. Dave ZL2BZ obliged with a description of the final eighty slides which were of the south island. Who operated the gong? Wal won't tell me, but it had beautiful modulation.

All present enjoyed the viewing which were of excellent quality and the voice reproduction true and well enunciated. Thanks Wal and Dave for the opportunity of seeing so much of the shakey isles, the few extras at the end were by courtesy of Norm Otty and depicted shots of Dural, Blackalls and the 2ZL-2AQR duo on one of Bill's puff-puffs.

The business of the meeting was short and acting secretary Sutherland (live-wire Gordon) read the minutes and a resolution that the sum of five guineas be donated to that all-important I.T.U. Fund was passed without dissent. Apologies were received from 2XT (who stayed home to guard his JA souvenirs), 2XQ, 2ARV and Ron Roberts. A new associate, Robert Hall, was admitted to the fold.

In reporting on the dinner-cum-field day, Gordon thanked several helpers, but whilst a job like this cannot be run without those willing horses it was undeniable that the organising, time and keeping the XYLs pacified, rested on Gordon's shoulders and I can only repeat what has been said before—Thanks Gordon for a job well done.

Blackalls field day information received too late to be included last month is as follows: Lionel 2CS assured the gang that the hidden tx was not sitting on top of Sugarloaf, but it may well have been for all the notice that was taken of it and as a consolation Lionel went from the summit to the ridiculous and placed the tx a few yards away from the starting line. Could hear the sardonic laughter way out at Westy when he saw the hunters shooting out of the park in the pursuit of something left behind. The honour went to Varley 2SF, but did you actually track it down, Varley, or were you just limping home in disgust and, well, there it was. Harold 2AHA was walker-up. The quiz was won by Dave and Mrs. 2BZ; guess the freq., 2ZDC; toss the coin, Mrs. Davis; nail driving, Mrs. Sparke; lucky number, Diane Davis; junior op., Ken Scott and the Lloyd girls.

Understand that there were 91 at the field day and who was it who heard Gordon tell some lads that he was looking for unlicensed t.v. sets with that 144 Mc. thing in his hand?

The social night at Bill 2XT's was also a film display of his sojourn in JA-land and much was the envy of the gear Bill brought back with him. Much amusement was derived from a couple of toys and it was no wonder that 2AQR could hardly speak next day. The secret is to cause the tonsils to oscillate. Had the pleasure of meeting Jack Hamilton, the voice of 2ASJ, for the first time. A visitor to 2ZL this month was Allen and George of 2AMY—Allen refused to play billiards with 2AQR, but George challenged Bill, however there wasn't time for Bill to get a hiding.

The ex-boy from Bomaderry has been working on 40 under the call sign of VR2DI and is enjoying himself over there.

Congratulations to "A.R." for their excellent October issue, pity the good work couldn't be continued.

Doubt if there will be a social affair at 2XT's this month due to the festive season, but listen to 2AWK for the latest news. The monthly meeting will take place at 8 p.m. on Dec. 12 at Tighes Hill University of Technology.

To all you chaps who take time off to read these notes, I wish you a Merry Xmas and a Prosperous New Year.

BLUE MOUNTAINS SECTION

Formed in January of this year, the Blue Mountains Radio Club was an unusual organisation. There were no office-bearers, no constitution, and no fees to be paid. A purely social gathering of Mountains Amateurs was held at the home of one or the other of the members once a month. However, as interest and members increased, it was decided to choose a central location for meetings and the R.S.L. Hall, Springwood, was selected. It was decided to make the club open to members from Amateurs, S.W.'s and interested parties in the Blue Mountains, Emu Plains and surrounding areas.

In May this year, the Blue Mountains Club became extinct as such and became the Blue Mountains section of the W.I.A., N.S.W. Division. The following office-bearers were elected: President, Wal Cromie, 2MZ; Secretary, Bill Moore, 2HZ; Treasurer, Norm Durham, 2QA; Publicity Officer (and your scribe), Bob Lear 2ASZ.

Members who have attended the meetings to date include: Syd 2AVK, Bill 2ACP, Con 2LZ, Don 2ART, Keith 2ABK, Dave 2VK, 2HZ, 2MZ, 2ASZ, 2QA, 2EX, 2NN, 2RM, Derek (Doc) Boyd, Malcolm Mobbs, John Snell, and quite a lengthy list of others.

Doings of the club include endeavours to set up Emergency Bushfire Communications Networks and a regular club sked is held on 3573 Kc. at 1930 hrs. E.A.S.T. each Thursday evening. Experiments have been carried out using

5 and 2 mx walkie-talkies and base stations and are proceeding apace. We hope by the time summer heat brings on the danger period, we will be equipped to meet any contingency.

Meetings are held on the third Friday of every month and all interested are invited to attend.

On October 26, we held our first official field day at Catalina Park, Katoomba. It was attended by over 100 people and an interesting day was had by all (we hope). The day kicked off at 9 a.m. with Syd 2AVK struggling with an antiquated furnace which consumed wood and produced hot water all day in huge amounts for cups of tea. By the time the first event got under way at 10.30 the area was a vast parking station which put Pitt Street to shame. (No meters, happily.)

Beams waving in the breeze, the hounds choofed off in all directions, each following his nose. However, it was 55 mins. later when Dave 2AWZ unearthed the wily foxes John and Wal, admiring the Three Sisters from Sublime Point Lookout. Closely following was Ron 2ZBG and a little later by Bob 2OA, who at one stage found he could see the fox across a several hundred feet deep gorge.

After lunch, the 2 mx boys swung into operation again and in a hotly contested Scramble, 2ZCF, 2AWZ and 2WJ each made 15 contacts, the cup being carried off by Dick 2ZCF, who, incidentally, carried home the prize of the day, a half-ton genemotor requiring the resources of Bunnerong Powerhouse to run it. We're looking out for a great big mobile signal from him now.

At the same time the 7 Mc. Scramble was also in operation and on a very quiet band, was won by Jack 2ALQ who carried off the cup. Second was Bob 2ASZ and third Nev. 2DR.

Many of the ladies and harmonics vanished from OM's view on a conducted bus tour of the beauty spots and returned happy at 4 p.m. Hidden tx blindfold hunts and other competitions were going on meanwhile. Prizes were handed out to all at 4.30 p.m. and we hope all went home vowing to come again next year. See you all next month. 73.—2ASZ.

VICTORIA

Big things took place at the last meeting night. Firstly the special general meeting considered the recommendations of Council regarding the increase of fees to meet rising costs, and secondly we took a world tour with our Federal Secretary, Doug 3DU, who has just returned to this fair land of ours.

The special meeting was quite a lively affair as a number of the fraternity had been objections to parting with the extra required.

Most of the points raised against the rise were very forcibly put, especially the thoughts about avenues for economy and all should be re-submitted for further consideration at a later date, and not left to languish. However, the fact remains that the incomings are not enough to meet the outgoings, and the situation is calling for attention.

After all the No candidates had had their say, there was very little time left for the Yes men to speak, and rather than delay the issue further, the motion was put to the vote. The vote was almost a unanimous Yes, indicating that the majority is prepared to pay the extra to partake of what the Institute has to offer. The country vote was also very much behind the increase so it looks as though we are for it. However, as the President pointed out, unity is strength and although we grizzle at the cost the Institute is steadily forging ahead and bringing us benefits which we are inclined to overlook.

No one likes to have to fork out more for his hobby, but apart from a few relatively minor economies which need to be followed up, there seems to be no alternative but to grin and bear it.

Nevertheless, there is a definite limit to which we can go with this sort of thing and we should be on our toes to keep things within bounds by "stopping the leaks" as several speakers remarked.

Having disposed of this very necessary but distasteful subject, we passed on to the item which everyone had been waiting for: the illustrated lecture by our Federal Secretary on his recent world tour.

As you know, Doug arranged to take the I.A.R.U. conference at Bad Godesburg into his itinerary for the express purpose of putting our case to the conference and gathering information pertinent to our representation at the forthcoming I.A.R.U. conference in Geneva. This is the I.T.U. conference we have heard so much about of late and is the one our representative will attend providing the present fund is fully subscribed. (Keep at it chaps.)

On his way to the conference, Doug called on quite a number of Wireless Societies throughout the world in places like Ireland, England, France, Germany, Russia, India, Malaya and America. These visits were to exchange greetings and ideas. As a result of these efforts on Doug's part, Region 3, and particularly VK, should now be well on the map.

It may not be generally known that the W.I.A. was not in favour of sending a representative to the next I.T.U. conference originally owing to the cost. However, as all other zones favoured the move, the W.I.A. fell into line in true democratic fashion. Doug found that this move on our part was very much appreciated wherever he went.

Our Fed. Sec. certainly must have left his mark as he came home positively loaded with souvenirs and such like of the Societies he visited and each was produced for our inspection at the appropriate stage of the lecture. There were badges and cards, awards and equipment and a pair of penants for our President, to mention just a few. We even heard a message from Ferry Williams, of the A.R.R.L., on tape.

In support of his remarks, Doug also showed us some superb slides of the places he visited in his very extensive travels. Quite a number of these places were well off the beaten track and were something very new to most of us arm-chair travellers. We travelled from Singapore to India, to Germany and then Russia, and with Doug's breezy commentary to guide us along the trip was really most enjoyable. It would be difficult to choose the most interesting place of them all, but to quite a few I feel the Russian scenes held a

keen appeal. I, for one, felt extreme surprise at the architectural beauty of the place. Most of our impressions of overseas countries and their people seem to be drawn from newspapers I am afraid and it is surprising how far off the beam we can get from these sources. That was the impression I gained from quite a number of the places seen and described.

Good old English still seems to be one of the principal means of communication wherever one goes. At the conference which Doug attended, the proceedings were translated into English, French and German, and most of the delegates were able to get by on these. I find it hard enough to struggle with one.

The places covered in the talk were so many and so varied and the time so short to absorb it all, that I feel a bit in a whirl.

Many thanks Doug for a very instructive and informative talk. The job you have done for us on this trip has laid solid foundations for the things to come next year and we are extremely grateful. Our thanks also to Mrs. Bowle for donating so much of her husband's time to the cause. Your reward will probably come in heaven, Mrs. Bowle.

There were four visitors to the meeting, but missed their names in the rush. Sorry blokes.

New members admitted were: Full Member—J. M. Howden (SZCH); Associates—T. W. Mitchell, I. L. Gorsuch, J. F. Kell and A. K. Sanders.

Among the new members mentioned last month was Russell Rolla, whose call sign appeared incorrectly; his correct call is 3ZGR.

The December meeting will no doubt take the usual form of the Christmas meeting, so keep the night free.

WESTERN ZONE

Members of the Zone were all very sorry to hear that Jim Farrer, 3DP, of Deep Lead (via Stawell) had passed away on October 25. Our Annual Convention is to be held in Horsham on December 14. It will be a one-day affair and final arrangements will be made over the hook-ups held on Wednesday nights in the 80 metre band. We will be pleased to welcome all visitors.

NORTH EASTERN ZONE

The Annual Convention of the Zone was held on Sunday, Nov. 2, in the auditorium of radio station 3SR, Shepparton. The meeting was presided over by Bruce 3AGG who had been elected only a fortnight ago to the position of Vice-President. Secretary for the day was Les 3ALE who did a good job; pity he wasn't elected permanently. I may add that the meeting was very lively, "just like a meeting of the magazine committee," was one comment heard.

Various subjects were brought before the meeting and were debated at length, so much so that the chairman had to apply the gag to keep the meeting moving in the proper direction.

At the conclusion of the general business, the chairman called for a minute's silence in memory of Alan Rodger, VK3UI, who recently joined the ranks of "Silent Keys".

The meeting was adjourned to the foyer of 3SR where a swap-disposal session took place. Somebody remarked that Les would find it hard to get on the air without all the junk he had brought along. OK Les, I'll take it up some time with you if you can catch me.

Lunch time adjournment was to the local reserve, just down the road a little. Quite a few people with harmonics and XYLs to swell the number, enjoyed a picnic lunch. Others went home and were not seen again for the rest of the afternoon.

A visit to the transmitting station of Radio Australia took up most of the afternoon and the day closed with the Melbourne gang saying "Au Revour's" and the members wended their weary ways homeward.

Among the missing was Alec 3AT who has been bitten by the photographic bug and is rarely heard on the air these days. Syd 3CI must have forgotten the date; I think should have reminded you when I was in last week. Syd. For those interested, Syd works the JA's consistently on six metres, but always has the time for local contacts on this band.

Andy 3FD must have thought he would be made zone correspondent because he had a beaut excuse! Tom 3TS and George 3GD were absent. I can't think up a good excuse for you two fellows, but please remember you were missed. To the rest I don't know or have failed to mention, you were all missed by your absence, your smile and your wings. Remember a strong Convention is a strong Zone. This Zone won a trophy for being the most progressive Zone once. Let's do it again.

Zone hook-up, Monday nights at 8 on 80 metres. All shift workers excused.

EASTERN ZONE

We regret to learn that George 3ZCG cannot carry on as notes correspondent due to pressure of work and being absent from the zone for periods. We welcome back to the zone hook-ups Graham 3QZ. David 3DY was active on 40 mx mobile during October, however now inactive while building power supply for 813. Peter 3ZDP, Reg 3ZCR, Stan 3ZAB, George 3ZCG still active on 2 and 8 mx, while Peter 3ZDP, George 3ZCG working KV4s, and JAs on 8. Hear Ron 3PR working 40 mx lately. S.w.'s. All McKrell and Ken Robertson are busy modifying recently-acquired Command receivers.

GEELONG AMATEUR RADIO CLUB

Activities in the club still continue at an all-time high. Membership is increasing steadily and to cope with this increase, a well arranged syllabus, morae classes and tutorial evenings cater for all enthusiasts.

Alf 3AJF gave an enlightening lecture on the subject of rx fault finding, stressing the need for simple test equipment, a thorough knowledge of circuitry and what to expect from various components which could be at fault.

We always welcome a visitor from Melbourne and George 3WJ lectured to us on the nationally important topic of civil defence. Many facets of this important subject were covered and members here are more enthused than before on maintenance of equipment and its constant use.

A tx hunt was held on 80 mx in the Geelong area one evening recently. Bob 3IC and K. Vriens took out the equipment. There were six cars taking part.

We were indeed honoured when the Federal President (Max Hull), George Glover and Reg

Greetings

TO WISH ALL FELLOW SCRIBES

the following:—

- (a) Good Health to You and Yours,
- (b) Happiness for ditto.
- (c) Good Fortune ditto ditto.

If you have (a) and (b), (c) is a pushover

★ ★

FOR 1959 — — A TOAST!

"Here's to double spacing and wider margins on all your copy, and be early or else . . ."

Sub-Editors Mk. I., II., III., and IV.

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and

a Prosperous New Year

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Bush paid us a further visit to discuss our local aspects of civil defence.

Max outlined the aims of civil defence briefly and spoke most emphatically on the I.T.U. and its significance to us. George and Reg gave the details of the new civil defence organisation and many local matters were cleared up. A tasty supper concluded a memorable evening.

288 Mc. activity continues apace with 3ABT, 3BU and 3ABK. The general time for skeds on Sunday at 7.30 p.m., commencing on 80 mx first.

Amongst visitors welcomed recently were Messrs T. Kelly, G. Clingh, E. Holloway, C. Heemsberk, P. Costa, and J. Watts (50M) of Adelaide.

You can imagine how pleased Arch 3BW, of Fortarlington, was when 30 of our members descended on him to spend an evening recently. Arch needs no introduction, but his range of gear was well worth seeing. Some nice contacts were obtained on all bands. A most pleasant and profitable evening was concluded by Mrs. 3BW and our thanks are extended to Arch and Lois for their hospitality.

QUEENSLAND

With the year rapidly drawing to a close, final arrangements are being made for our Xmas Party. Our thanks go to the organisers, Frank 4ZM and Arthur 4AW, and, providing you give your support, the show should be as good as ever! It will be held at Anzac House on the second Saturday in December. Come along, have a rag-chew and supplement your diet from tables laden with excellent cuisine. A good time is assured and every Ham and Radio enthusiast is welcome.

The October Council meeting was inundated with considerable business which, fortunately, was fairly straight forward and speedily dispensed. At the meeting Stan 4SA applied for a 3-month leave of absence. He informed Council members that he would be going south for a holiday and would commence classes again next year. Altogether thirteen students sat for the last examination (A.O.C.P. and A.O.L.C.P.) which reflects very favourably, considering that Stan has organised everything at his home, where students receive practical and theoretical instruction! Good work Stan and good luck students!

The Communicators are still very much to the fore and these days v.h.f. is coming into its own. Hot and lively discussions keep the boys on their toes and give incentive to those rising in the ranks. A number of A.O.L.C.P. holders have recently aspired to achieving a measure of consistent communication by sitting for their Morse exam. Good luck boys. Construction of the Communicators is still progressing and interested parties are requested to contact Jack 4JO. The V.h.f. Society meeting is held at 4JO's QTH on the third Friday of the month at 8 p.m. Remember to fill in your v.h.f. logs as requested by Bruce 4ZBD, Chairman of the V.h.f. Society, and send them in immediately. Get behind this move to save the 6 mx band! Remember that while the m.u.f. occasionally takes in the 6 mx band, rarely does it extend past it. If you lose 6 mx you lose your occasional DX. So what about it boys?

Council was informed by Bert 4AO that the head of Air-Sea Rescue, Mr. Coleman, was very disappointed on learning that only a small percentage of Hams listed in the Call Book were active. Council members thought, as the Dept. of Civil Aviation would like to enlist the co-operation of Hams generally, that members seriously consider digging out gear for emergency use. It would appear from reports that the Amateur in Queensland still has an important role to fill during the coming cyclone season, so prepare for it now!

Council noted with regret the passing of another old-timer, Harold Murphy, 4HM. He had an active interest in W.I.A. matters until ill health forced him to retire. He was Divisional President at the time of his retirement in 1954 and all who knew him will be saddened by his death.

At this time of the year it is as well to start thinking about filling the gaps in the ranks of office-bearers. Many of the chaps on Council have been serving for a good many years and they deserve a good rest. This Division is expanding and doubtless more personnel will be required to carry on as the work of Council becomes larger. Division of labor among several, makes the work of one man easy. So what about giving your support in a practical way!

The last general meeting was well attended and several raffles were held. A small multi-meter about the size and shape of a fountain pen was donated by Everett Brown and won by our Hon. Sec. The meeting was informed that unfortunately the City Council could not make available the Old Observatory for use by

OBITUARY

JIM FARRER, VK8DP

It is with regret that we record the passing of Jim Farrer, VK8DP, of Deep Lead (via Stawell), on October 25. Jim had not been enjoying the best of health for some time, but he had improved, and it was thought that he was on the mend. However, this was not to be and the end came suddenly.

Jim was of a quiet, kindly nature, always willing to do a good turn for anybody, so was very popular in this district. He saw Active Service with the Air Force in the Middle East as a Wireless-Air Gunner. His plane was shot down in Burma and he was badly injured. Perhaps it was this experience that hastened Jim's passing.

Our deepest sympathy goes to Jim's wife, Myrtle.

HAROLD JAMES MURPHY, VK4HM

Harold Murphy was born in Sydney on 5/2/1899 and entered the Commonwealth Public Service as messenger on 21/6/1918. He rose through the ranks as telegraphist, postal clerk, postmaster, and finished his service with the P.M.G. Dept. as Inspector of Metropolitan Postal Services. He then transferred to the newly formed Commonwealth Employment Service and at the time of his death was Chief Employment Officer for Queensland.

Harold obtained his A.O.C.P. in 1934 and first appeared on the Amateur bands in 1936 when as postmaster at Ilfracombe he took out the Amateur call sign VK4HM. He often spoke of how in those days he had many contacts with another old-timer, Ed. Hagarty, VK4WH, who was at that time in the Post Office at Longreach.

In 1938 he was transferred to Pomona and operated from there for a short time until the war put an end to his activity.

In April 1946, at Wooloowin, he again came on the air and operated from that address until ill health put a stop to his Amateur activities early in 1957.

It was during these last eleven years that Harold became really well known. He was purely a o.w. man and his copper plate sending at any speed up to 85 w.p.m. was as renowned on the Amateur bands as it was throughout the P.M.G. Dept. In the days before the war, he worked more DX than most Amateurs and could have obtained DXCC twice over from the number of cards he had collected, but never bothered to count. This was more exceptional than it seems at first sight as he was xtal controlled on 14 Mc. band only, and used only a vertical dipole for transmitting. Perhaps the high quality of his sending may have had a strong bearing on this.

He was a member of the Queensland Division of long standing and became President in 1953, but the first onslaught of the illness, which eventually caused his death, forced him to resign about halfway through his term. He remained a financial member of the Division nevertheless, and in moral support made up for the physical support he would have so much liked to give.

He counted amongst his extra special friends in the Amateur community Edmund Waddell, VK4GZ, and often spoke of the long and frequent QSOs they had together.

All who were associated with him will sympathise with his family and mourn his loss for he was a true gentleman who observed the "Amateur's Code" in all phases of his life.

the Institute. The City Council decided that, as it was one of the few remaining buildings of early Brisbane, it would be kept vacant instead, to preserve its historic identity. Other plans for a possible hq. are being investigated at present.

General business was taken up largely by v.h.f. discussion centering around the 6 mx band. After a prolonged discussion, standing orders were suspended and the meeting was duly closed at 10.30 approx.

At the meeting, our President, John 4FF, announced that he would not be taking the chair at the next general meeting as he plans a motoring holiday in New Zealand. Bon voyage John.

TOWNSVILLE

The club meeting held on Thursday, Oct. 30, was very well attended, although most members came in very late. We were happy

to entertain three visitors, namely George 2AUR from Sydney, of cubical quad fame, who flatly refused to be drawn into any arguments; Jim Shaw, who returned from his sojourn in Antarctica last year, and George De La Harpe, who has been studying at the local Ionospheric Prediction Service in preparation to go to Wilkes in the new year. Bob 4ZAY was due to give a lecture at this meeting, but he slipped out from under and persuaded Jim Shaw to show his color slides and give a talk on Antarctica, which was really pleasing to see and hear. The slides were very clear, no dust or smog to dim the view. George, who hopes to have a VK0 call sign for Wilkes, promises to give the Townsville boys a turn when he hears them.

Clive 4CC hopes to sign VK0CC from Macquarie Island; finally made it at last, Clive! Remember the gang up here in your spare and idle moments. Bob 4MF very busy repairing the house and not much time to spare for local ragchews; his co-partner, 4FF, comes on occasionally to cheer him up. Very happy to report on Secretary, Eddie 4WH, who has been in and out of hospital for minor op., and came along to the meeting. Bob 4TK still being hard worked at the mill and home, and unable to pen the 7 Mc. notes. Claude 4ZY, in Cairns, now being on retired list, is always listening for a ragchew on 7 Mc. which he heartily enjoys while his good wife Alice remains discreetly in the background. It is said the absence of 4ZW is due to no modulation transformer; use the key sometime and keep in practice. Eric 4EL holidaying in the south, managed to get to the monthly meeting in Brisbane and pick up some QSL cards for the boys; enjoying his stay at the seaside.

Vern 4LK and the other boys busy copying logs of 50 Mc. activity during the L.G.Y. year for retention of this band for future use. Don 4FW called in on the hook recently and enquired re Japanese tubes which he has, while Frank 4FN looked for him with the data. Very sorry to hear that Frank 8FN has resigned all positions he held in the W.I.A. and will be only a backbencher. I have listened to Frank for many years over 4WI and 8WI and he certainly did yeoman service to the Institute in gathering news and answering queries in the hook-up.

It is pleasing to report good signals are coming through from 4WI as the gremlins have all been killed by Bert; he certainly had a tussle to do them all over and now, as John 4DK would say, "loud and clear".

Charlie Barr, who passed the previous technician examination, was successful in the Morse this time. Congrats! The other two, Bob Conway 4ZAY and Bert Blekholt, patiently waiting for the postman to bring tidings of good luck. To my many wisecracking friends I have to report my DX score stands: Open 192, Phone 164, C.W. 156, subject of course being verified by Gordon 3KU. I'll make that double century some day, hi.

The powers that be are to be congratulated indeed on the very fine Anniversary Issue. It was really splendid and please keep it going in this fine style.

To one and all, I wish you a Merry Xmas and a Happy New Year loaded with plenty of DX. 73, Bob 4RW.

SOUTH AUSTRALIA

As a result of President Brian 5CA going walk-about and being in some remote romantic spot at the date of our last meeting (complete with new bride and old portable rig) Senior Vice-President Lloyd 5OK conducted the meeting. Eight visitors were welcomed including Ted 5JE, Lance 5ZBC and G3FKO, who by the way is on a tour of duty in VK5, so we may hear him on the air soon.

Of the eight visitors, that wiley old fox Norm signed six of them to membership. We don't always do that to visitors, but it is a stak they take.

86 were present to hear (and see) a talk given by Len 5OC (and 5OB in case that's how you work him) on a trip he did from Edinburgh Airlfield to U.K. and back in some remarkable jet plane, the number of which suggested a near sputnik. The very casual way Len covered some of the, to us, remarkable features of the trip gave an idea of just how blasé air travellers of the future will become.

One of the difficulties of the trip was to give the meals a name, for due to the direction of travel and speeds of same, the time between meals was normal but "ground time" appeared to stand still; result, dinner was being eaten in correct travel rotation, but at breakfast time down below.

The coloured slides illustrating the highlights were first class, which belied the "first time I've done this sort of thing" that Len tried to put over us. The vote of thanks given by

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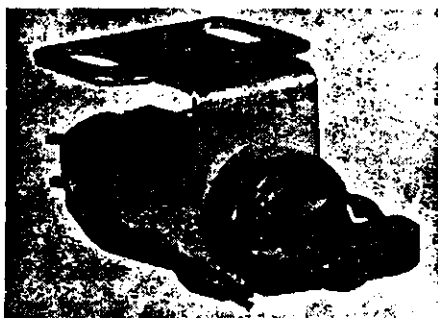
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Rex SDO was well received and indicated by its warmth that the programme which had been deferred for some time was worth waiting for.

The A.O.C.P. class is still in process of forming, so any of you who have not lined up, or given your intentions to Norm, should do so now to get into the class and not miss any lectures.

Joe SJO is still causing his friends and relatives some concern, and he appears a long way from well. We are battling for you Joe, and hope the various medicine men can continue to help you.

During the month your scribe also went walk-about and visited some of the North and Western areas, so naturally a few shacks were entered. The first was at Laura where we were looked after by Austin SWO, whose very charming family administered to our comfort.

Austin has quite a set-up there, and an ideal DX layout, the efficiency of which he can demonstrate with either QSL cards or go on the air and prove it. He did both, and during the evening kept a sked on 20 with his W friend Floyd, then on 10 to G2YL (yes, a lady too) and then to wind up got into a net on 80 mx with Doc SMD and Bram 5AB. It would take too long to describe the gear, we will have to get him to do that with a photo for publication some day, but it is well set up. 100 watts on 80 through to 10, a 3 el. wide-spaced beam on 20, with a centre fed flat top for the rest. The v.f.o. is placed alongside the rx (an SX100) and the switching and netting controls placed in the right spot for quick use.

A nice set-up and he is to be congratulated on it all. Since our visit it has been learned that a severe wind storm caused the collapse of the tower and a lot of damage to the beam. Hope by now it is all restored to normal.

The next seen was Wal SDF, who first of all conducted a tour of the 50 cycle generating plant, where a very interesting "look see" was done. Wally has his gear set up "table top" style right in the lounge—no back room for him—and puts a lot of us to shame by having, and using, a home-brew rx! A nice piece of gear it is too and has all the gadgets for QSing, b.f.o., noise limiting, double conversion and so on and a dial that really works. Not to be uncertain of anything a smart set-up of wavemeter (heterodyne) and monitor for both phone and c.w., which he has on all the time, completes a picture of how a station should be run. Incidentally, Mrs. SDF makes a nice cake and cuppa, we thank her for hospitality.

Tried to talk that old fox George SKJ into getting something going, he has not been on the bands since leaving Alice Springs, and as his QTH at the A.B.C. set-up at Port Lincoln includes a magnificent tower about 85 ft. high, and not in use, would be a sitter for some smart v.h.f. work if nothing else. So far efforts in that direction not successful.

Pat SLT of course could not be overlooked, although we did not get around to his home QTH to see the new cubical quad in embryo, a 3 el. is doing the job now and keeping him happy on 20.

I nearly forgot, remember the bowls trophies Wal SDF mentioned once? Right, I saw them, touched them, and after an examination of a profile of the operator consider he is eligible and obviously did win them at that game.

On the return, Ern SEN came under the microscope, when he left Jan in charge and we went off to view the doings. Quite a set-up there, too, the antenna farm is dominated by a tower topped at 80 ft. with a long yagi on 2, at 80 ft, a 3 el. on 10, then 10 ft. down a 3 el. on 15, and at a humble 40 ft. a 3 el. on 20. As a point of interest, all these sky squirts as well as an end fed flat top for 40 and 80 are fed with open wire line. Try and talk him in to coax someone, he won't have a bar of it, wanting to nurse all these precious dB's, and not lose a fraction of them.

Inside gear consists of 807's on the d.c. bands, 807's on 4 and 820B on 2, with rx's an AR7 and 14-tube home-brew double conversion job taking pride of place. Once again a keen type who has done well at a rx job. A fancy converter covering 10, 6, 2 and 1 ahead of either rx completes that side of it with a panadapter and scope standing by to cover modulation checking and a "watch" on the bands.

A very enthusiastic fellow who has made a name for himself in contest work and has the gear to do it, and a QTH right in the open where QRM is at a low level.

Thanks to you boys generally for courtesies extended.

News from Burnie 5WC indicates the Club not in their new quarters yet, and for the present operating from Burnie's QTH.

GSJHC, Bob Langfield, whom you will recall spent some time with us last year and got his VK5 call the day before departure for U.K., is on 15 at GS and looking for VK5 contacts on c.w. What about you Gordon?

Tom 5TL now at Renmark and not at Alice Springs chaps, he is still getting calls from DX operators looking for that Northern Territory card. VK8 would be good Tom and clear that problem.

When in QSO from Wal SDF with 5AB and Doc SMD, got mixed up and switched Bram to VK6, quick change that; Ray 5AC, who was also on the hook, reckons I would make a good Ham. Steady on, Ray, might catch up with you some day, anyway will check with Doc on that possibility.

George SGS heard recently checking a new small mobile rig with Les 5AX, and during the testing Jack 5LH joined in to thus link up with Les after a 15-year gap! Were they excited, don't know if this displays some grey-beard tendencies or just what, but speaks well for continued interest in the hobby. As an illustration perhaps of "grey bearding" Les recently heard a 5 x 9 signal on 10 so he netted carefully, turned his beam on the appropriate spot and then when clear called, and called, and called, but no reply. Reason? Found his tx wasn't on 10 anyway. Bad luck Les, that line noise must be a real worry.

Geoff 6RH has started up his series gated modulator, sounds OK too, carrier control not a bad idea, but makes the S meter do some tricks. Rob 5RG has taken a new appointment in N.G. so look out for a new VK8 some day. Tiger for punishment Rob, last time it was ice in VK9, what next fellow?

Des 5DK, now 7DK, has settled in to his new location and likes it. He is looking for VK5 contacts on c.w.—Gordon will be busy. A rush of portables lately have included Keith 5KH and Ken 5KC, who operating from Norton Summit and Black Springs respectively, put in fine sigs at Gawler.

Len 5OC was recently done over by Gordon 5KU who found Len putting more stones in still more places, but reckons he has about the best QTH for take off, h.f. not jets, but then Len built it there with that idea in mind, so he was not surprised to hear someone say it was ideal.

TASMANIA

NORTH-WESTERN ZONE

Christmas is fast approaching and yet another year will soon be behind us with its achievements or otherwise to look back on. Naturally we will look forward to better and brighter things in the new one. You know, bigger and better DX, and all the rest, particularly interesting to "dyed in the wool" Hams.

Last month the first of our instructional nights was held in our usual meeting place and for a "first night" it was a huge success and a real credit to the organisers. A score or more chaps rolled up and were treated firstly to a good lecture on the many and varied uses of the trusty g.d.o., by George TXL, who also gave practical demonstrations where possible. Truly a versatile instrument the same g.d.o.

Peter TPF gave a very vivid demonstration with an ingenious piece of test equipment from which you could hear the electrons and gremlins racing round the circuits. He produced quite healthy sparks between leads and demonstrated magnetic attraction by inducing a piece of wire to "chase" a chair.

Lee TKC portable worked Harold TMZ on 288 Mc. and both interestingly explained their transceivers. Only 2 watts input and they have worked distances of almost 100 miles. I think some of the boys are contemplating similar rigs; even Athol 7LR stated that he would like to have a go on v.h.f. I can see a v.h.f. tx hunt in the not too distant future.

Roy TRN brought along a block of h.f. converters and Max Ives said a few words about an indicating wave meter which covers from 3 to 30 megas, with the one tapped coil. Harold looks like becoming our new auctioneer as he did a good job of disposing of the few articles which were produced for sale. Once again a goodly supper was enjoyed by all present and our President moved a vote of thanks for our Secretary's XYL who did a lone job in preparing it for us.

Chassis for the mobile rigs for the Burnie Fire Brigade were on display, finished in nice grey hammertone; some of the Devonport boys had a working bee and produced them recently. Shouldn't be long now before the Burnie Fire Brigade are working "mobile".

Another 80 mx tx hunt is mooted for early in December, details will be discussed at the next meeting, so best the d.f. gear is given a run, chaps, with perhaps a few improved innovations added. I think the time for finding can be reduced don't you?

The best bit of news for this month is that our worthy Secretary, also "yours truly", were successful in obtaining our A.O.C.P., and we

are both filling in the necessary forms as fast as possible. It is to be hoped that we can find a photographer game enough to take our pictures.

Trust some of you will answer our pleading calls of CQ some time in the near future.

NORTHERN ZONE

Well chaps, here we are again, all reorganised with our new President Geoff (Associate) and Treasurer cum Secretary, Max 7CA. After commenting rather too strongly on the lack of notes from the North, I now find myself (Associate Ray) with the job of writing them—so here goes with my first effort.

We now hold our meetings at each member's home, taken in turn, on the second Friday of every month at 8 o'clock or thereabouts. I am sure that all prefer the homely atmosphere to a hall in the city. Everyone gets a turn as host and as mentioned by a voice from the back row, we all get a chance to spy on his secret projects.

At the October meeting, which was held at the home of Max 7CA, there was a good muster of members, also a very welcome visitor in the person of George 7GC, who made about a 60-mile round trip to be present.

Max's very neat station and t.v. set were the subject of much admiration by us associates. Guess we will have to press on with the studies and get that A.O.C.P., fellows!

The weather was unkind—no temperature inversions, etc., and also no t.v., probably just as well as I reckon it may have held up the meeting quite a lot. At the close of the meeting a very nice supper was provided by Max's XYL.

Incidentally, I believe that the higher frequencies are to receive a bit of a bashing shortly as fox hunts on 144 megs. are to commence again in the north, so get all those beams and super regens. out of mothballs for a polish, chaps.

Len TBQ and Col TLZ are burning the midnight oil working on 288 meg. rigs in preparation for a first contact with VK3 land. How about a few more giving it a go too?

The next meeting will be held at my place at 11 Mayne Street, Invermay on Nov. 14, so turn up in full force fellows, everyone welcome.—Ray Waldon.

PAPUA-NEW GUINEA

There has been more activity on the bands here this month as conditions have greatly improved in this region. Bill 9BW has been chasing the DX with his new quad and is putting out a nice signal, too. Nice work, Bill! Bill works 14 and 21 Mc. Doug 9SE has been up on 10 mx lately and is very pleased with the results. This band really opened up early in the week. Doug has only been a short time, and he only has twelve contacts confirmed, but ten of these are different countries. When he settles in to the new QTH he will put up a beam. I believe it's to be another quad. These are beginning to be popular up here.

Frank 9FN has been on the bands again and working DX quite recently. How's the new AR88 performing Frank? Bob 9 Roger (ah choo) Roger, is very active on 21 megs., hope the cold is better now Bob and by the way, you are putting a much better signal into Boroko with the ground plane; we can read the call sign now and it's pleasant copy. Bill 9WP is back from leave and has been on the air and putting a good signal into Moresby. Welcome home, Bill.

We have a new member in the name of Pat 9CP, who is living in Kavieng, a hearty welcome to the Division, Pat, and hope your stay with us will be a pleasant one. We hope you will be able to join in the Sunday morning hook-up. Bob 9BS did not get to Rabaul as was anticipated, he was recalled by his employer and now he is playing with that black gold. George 9GV is the proud father of a daughter, I think it was we don't hear George on the air much now he's too busy walking the floor. Arch 9GB is on the bands again after a long spell and has been heard working a little DX. How about calling in on Sunday mornings, Arch? Norm 9NT must have gone bush as I haven't heard him for some time. Maybe you have shifted to the new QTH Norm and haven't got that beam up yet.

Reg 9SP is back on the job and can be heard working out of the jungle. It's time we had a visit from you Reg and break a few 807's together. The QSL position has been very quiet this month with no outgoing cards at all and very few incoming. Everybody must have writer's cramp. The QSL Manager will be available each Sunday and will mainly be looking for tit-bits for the column. Don't forget the monthly meeting is the last Wednesday of the month at the R.S.L. Rooms, so until then, 73 and happy hamming.

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