

# R S G B

AUGUST, 1958

## BULLETIN

2/6 Monthly

JOURNAL OF THE RADIO SOCIETY OF GREAT BRITAIN

VOL. 34, NO. 2

### K. W. ELECTRONICS Ltd.

*for Service and Complete Satisfaction*



VP9EH (ex G3LKS) operating his Geloso receiver and K.W. Vanguard

#### The K. W. VANGUARD 50 watt Transmitter for A.M. and C.W.

IN KIT FORM. Complete Kit incl. valves, V.F.O. and cabinet 10-80 m. 48 gns. Basic Kit. Same as above but less V.F.O., valves and cabinet 30 gns. Complete Kit plus modification for 160 m. 50 gns.  
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#### GELOSO EQUIPMENT

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4/103. 2 metre V.F.O./Crystal driver Unit for 832. Expected shortly. Orders being taken for delivery in strict rotation £5 10s. 0d., less valves. Dial and escutcheon £2 7s. 6d.  
4/104. (Ex stock) 80, 40, 20, 15, 11, 10 to drive single 807. Provision for keying unit. £5 17s. 6d. less valves. Dial and escutcheon £2 7s. 6d.  
4/101. £5 12s. 6d.; 4/102. £5 17s. 6d. Dial and escutcheon for 4/101 and 2 35/-.  
G209 RECEIVER, for Sideband A.M. and C.W. including Valves and 4 Crystals (immediate delivery) 83 gns. Microphones from 3 gns. K.W. Low Pass Filter, 75 ohms. £3 17s. 6d.; High Pass Filter, 17s. 6d.; Multi-band Aerial with traps, incl. 75 ft. semi-airspaced co-ax. £6 5s. 0d.; Pair traps only, with "T" insulator, £3 2s. 6d.

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- ★ DX Operation a Real Pleasure

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Wilmington,  
Dartford, Kent,  
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Points which have impressed me most are the reports of excellent modulation, the smart appearance of the station and an overall performance which makes DX operation a real pleasure.

I have no hesitation in recommending this fine equipment to prospective buyers in the U.K. and Overseas.

73's

*R.W. Poultney*

R.W. Poultney VP9EH (ex G3LKS)

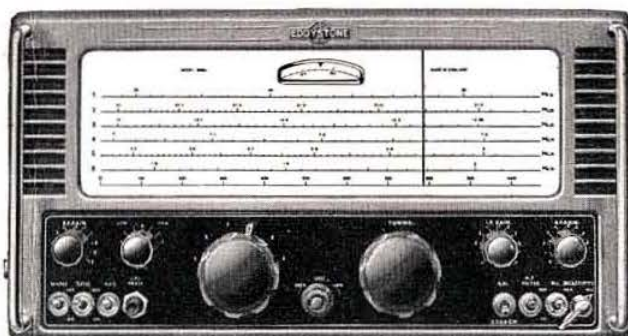
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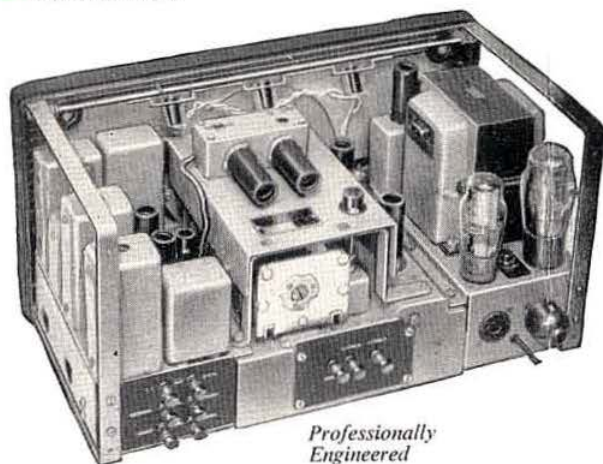
**SELECTIVITY** variable from 30 dB to 60 dB down, 5 kc/s off resonance. Audio filter attenuates 32 dB for signal only 250 cycles off resonance.

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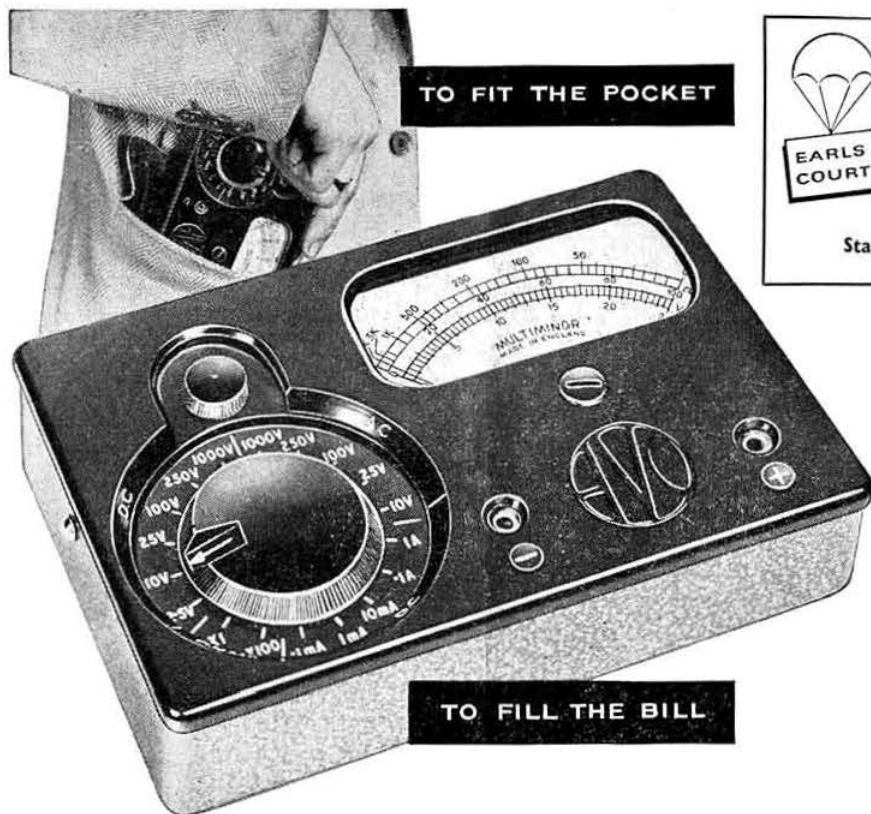
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4% " " " " " A.C.

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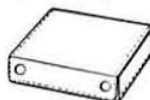
D.C. Voltage	A.C. Voltage
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0—2.5V.	0—25V.
0—10 V.	0—100V.
0—25 V.	0—250V.
0—100 V.	0—1000V.
0—250 V.	
0—1000 V.	
D.C. Current	
0—100 $\mu$ A	
0—1mA	
0—10mA	
0—100mA	
0—1A	
Resistance	
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0—2M $\Omega$	

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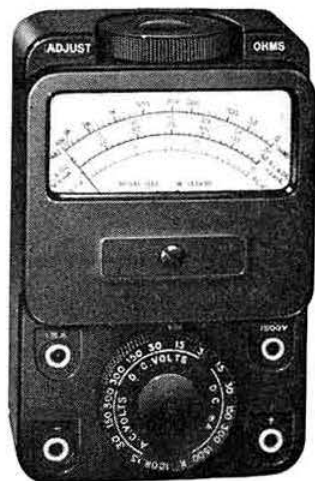
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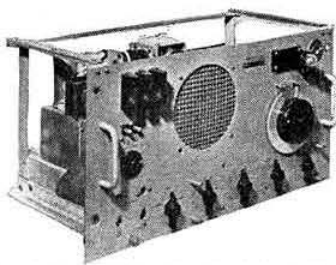
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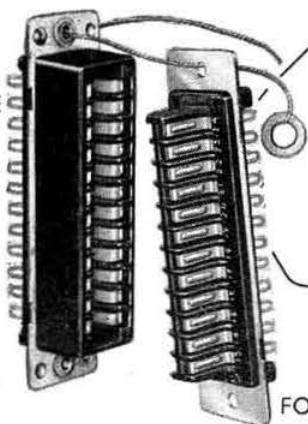
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# Current Comment

*discusses topics of the day*



## *The Bad Godesberg Conference*

THE Conference held in Bad Godesberg, Germany, last month emphasized that there now exists among the International Amateur Radio Union Societies in the European portion of Region I an understanding that was sadly lacking in the years just after the last war. At that time the R.S.G.B. was carrying the full brunt of I.A.R.U. Region I representation. Today some sixteen European Societies are closely associated with the work of Region I Division.

The most satisfactory feature of the recent Conference was the clear indication which had been given by most European Government administrations that, in general, they would support at the forthcoming Administrative Radio Conference in Geneva a policy of status quo insofar as amateur frequencies are concerned.

There seems little likelihood that frequencies in the Top Band will become generally available to amateurs in Europe but those of us who live in Great Britain and Northern Ireland can rest assured that the members of the United Kingdom Government delegation to the Geneva Conference will do all in their power to ensure that the present derogation footnote in the Atlantic City frequency allocation table (which enables the G.P.O. to assign up to 200 kc/s in the band 1715-2000 kc/s to the Amateur Service) remains in the final Geneva text.

It is not expected that the position in regard to the 3.5-3.8 Mc/s band will be materially altered at Geneva although it is known that certain European societies favour a smaller exclusively-amateur band in preference to the present shared allocation. One or two other societies consider that an all-out effort should be made to solicit official support for the whole band to be made an exclusively-amateur allocation. It is the view of the R.S.G.B. that it is better for amateurs to share 300 kc/s with other services rather than to give up, say, 200 kc/s in anticipation that the remaining 100 kc/s will be sacrosanct to the Amateur Service.

The continued operation of "intruders" in the exclusively-amateur portion of the present 7 Mc/s band was severely criticised at the Bad Godesberg Conference. A report on the work being done by the R.S.G.B. Intruder Watch under Major D. W. J. Haylock (G3ADZ) aroused much interest, as did the news that, as the result of reports from the Intruder Watch, the G.P.O. had been able on several occasions to persuade other administrations to move "intruders" out of exclusively-amateur bands. The future of the 7 Mc/s band is, to a very large extent, tied up with the requirements of the Broadcast Service, but most of the societies in Europe are hopeful that if the political position does not deteriorate the status quo will be maintained, with

perhaps a derogation footnote permitting amateurs to use frequencies in the band 7.15 to 7.3 Mc/s on a shared, non-interference, basis with broadcasting.

In regard to the other DX bands it seems clear that, unless there is a complete change of outlook, most of the European administrations will support a proposal that the present 14, 21 and 28 Mc/s allocations shall remain exclusively-amateur. It was reported at the Conference that several European Societies had asked their administrations to support a proposal that amateurs should be permitted to operate around 50 Mc/s. The R.S.G.B. delegates had to explain that no support for such a proposal can be expected from the United Kingdom delegation to Geneva in view of the use of frequencies around 50 Mc/s for Band I television.

It was also reported at the Conference that some European administrations will propose that amateurs shall be permitted to operate between 72 and 72.8 Mc/s. (At the moment France and the U.S.S.R. are the only two countries in Region I officially authorized, by virtue of a derogation note appended to the Atlantic City table, to allow amateur operation in the 72 Mc/s band.) Whilst the British Government is unlikely to be able to support this proposal, members will know that U.K. amateurs are to be allowed to continue their occupancy of the band 70.2-70.4 Mc/s.

It would seem that, except for minor changes, European administrations favour status quo for all the currently-available v.h.f. and u.h.f. amateur allocations.

At the time of the Atlantic City Conference and more recently, Headquarters has been aware of rumours concerning the future of this band or that. Our advice to members is to disregard rumours and rely on Headquarters to present an accurate picture of the frequency situation as it develops.

In preparation for the forthcoming Administrative Radio Conference, the Societies represented at Bad Godesberg unanimously decided to request I.A.R.U. Headquarters at West Hartford to take steps to notify the International Telecommunication Union that a team of I.A.R.U. observers has been officially appointed to attend the Conference. The General Secretary of the R.S.G.B. and Major Per-Anders Kinnman, SM5ZD (a Past President of S.S.A.) will lead the delegation with Mr. W. J. Dalmyn (PA0DD) and Mr. Otfried Lührs (DL1KV) as reserves.

The value of the Bad Godesberg Conference was inestimable, for not only did it enable the delegates of all the societies represented to deal collectively with matters of major policy but it also provided them with many opportunities of meeting informally to discuss the ordinary day-to-day happenings of Amateur Radio. The gratitude of the delegates of visiting societies represented at the Conference goes out to D.A.R.C. who as hosts did so much to ensure its success.—J.C.

# A Compact 28 Mc/s Transmitter for Fixed or Mobile Use

By R. F. STEVENS (G2BVN)\*



THE transmitter to be described was built to meet a desire for a simple and small unit that could be used in a modern car, and would also be suitable for use at locations away from the main station. Compactness and flexibility were therefore considered essential and some thought was given as to whether multiband facilities were desirable. This idea was rejected on two counts: the increase in the size and complexity of the unit that would be necessary, and also the need to provide a multiband aerial system suitable for mobile and portable use.

When single band operation had been decided on, there still remained the question . . . which band? The objects in view were (a) reasonably efficient local working, and (b) the chance of DX if conditions were suitable. It appeared to the writer that the 10m band would be the best choice, with the advantage that the aerial system would be compact and yet quite efficient. This factor weighed heavily where mobile operation was concerned as the standard 8 ft. car whip did not require the addition of loading coils, capacity hats or other adornments. However, the design is simple and adaption to another frequency band should present no difficulties.

## General Description

The transmitter incorporates provision for v.f.o. or crystal control; a.m. or c.w. operation; zero beating received signal; built-in aerial and power supply changeover relay giving one switch control; meters reading grid current and p.a. or modulator current.

The maximum input to the p.a. is 15 watts (300 volts at 50 mA), and the total current consumption under modulation conditions is approximately 120 mA at 250 to 300 volts, with a heater current of 1.2 amp. at 12 volts in addition. These modest requirements obviate the need for elaborate power supplies in either mobile or fixed station operation.

The speech amplifier is arranged for carbon microphone input in the cathode circuit of the first valve; a modulator output of 7 watts is obtained with a h.t. voltage of 300. The 12AX7, in class B operation, has a resting anode current of only 10 mA, which is invaluable in cutting down the power required from the car battery. The anode current will rise to 35 mA to 40 mA on modulation peaks, and the total consumption of the speech amplifier and modulator is about 55 mA.

The complete circuit is shown in Fig. 1.

\* 51 Pettits Lane, Romford, Essex.

## Circuit Details

The v.f.o., using an EF91, is conventional with its grid circuit tuned to 7 Mc/s and doubling to give 14 Mc/s output from the anode. No doubt this arrangement will be criticized but it has been found in practice that after an initial warm-up period the v.f.o. is free from drift, and the stability compares favourably with that of most mobile receivers. The precautions taken when constructing any v.f.o. must also be observed in this case, i.e. (a) 16 s.w.g. tinned copper wire is desirable for connecting up; (b) a ceramic valveholder should be used; (c) the tuning condenser should have ceramic insulation, and (d) the mica and ceramic fixed capacitors should be of known good quality.

A regulated supply of 150 volts is provided for the v.f.o. by a VR150/30. In the original unit, this voltage regulator was mounted on the transmitter chassis, but a later arrangement placed this valve in the power supply. The current drain of the v.f.o. is small, and, if desired, a type OA2 regulator could be used. This would require a B7G base and would save a small amount of space.

For crystal controlled operation the single pole on-off switch should be placed in the "crystal" position, and the v.f.o. resonated to approximately the crystal frequency. It has been found that the variation in drive between crystal and v.f.o. operation is negligible.

The second valve, a type 6AH6, doubles from 14 Mc/s to 28 Mc/s and uses a slug tuned coil in its anode circuit. The drive provided by this stage remains constant over a reasonable frequency range, but obviously if a large change is made the coil will need reworking to maintain output. In practice this is not a serious disadvantage as mobile operation is usually centred around one frequency in any particular locality.

The type 6AH6 valve is at present available from surplus sources, but it is not in current manufacture in this country. If desired a type 6AK6 can be substituted with very little difference in performance. If a 6AK6 is used then a pilot light of 6.3 volts 0.3 amp. rating should be connected across pins 3 and 4 to replace the 12 volt pilot light used in the original design. This will compensate for the heater current of the 6AH6, which is 0.45 amp. as against 0.15 amp. for the 6AK6.

A 0-5 mA meter reads the grid current of the 5763 p.a. valve, which will be about 3 mA for normal telephony operation. The anode circuit of this stage utilizes a pi-output designed to match 75 ohm coaxial cable input and the usual tuning procedure for this type of circuit is applicable. The

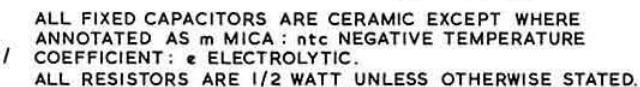


Fig. 1. Circuit diagram of the compact mobile transmitter for 28 Mc/s. The coils are wound as follows: L1, 22 turns 18 s.w.g. enamelled on 1 in. dia. former, turns spaced diameter of wire; L2, 12 turns 24 s.w.g. on  $\frac{3}{4}$  in. diam. dust-iron former, length  $\frac{3}{4}$  in.; L3, 15 turns 24 s.w.g., on  $\frac{3}{4}$  in. diam. dust-iron former, length  $\frac{3}{4}$  in.; L4, 8 turns 18 s.w.g. on 1 in. diam. former, spaced diameter of wire.

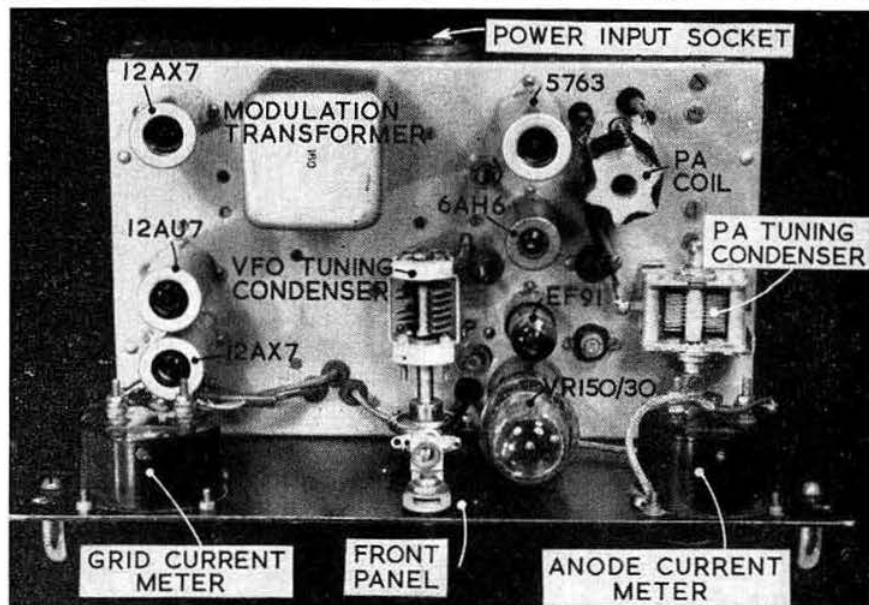


current drawn by the p.a. valve, when correctly loaded into an 8 ft. whip, is in the region of 45 mA, and this is measured by a milliammeter which by operation of a d.p.d.t. toggle switch will also read the modulator anode current.

Keying is effected in the cathode circuit of the 5763, while the ZERO BEAT switch applies h.t. to the v.f.o. only with the TRANSMIT/RECEIVE switch in the receive position. The A.M./C.W. switch removes h.t. from the modulator and shorts the secondary of the modulation transformer. The TRANSMIT/RECEIVE switch controls a d.p.c.o. 12 volt relay, which, in addition to performing the function of aerial changeover, also removes h.t. from the receiver and applies it to the transmitter. With this arrangement it is possible to use a single h.t. supply; both aerial and h.t. connections are first taken to the transmitter and thence to the receiver.

The speech amplifier section employs one half of a 12AX7 in the first stage, the carbon microphone being placed in the cathode circuit, thus obviating the need for an energizing

chassis with reinforced corners measuring 10 in.  $\times$  6 in.  $\times$  2½ in. The front panel size is 12 in.  $\times$  7 in. and the panel and chassis assembly slides into a steel case. The photographs show the layout and although this is straightforward, measures have been taken to confine the r.f. to its proper paths to avoid feedback in the audio section, a fault always to be anticipated in a unit of compact construction designed for the higher frequencies. It will be seen that a screen (of light gauge aluminium) divides the underside of the chassis into two portions; also small screens are placed across the EF91 and 6AH6 valveholders so that the input and output circuits cannot "see" each other. The placing of these screens calls for some care if unwanted short circuits on to the valveholders are to be avoided; the use of heavy gauge material is, however, unnecessary. A small screen is placed across the 5763 valve base to isolate the grid and anode circuits and this is made from fine copper mesh which can be soldered on to the spigot of the valveholder. Short, rigid



This view of the chassis from above shows the neat arrangement of the larger components and valves.

battery. If it is desired to use a high impedance crystal microphone then the second half of the 12AX7 can be used as a voltage amplifier with appropriate changes in the circuit of the input section. Next follows a 12AU7 with the two sections in cascade transformer coupled to a 12AX7 which delivers sufficient output for 100 per cent anode and screen modulation of the 5763. The driver transformer was obtained from a surplus unit, the Amplifier Type 165, and has an overall step-up ratio of approximately 1:4. However the choice of this component was dictated by what was already available and any small transformer of the above type can be used, e.g. Bulgin type L.F.100 or Wearite Hyperloy type 230. If it is desired to avoid the flow of direct current through the primary of the driver transformer parallel feed can be employed, and an anode load resistor of 0.33 Megohm is suggested. The modulation transformer originally formed part of the SCR522 equipment, but, unfortunately, these useful transformers are becoming increasingly difficult to obtain on the surplus market. The anode-to-anode load of the 12AX7 is 10,000 ohms.

#### Construction

The transmitter was constructed on a half hard aluminium

connections should be made wherever possible. Nearly all the power supply leads, meter leads and relay connections should be made with screened wire, the dressing of which calls for care.

Some trouble should be taken with the soldered connections and all leads should be tinned before attachment. Vibration will very quickly uncover any faulty joint, and it is worth while taking a little care to avoid the annoyance of tracing a bad connection in a compactly built unit.

Generous use should be made of disc or tubular ceramic condensers for decoupling purposes and the connecting leads should be kept to an absolute minimum. Chokes RFC1, 2 and 3 are of 2.5 millihenry inductance and the standard type was used in the original unit. Recently, however, the Teletron Co. have introduced r.f. chokes wound on ferrite cores which are but a fraction of the size of the conventional chokes, and the use of the newer type would save an appreciable amount of space. The r.f. choke in the anode circuit of the p.a. valve consists of 30 s.w.g. enamelled copper wire close wound to cover 1½ in. on a length of polystyrene rod of ¼ in. diameter. If desired this choke can be checked with a g.d.o. to confirm its effectiveness.<sup>1</sup>

The layout of the principal parts is shown in the photographs.

The cabinet and chassis—standard units—were obtained from Colmo Ltd., Hall Lane, Aintree, Liverpool 9.

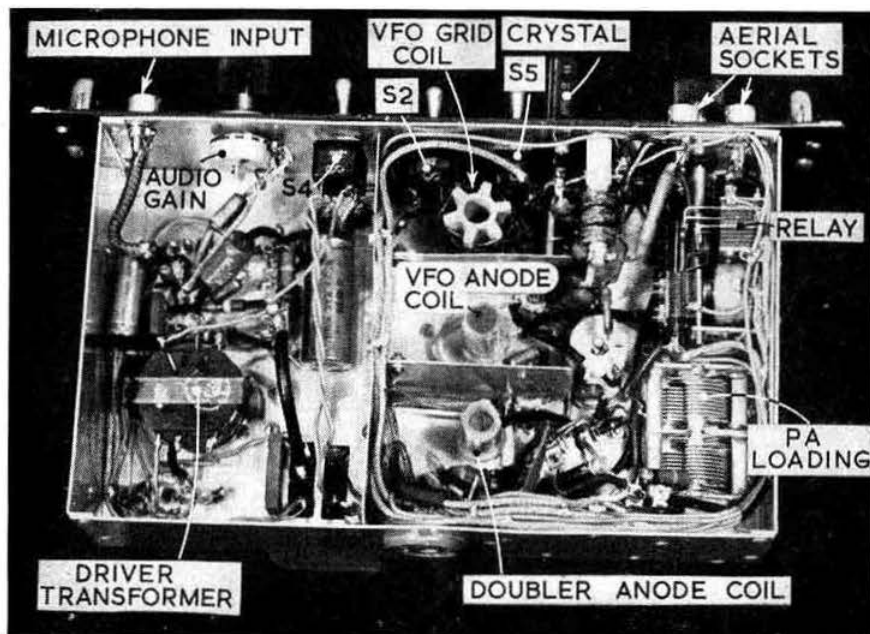
#### Adjustment

The most convenient method of checking the tuned circuits is with a grid dip oscillator but failing this adjustment of the v.f.o. can be made with the aid of the station receiver. To give full coverage of the 28 Mc/s band the grid circuit of the EF91 should tune from 7 to 7.5 Mc/s. The anode circuit should be resonated by means of the trimmer and coil slug to equalize the output as far as possible. The core of the coil in the anode of the 6AH6 should be adjusted for maximum output at, say, 28.5 Mc/s: the drive will not vary materially for some way on either side of this frequency. Once the v.f.o. and doubler circuits have been brought approximately into resonance and a reading obtained on the

a generator obtained from a Type 19 Set installation. The 500 volt brushes were removed. A current of up to 150 mA can be drawn with very little variation in the output voltage of 275. Additional smoothing to that already used with the generator is necessary to reduce receiver interference at 28 Mc/s and the standard methods of suppression are applicable. In the writer's opinion the battery of the modern car is already fully worked and to ease the load a second 12 volt battery is carried, connected in parallel with the original unit. The total battery drain during transmission is in the region of 8 amps.

#### Aerial

The aerial originally used consisted of copper plated steel telescopic sections obtained from surplus sources and carried on a rear bumper mounting. Subsequently a standard 8 ft.



Below chassis view of the compact transmitter with identification of the major components. Note the placement of the various screens.

grid current meter (with the p.a. h.t. off), the final trimming can be made and this should give a maximum of about 4 mA. It is preferable that the initial p.a. adjustment should be made with a dummy load, which can usefully take the form of a low reading r.f. ammeter in series with a 80 ohm non-inductive resistor. Once the settings of the tuning and loading condensers for maximum output have been determined these should be recorded for future reference as they will not substantially alter when a correctly matched aerial of the same impedance is connected to the transmitter.

#### Power Supplies

The unit is intended for both portable and mobile operation and consequently two power supplies are available. The first, operating from a.c. mains, gives 250 to 300 volts at 120 mA and 12 volts d.c. at 1.2 amp. The d.c. heater supply is necessary to operate the transmit/receive relay, and can be obtained with the aid of an inexpensive metal rectifier of the bridge type, the output of which should be smoothed by a 250  $\mu$ F 25 volt d.c. working electrolytic condenser.

The power supply used for mobile operation is built round

car radio aerial was obtained which permitted scuttle mounting, and this gave improved results. The aerial is fed with a quarter wave matching section of 50 ohms co-axial cable (79 in. long) and thence a length of 72 ohm cable to the transmitter. It has been found that a remote pick-up wire connected to an indicator is invaluable for tuning purposes, while a Monimatch [2] will show the ratio of reflected to forward power existing on the feeder.

The receiver used with this unit consists of a Minimixer converter feeding at 1.5 Mc/s into a modified R.25 Command receiver. The sensitivity and stability of the former combined with the noise limiting and squelch facilities built into the latter have produced very satisfactory results and the complete installation has provided the means of making many enjoyable contacts from a number of locations.

#### References

- [1] "Checking R.F. Chokes with the G.D.O.," Johnson, *QST*, February, 1954.
- [2] Monimatch Mark II," McCoy, *QST* February, 1957.

# Amateur Television System Engineering

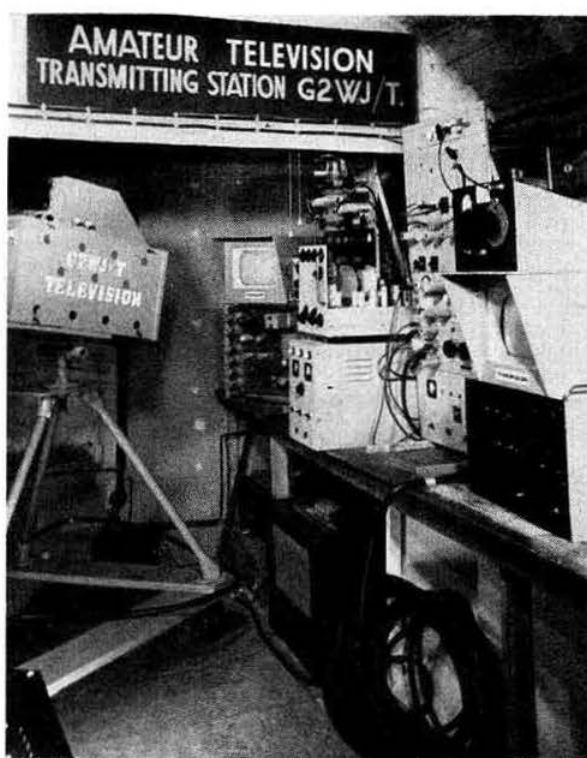
By M. BARLOW (Ex-G3CVO/T)\*

THE constructor of amateur sound communications equipment has little difficulty in designing his complete station on paper at least, since the component parts—transmitter, receiver, power supplies, aerials and so on—are well known and are regularly described in the handbooks and magazines. Station layout has also been covered in many excellent articles, but it will be noticed that there is not much difference between any two station layouts, if money spent and operational details are left out.

In the case of the amateur television transmitter, the situation is much different. The number of articles that have appeared describing such equipment have been few, and mainly restricted to some particular item such as a camera or slide scanner. The would-be constructor who looks up the necessary circuits in the textbooks dealing with professional television equipment [1, 2, 3] is presented with a number of alternatives, all using a large number of valves and components by Amateur Radio standards (and no indication of which parts are really essential to his purpose) where complete reliability and perfection of performance usually comes second to expense involved. Certain of the recent textbooks on industrial television [4] pinpoint the problems, but some of the solutions provided are scarcely applicable to amateur work. In a previous article [5] the author has described very briefly the main building blocks of an amateur television station (Fig. 1). This has been further amplified elsewhere [6]. The purpose of this article is to treat in somewhat more detail the various points that arise in the construction of such a station, being the result of experience over the last eight years or so by the author and his colleagues in the British Amateur Television Club.

## The Scanning System

The choice of scanning system is ordinarily determined by the availability of picture monitors for viewing. In the majority of amateur cases, domestic television sets will be used, and this at once determines the line and field frequencies, aspect ratio of the picture, and possible simplification of the television waveform. Where an absolutely free choice is available, any other system can be used. Thus spiral scanning makes better use of the time available for transmitting picture information, and also makes more use of circular lenses and cathode ray tubes. Assuming that normal rectangular scanning is to be used, with a 4 by 3 aspect ratio, there remains the problem of whether to interlace or not. (Interlacing is a means of dividing the required transmission bandwidth by two for a given number of lines in the picture at the expense of halving the picture repetition frequency; every commercial television broadcast system makes use of it.) This largely depends on whether the television pictures are to be viewed over a closed circuit, or over the air. Unless an extremely strong signal is obtained, or a closed circuit is employed, noise in the radio circuits under amateur conditions will usually prevent any benefit being obtained from interlacing, which depends on very accurate synchronisation. Without the interlace, the picture appears to have only half the normal number of lines—a state of affairs that can be seen to a greater or less extent on many commercial television sets if the frame hold control is incorrectly adjusted. This effect is noticeable over closed circuit equipment, however, provided this is of reasonable quality and performance. If the equipment is so poor that loss of interlace cannot be noticed, then it is obviously a waste of considerable time and money to increase the



A view of one of the best-known Amateur Television stations in the world—G2WJ/T of Dunmow, Essex.

complexity of the equipment to produce a true interlace. If both cable and radio links are used, then a compromise is necessary. To produce an interlace, extra circuitry is required to lock the line and field frequencies together accurately, and to maintain and check the lock. It is firmly suggested that the counter chain required to produce an interlace be left to the last in any constructional programme, as for so many amateur requirements the interlace is not required. In these circumstances the number of lines in the television pictures will be half that normally seen on a commercial programme, and the picture repetition frequency will be doubled. This means that line and field frequencies are not altered anywhere in the system when changing from amateur to commercial (including the B.B.C.!) programmes.

## Picture Distribution

Apart from the true radio transmission of pictures, local television sets can be fed with pictures either at video frequencies or via a low power r.f. transmitter. The first method is simpler from the transmitting end, but two major snags arise at the receivers. The video signal at the detector of an average television set is of the order of 5 volts peak-to-peak. To avoid severe mismatching troubles, giving rise to poor frequency response and spurious pulse reflections, video signals are sent over any distance of more than a few inches by means of a co-axial cable. Such cables are usually of 75 ohms impedance, and for correct operation must be terminated at the far end by a 75 ohm resistor. Very long lines of more than about 30 yards should have effective impedances of 75 ohms at each end, but even in the simpler case, to produce a swing of 5 volts in 75 ohms requires a current change of 65 mA, and this means that the valve feeding the cable needs to be a fairly big one. For this reason it is usual to limit the voltage applied to the cable to

\* 1740 Hartenstein Street, St. Laurent, Montreal, Canada.



1 volt p-p, but this means that an extra amplifier must be fitted to each television set being fed with the local signals. A more serious difficulty arises with the very common a.c./d.c. television set having a live chassis. Nasty shocks and blown fuses can result from numbers of sets being linked by a common co-axial cable. It is not possible to fit isolating condensers without seriously affecting the picture quality.

R.f. distribution is more attractive; a small oscillator or signal generator is tuned to one of the broadcast channels (preferably one not in use locally) and is modulated with the video signal. No modification is necessary to the television sets, and no trouble arises with live chassis. One slight snag is that to obtain a correct picture/sync-amplitude ratio, the sync pulses fed to the modulator should be larger than standard, which may upset other equipment working on the video signal direct. Using a standard input, the sync pulses coming out of the r.f. distribution unit (assuming this is as simple as possible) may be clipped to about half their normal value for positive modulation. This may cause bad synchronising of the receivers unless the r.f. output is increased to such a value that the video stages overload. However, in practice, this difficulty is rarely met. One other advantage of the r.f. distribution is that a similar unit can be used to carry the sound channel, and this may be mixed with the vision r.f. so that both signals arrive at the set over the same cable. It is essential to use a spare channel for any scheme as this, as TVI is almost impossible to avoid otherwise.

In some simple industrial-type cameras [4], the r.f. distribution is from the camera or its control unit direct. This makes for a small and neat unit, but introduces difficulties if another camera or picture source is to be mixed with it. R.f. mixing of pictures is not attractive. In most amateur cases it is recommended that the r.f. distribution units be quite separate from the video equipment. The latter can be used with video-only monitors, and the former brought into use if several television sets are required. Care should be taken that the performance of the r.f. distribution units does not spoil the picture in any way; these units tend to be overlooked until a public demonstration is arranged, and it may then be too late to iron out any troubles.

#### Picture Sources

Possession of a television camera tube is largely a matter of finance. The vidicon type tube [3] is far and away the most suited to amateur use, being small, rugged, sensitive, easy to

adjust, requiring low h.t. and scanning, using simple coils and small lenses. Other types of tube should be carefully considered from the point of view of overall camera size (and thus its tripod), size of lenses used (and thus their cost, and the necessity for special lighting), sensitivity, life and replaceability. In general, unless the amateur has close professional connections, he is well advised to stick to the vidicon. Tubes rejected for minor blemishes are available to *bona fide* amateurs [6], and the picture quality obtainable is quite adequate. It is possible to make a vidicon camera 7 in. long and 2 in. square, but consideration should be given to the problem of viewfinders (electronic or optical), lens turrets, remote control facilities, cable weight, and "talk-back" or intercom. Vidicon tubes are also very easily adapted to the transmission of cine film.

Monoscopes can also be obtained; these are single-picture generating devices (Test Card C, "Normal Service will be resumed, etc.") but are reliable and a useful standby. Little work is required to produce good pictures.

The useful flying spot slide scanner, or the more complex film scanners, can be built from two old television sets [7]. A fair amount of experiment is necessary to get a good picture free from objectionable noise. The system is limited in general to the transmission of transparencies, but these may be either positive or negative. Contrast (gamma) correction [7] is usually required to obtain optimum performance, and this will differ according to whether positives or negatives are being scanned. Some thought must also be given to the polarity of picture suppression pulses if the unit is switchable from positive to negative. The slide scanner is very popular, as it enables captions and so forth to be quickly inserted, besides giving very good results with photographic negatives. Scan reversal switches are useful if the material is loaded incorrectly, or for effects.

Test bars produced by the pulse equipment can be used as an alternative source of pictures; although of doubtful entertainment value, they are easily noticed when tuning up r.f. equipment, or will produce a tone if the television receiver sound channel is tuned to the vision channel. This can often be heard when the signal is too weak to be resolved via the video channel. Over radio links the test bars have the advantage that they cannot be mistaken for breakthrough from commercial television stations. These test patterns are produced very simply [7], and are of the greatest use in the correct setting up of the television system. Amplitude and

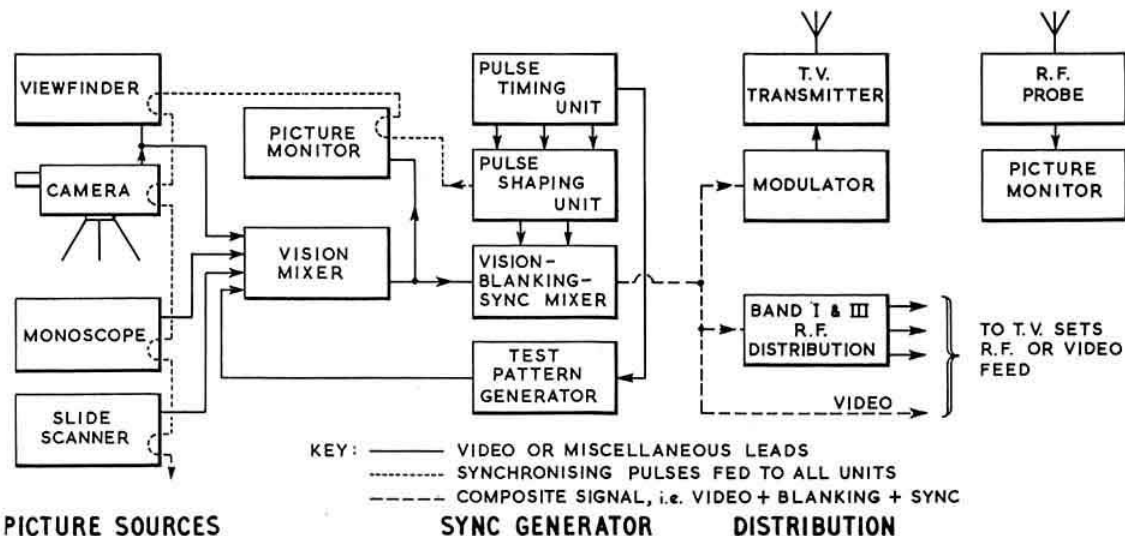


Fig. 1. Block diagram of a complete amateur television station in its most complex form. For simple equipment, many of the blocks can be omitted or combined with others.

phase linearity, frequency response and scan linearity can all be checked this way [3], and the numerous patterns that can be produced have the merit of not requiring any form of true picture source to be in action at all. This is of particular value where the camera equipment is expensive and delicate, as in colour work, for instance.

The local television station signal is a most useful signal to have available. In its r.f. form it can be used to check all the television sets at the amateur station, whilst demodulated it may be assumed to be a perfect signal for quick comparison of line and field frequencies, pulse widths, video amplifier faults and so on. It may also be used as a source of interlaced signals for stations not normally so equipped. It also serves to prove that there is no TVI!

### Pulse Generation

The construction of the synchronising pulse generator often becomes a major project simply because the techniques are unfamiliar to the amateur brought up on communications problems, and because the necessary requirements are not often explained sufficiently. If the picture source and monitors can have common time base circuits, then no synchronising pulses are needed. A development of this is where line and frame sawtooth waveforms are fed to the various units, which each have the necessary output stages. The video waveform is kept quite separate from the sawtooth waveforms. If normal sync (synchronising) pulses are kept separate from the video, much of the complication of the waveform and of the circuitry can be omitted, at the expense of an additional cable between units. In this case the sync pulses need contain merely line and frame pulses, which must be distinguishable from each other. This implies narrow line pulses of the order of 10 per cent. of the line period, and a much broader frame pulse lasting several lines. Unfortunately during these lines the line timebase can get out of step, causing jitter at the top of the picture, but for amateur use it is possible to reduce the frame pulse to one line or less in length. Certain television receivers will still work with such a pulse, but those with critical circuits intended for

the longer pulse will not. If the jitter is objectionable—and as with other points already mentioned, it may not be noticeable unless the overall system performance is quite high—then some circuit complication must be introduced to include line information during the frame pulse. For a non-interlaced system these extra pulses will be at line frequency, but when an interlace is used they must be at twice line frequency [1]. In the 525 and 625-line systems, additional "equalising pulses" are included at twice line frequency before and after the frame pulse. For amateur use the 405-line type of waveform is quite adequate, and can of course be used at 525 or 625-line frequencies.

The development of a synchronising waveform is shown in Fig. 2.

If the video is to be mixed with the synchronising signals to form a "composite" waveform (all video signals are assumed to be composite unless specifically stated to the contrary in common usage) then additional complication is introduced by the necessity of keeping the leading edge of the sync pulses sharp to give good synchronisation. Poor pulse edges can occur due to the finite time taken for the video signal to fall from picture level to sync bottom level. This is overcome by introducing a guard time, known as the "front porch," at black level just before the sync pulse occurs [6]. A similar "back porch" gives time for time-base circuits to fly back, and is also used for reference purposes in clamping and restoring circuits (see later). These porches are produced by generating "blanking" pulses at line and frame frequencies; these consist only of line and frame components, there being no need to insert pulses during the frame interval as this function is performed by the sync pulses. Poor pulse edges can also occur due to the mixing of several video inputs whose signals have travelled over different lengths of cable, so introducing slight delays. Adding blanking will not affect this, so it is usual where several sources are available to mix non-composite signals, then to add blanking and syncs to the final output (Fig. 1). The individual sources may already be "blanked" or suppressed with some pulse, but this will not matter as long as these pulses together with the cable delays are still within the true blanking pulse period, as they will then be removed. In amateur use the synchronising pulses proper are often used for such primary suppression.

The synchronising generator consists of four broad sections: the pulse timing circuits, the pulse shaping and mixing circuits, the video-sync-blanking mixers, and the test waveform generator. To generate the simplest line-and-frame pulse waveform will take only two double triodes, whereas a complete "405-line" (actually 202 lines if the timing unit is omitted) type of waveform will take six or seven [7]. This allows for reasonable reliability with occasional resetting of controls, particularly if valves or components are changed. In multivalve professional generators, the additional complexity is often merely to overcome the effects of valve and component changes.

The vision-blanking-sync mixer will need three or four more valves, and the test waveform generator about the same. The timing unit, however, demands a large number of valves and components if the count, and therefore the interlace, is to remain constant. Each counter will be most reliable if it has only to count by a small number; thus 3, 3, 3, 3, 5 will be more reliable, and much more immune to valve, component, h.t. and mains variations, than the commonly used 5, 9, 9 count (for 405 lines). Although more stages are needed for the lower counts, it may be possible to dispense with a regulated h.t. supply. Any of the well-known counters may be used, but it is quite unnecessary to go to binary counters for reliability to amateur standards. Plenty of sync generators are performing quite satisfactorily at the higher count rates. With the master oscillator, control and genlock circuits, another six or seven valves should be allowed for in the timing unit. This brings the grand total

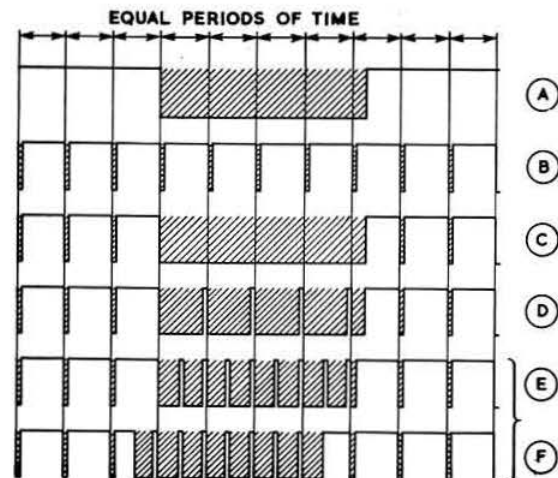


Fig. 2. Development of a synchronizing waveform. The drawing has been shaded for clarity only. (A) Frame pulse, one to four lines long, one per frame. (B) Line pulses, one per line. (C) Simple mixture of A and B, clipped. (D) Line pulses added to C during frame pulse to lock time base. Precise timing of these extra pulses varies with the circuitry employed. (E) Half-line pulses added to C during frame pulse. These are required if an interlace is to be produced. E shows one frame, F the next. In F the frame pulse occurs halfway along a line, thus producing an interlaced picture.

to over 20, and means quite an outlay in valves, components, h.t. and l.t. Naturally the simpler the system, the less complex need be the sync generator.

The sync generator is also the one unit of the system where present transistors can be employed with great advantage. With a 6 volt h.t. line, transistors such as the OC71 and OC45 will work perfectly satisfactorily in all the pulse circuits used in amateur television, including high-count counters. Their extra cost may be balanced by the saving in space, weight, h.t. and l.t. and the possibility of running off battery supplies.

Fig. 3 shows how the composite waveform of suppressed video, blanking and mixed synchronizing signals is developed.

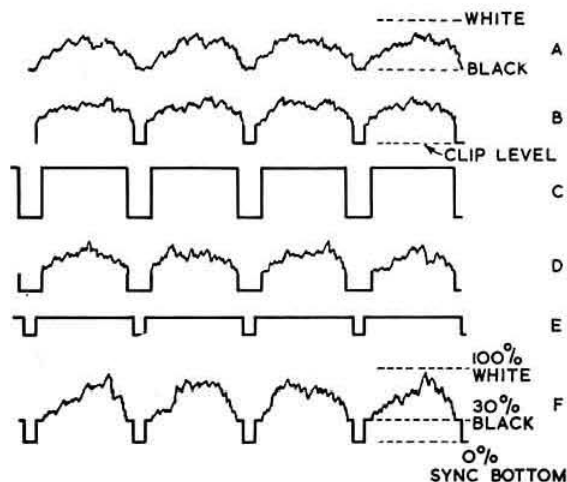


Fig. 3. Development of the composite wave form from suppressed video, blanking and mixed synchronizing signals (at line speed). (A) Picture source output showing spurious signals during flyback. (B) Spurious signals suppressed by sync pulses. (C) Blanking pulses. (D) shows B and C suitably clipped. (E) Sync pulses, see Fig. 2. (F) Composite signal (D plus E).

### Mixers

Mixers are of two distinct varieties—video-plus-pulse mixers, and video-plus-video mixers. The latter, known as "vision mixers," select or superimpose the various picture sources as required. Four inputs are usually enough, covering camera, caption scanner, test bars and B.B.C., with two independent outputs for "Transmission" and "Preview." Preview and cueing facilities are often required. Push-button "cutting" of pictures as well as knob-mixing and fading are usually incorporated. The performance of the mixer amplifiers must be beyond reproach.

Video-plus-pulse mixers usually occur in two stages, the vision-blanking mixer (which blanks the non-composite but possibly suppressed output from the vision mixer) and the sync mixer which adds syncs to the previous blanked picture. The circuits require that the pulses be of constant amplitude whatever the picture content, and it is necessary to clamp or restore picture black before mixing [6]. For amateur use simple d.c. restorers are much to be preferred. More complicated clamps tend to put restrictions on the waveforms that can be handled. Thus, although a clamped input stage may enable a signal containing a large proportion of hum to be cleaned up, that input signal must contain an accurately timed reference period (usually the back porch), and some simple equipments do not have this.

### Modulators

In amateur use the modulator will often be very close to the transmitter, and it is difficult to prevent r.f. from getting into the video circuits. For this reason a simple system is

recommended, using the minimum of components. For the reasons mentioned above, d.c. restoration is preferred to the more complicated clamp, but if a clamp is used it is advisable to make it switchable from back-porch to sync-tip depending on the input signal. For positive modulation systems, it is essential to include a sync stretching circuit capable of at least 50 : 50 output to the p.a. grids. A d.c. restorer on the sync stretch stage is only just sufficient, and a clamp is much preferable here. No other controls are needed for amateur use, but a peak white limiter (over-modulation prevention) is useful to limit the p.a. current when surges arrive at the modulator. Some types of push-button in vision mixers are prone to produce nasty flashing of the picture as they are operated.

### Transmitters

The transmitter must be designed to give the greatest possible amount of r.f. in the required direction. Wide-band converters at amateur television frequencies are inherently noisy, and therefore transmitter e.r.p. is of great importance. At these frequencies no particular care need be taken to ensure wide bandwidths in the transmitter and aerial; normal amateur designs have quite sufficient for the purpose. Transmitters and aerials should conform to current good engineering practice at the frequency involved. One essential addition is a detector probe at the aerial, in the feeder, or in the p.a. tank circuit box, to display the picture actually being radiated. A converter plus television set combination is nearly impossible to use within a few yards of the transmitter, which should of course be completely screened.

Only two meters are normally required for the transmitter, one for the p.a. anode current, and one for the average p.a. grid volts supplied by the modulator which will vary with picture content. Picture or waveform monitoring is required at the modulator input and at the modulator output, in order to set the sync stretch controls correctly.

### Power Supplies

Most television units fall into two classes—those that require a stable h.t. voltage for their operation (e.g., counters) and those that require a low output impedance in the h.t. supply (e.g., video amplifiers). Fortunately many of the former have a practically constant current drain, and it is therefore quite possible to supply a sync generator, for instance, with h.t. from a neon stabilized supply. Video amplifiers of all kinds, including modulators, must have electronically regulated supplies if very low frequency instability is to be avoided. With easily obtained valves and transformers, supplies giving more than 250 mA at 200 to 250 volts become very cumbersome, but this will be quite enough for the average camera or other picture source. Timebases can usually be run from unregulated supplies. The 20 valve sync generator will take about 200 to 250 mA, but very much less if transistorized, of course. For amateur use, three supplies of about 200 volts at 250 mA each will be adequate for most installations, and they may be regulated, stabilized and unregulated as mentioned above. The transmitter will require its own special supply, but it is important to remember that the p.a. screen (if the valve is a tetrode) or anode (if a triode) and grid bias (from the modulator or elsewhere for other systems of modulation) must all be well regulated.

### Sound Equipment

In the case of closed circuit equipment, the sound system is straightforward. When a radio link is in use for experimental purposes, it is almost essential to use duplex working. This must be successful in spite of interference from the vision transmitter(s), and often requires the use of several amateur bands. Unless the received signal is very strong, transmitting the sound accompaniment on the same band



as the video signals, and with the correct frequency separation, is not successful owing to restricted converter bandwidth. If the converter is further broadbanded, the picture noise increases. The duplex sound channel is for convenience carried on speakers at each end of the link, so it is advisable to include voice-control circuits to prevent howl-around on the sound link.

"Talkback" from vision mixer to picture sources is required if the acoustic noise level is high, or if remote operation is employed. Amateur practice is to have a central amplifier for all headsets and microphones, and to enable the "studio" sound channel to be added to this for cueing purposes. Talkback and cueing-light signals are carried to all likely places, standard telephones and complete headsets being used as required.

Provision should also be made for adding sound to a vision line so that the station call-sign and emergency messages can be radiated on the vision channel.

### Mechanical Design

The most popular form of construction is the standard rack and panel system, with the valves projecting forwards and the circuits at the rear. Standard 19-in. racks are very heavy and bulky, and with modern miniature valves and components a 15-in. rack is much preferred. Made of aluminium angle in units about 2 ft. 6 in. high, such a rack is easily transported by car. Standard panel sizes adopted are multiples of 2 in. in height and 15 in. wide, giving 13 in. of clear space at the rear. Portable equipment is often built into a case 15 in. long for convenience.

Camera case sizes depend on the type of tube used, whether a lens turret is fitted, what sort of viewfinder is to be used, and whether weighty components such as mains transformers have to be incorporated. In the case of small vidicon cameras, a small camera control unit can be mounted at the foot of the camera tripod to contain heater transformers and the like, but it is not advisable to run heater leads through long lengths of camera cable owing to the voltage drop. The camera cable itself may be quite heavy, and care should be taken over its point of attachment to the camera. Suitable cables may be fabricated by pushing the necessary wires through a length of garden hose. Multiway connectors can be used for both co-axial and normal wires without fear of trouble. The camera tripod should be so constructed as to be reasonably immune from people tripping over the camera cable, and should preferably be mounted on wheels. These should be of as large a diameter as possible, and if moving shots are to be attempted, should all steer together.

Control consoles for sound and vision mixers and the like should not exceed 12 in. of panel height, and if cut to give a sloping front with angles 40°-50°-90° will suit everyone some way around. Only control knobs should project at the front, so there must be full access to cable sockets and jack plugs at the rear.

### Electrical Standards

Owing to the complexity of amateur television equipment, and the likelihood of some interchange of units, certain electrical standards are observed by members of the British Amateur Television Club. Thus standard h.t. is 200 to 250 volts, and the standard co-axial fitting is the Belling-Lee type used on so many domestic television sets. All co-axial cables carry signals at the 1 volt p-p level across 75 ohms, white positive, syncs negative. Standard lines are composite video, mixed syncs, line sync and frame sync. Mixed blanking is not brought out of the sync generator as it is only used in the vision-blanking-sync mixer. A full list of other standards is published by the Club [6].

### References

- [1] *Television Engineering*, D. G. Fink, McGraw-Hill.
- [2] *Practical Television Engineering*, Scott Helt, Rinehart.
- [3] *Television Engineering*, Amos and Birkinshaw, Iliffe.
- [4] *Closed Circuit and Industrial Television*, Noll, Macmillan.
- [5] R.S.G.B. BULLETIN, November 1952.
- [6] *An Introduction to Amateur Television Transmission*, Barlow.
- [7] *CQ-TV*, Journal of the British Amateur Television Club.

## The "Q" Code and its Origins

BY G. R. M. GARRATT, M.A. (G5CS/GB2SM)\*

MANY of us make use of the "Q" code almost automatically in the course of ordinary contacts, but how many of us know anything of its origins? A recent inquiry from an American amateur (W3WRE) prompted investigation of the matter and with the help of Mr. L. Harris-Ward of the G.P.O. and Mr. H. B. Dent of *Wireless World*, the history of the "Q" Code emerged as follows.

In 1906 the International Radiotelegraphic Convention which was held in Berlin requested the International Bureau to prepare a list of abbreviations for use in W/T communications. It seems that nothing was done because the Revision Convention, held in Lisbon in 1908 had to reiterate the request to the International Bureau. Later in the same year—and in apparent despair of action by the International Bureau—the British Post Office issued a list of two-letter abbreviations for use between British coastal stations and ships. The list, which was published in the Postmaster General's *Instructions to Wireless Telegraphists*, included abbreviations in the form RA to RZ and SA to SF.

In July 1912, the International Radiotelegraphic Convention held in London adopted the use of a three-letter set of abbreviations which consisted of the G.P.O.'s two-letter code with the addition of the letter "Q." A few abbreviations were added so that the code now ran QRA to QRZ and QSA to QSX. It was first published in the new form in the P.M.G.'s *Handbook for Wireless Telegraphists* in September 1912 (which authorized its use between British ships and coast stations) and, on July 1, 1913, having by then been formally ratified by all the signatories to the 1912 Convention, the "Q" Code came officially into international use.

Incidentally, the letters QST originally stood for "Calling All Stations" and when, at some subsequent date, the letters "CQ" were substituted for this phrase, it seems that the A.R.R.L. adopted the letters QST most appropriately as the title for the League's journal.

\* Science Museum, South Kensington, London S.W.7

**London Lecture Meeting**  
**Friday, September 26, 1958**

**"Broadcasting Aerials"**

**by H. V. Sims, A.M.Brit.I.R.E., Assoc. I.E.E.**  
**(Senior Lecturer, B.B.C. Engineering Training**  
**Dept., Wood Norton, Evesham)**

The lecture will be illustrated throughout with the aid of demonstrations and slides.

**Institution of Electrical Engineers**  
**Savoy Place, Victoria Embankment**

Buffet Tea 6 p.m.

Lecture 6.30 p.m.



# A 10 Watt Modulator using Power Transistors

## High Efficiency Unit for Portable/ Mobile Operation

By C. COLLINS (G8SC)\*

POWER transistors now available at reasonable prices permit the construction of small modulators capable of fully modulating transmitters of 15 to 18 watts input. The overall efficiency of such modulators, which require only a low voltage source such as a 12 volt car battery, is much higher than that obtainable by using valves supplied by rotary transformers or vibrator power packs. For portable or mobile operation the advantages of the transistorized devices are obvious while their cost is now comparable with the more conventional type made from new components.

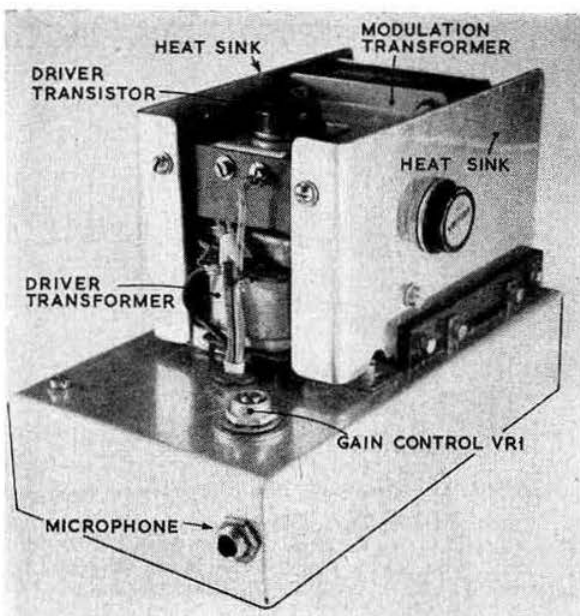
The unit to be described uses two Goltop power transistors type V30/20P in class B, driven by a single Goltop V30/30P transistor and a suitable speech amplifier. The power transistors specified have a 4 watt dissipation at 25°C ambient when mounted on a nine square inch heat sink of 16 s.w.g. aluminium. The circuit diagram of the driver and output stages is shown in Fig. 1.

The circuit diagram of a simple pre-amplifier for use with a carbon microphone is shown in Fig. 2. The value of the dropping resistors carrying the energising current for the microphone should be adjusted to give satisfactory modulation for the particular operator concerned. A current of 30mA is usually adequate.

Alternatively, a high gain pre-amplifier may be used with a moving coil or crystal microphone and the arrangement used by the writer is shown in Fig. 3. All the components may be mounted on an 8 by 8-way tag panel mounted below the chassis. A suggested layout is illustrated in Fig. 4.

In some circumstances it may well be desirable to operate the pre-amplifier chosen from a separate battery such as a 4½ volt flash-lamp type. If this were done, the pre-amplifier could also function as the audio stages of the receiver. Suitable relays for switching could easily be arranged to operate from either the 4½ or 12 volt battery. Readers are strongly recommended to study *Transistors for the Experimenter* published by Mullard Ltd. or *Transistor A.f. Amplifiers* (Hiffe and Sons Ltd.), for further information on the use of semi-conductors in audio amplifiers.

\* c/o "Cross View," Caldicot, near Chepstow, Mon.



An above-chassis view of the modulator showing how the power transistors are mounted on their heat sinks.

### Construction

The modulator and pre-amplifier are built on a 7 in. by 4 in. by 1 in. chassis made of 16 s.w.g. aluminium, the position of most of the components being shown in the photographs. The actual layout is not critical, but due regard must be paid to earthing and to the negative feed line since peak currents of the order of 1.5 amps are involved. Furthermore, since heating takes place when the output stage is driven hard, free air flow around the output transistors and their heat sinks must be maintained. The transistors are mounted centrally on their respective heat sinks which measure approximately 5 in. by 3 in. and are made of 16 s.w.g. aluminium. The heat sinks are in turn supported from the chassis by suitable insulating strips, as they are at 12 volts negative. These features of the construction are shown in the photograph reproduced above.

Care should be taken with the electrolytic condensers since,

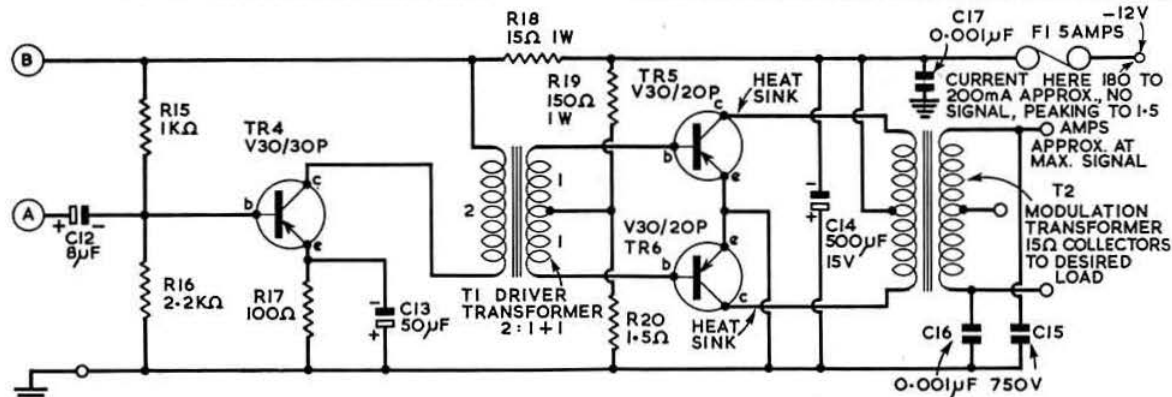


Fig. 1. Circuit diagram of the driver and output stages of the transistorized modulator. T1 is a Gilson type WO1067. Details of the modulation transformer are given in the text.

in general, their cases will be negative (which is live) and the positive leads are earthy. A 5 amp fuse must be wired in the negative supply lead.

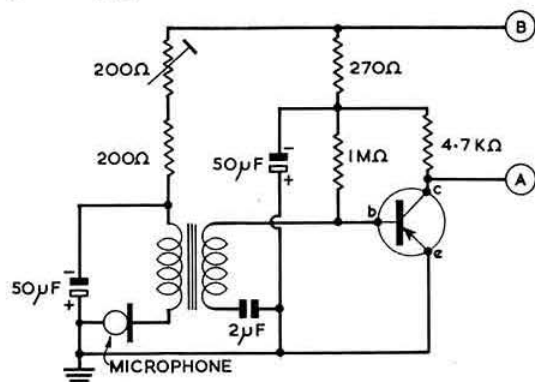


Fig. 2. Simple pre-amplifier for use with a carbon microphone.

A suitable modulation transformer may be obtained from R. F. Gilson Ltd. but for those who wish to wind their own, and there is no reason why this should not be done, the information which follows will be of some assistance.

The core consists of a 1 in. stack of Scotts No. 43A Unisil laminations giving a cross sectional area of 1 sq. in. Unisil laminations are grain oriented ordinary silicon steel. The window measures 1½ in. Other suitable laminations are M. & E. A. No. 29A and Sankey No. 111A.

The centre-tapped primary should be wound with 64 plus 64 turns of 19 s.w.g. enamelled wire. In the prototype, the secondary consisted of 2,300 turns of 37 s.w.g. enamelled wire tapped at 1,750 turns to provide a match to the transmitter with which the modulator was to be used.

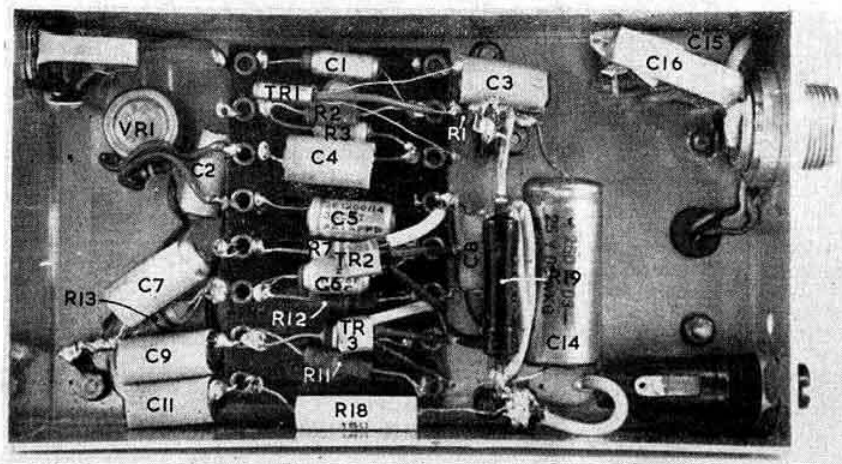
The primary matches a collector-to-collector impedance of 15 ohms; thus the secondary impedance will be 4.8 K ohms, or 2.75 K ohms, at the tapping point.

#### Alternative Transistors

Other types of transistor, such as the Mullard OC16 and the G.E.C. GET.8 may be used in the driver and output stages, while Ediswan, Mullard and G.E.C. as well as Newmarket all make suitable types for use in the pre-amplifiers. Some modifications to the circuit values and layout may, however, be necessary to obtain the best results if types other than those specified are used.

#### Results

The equipment described has now been in use for some months, both at the home station and for mobile/portable operation, and has proved entirely satisfactory. Reports on



the speech indicate that it is good communications quality when using a carbon microphone and very good with a high gain pre-amplifier and moving coil microphone. The reduced drain on the battery compared with a conventional modulator employing thermionic valves has proved well worth while.

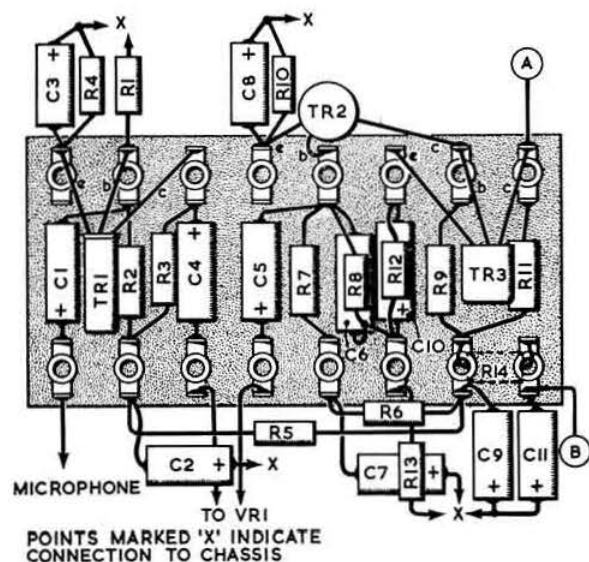


Fig. 4. Layout of the high gain pre-amplifier.

## Some Thoughts on Single Sideband

By A. H. KOSTER, Dr. Ing. (G3ECA)\*

IN the May, 1958, issue of the R.S.G.B. BULLETIN<sup>1</sup> a plea was made for the more extensive use of s.s.b. or more precisely of single sideband suppressed carrier transmissions. Such pleas have been made for ten or more years. In 1953 QST had the following to say: "Single sideband, the 'coming' answer to QRM, fading, TVI, and other troubles, is not 'coming'—it is actually here. And, to carry the thought further, no thinking amateur who has anything but a backward-looking 'down-with-progress' viewpoint will spend a lot of money to put on a power-wasting carrier-type a.m. rig in this day and age." Those were strong words, perhaps too strong for many tastes. In any case, they were wrong in that today s.s.b. is still not "here," and the pleas go on. There is no point in stressing the many advantages of s.s.b. They have been propounded on endless pages of amateur history. Transmitting equipment has been described in all shapes and forms. With up-to-date techniques an s.s.b. modulator is easier to build, lighter, smaller and cheaper than a highpower a.m. rig. However, it is not being done. Why? If s.s.b. is still too complicated, a start could be made with d.s.b., that is double sideband suppressed carrier. What could be simpler than that? Obviously somewhere something is going wrong.

It is not difficult to see where the fault lies. It is to be found on the receiving side. Repeated efforts have been made to suggest that the reception of s.s.b. on any receiver is an easy matter. It has also been said that those who cannot do

so are plain clumsy. Neither of these suggestions is true: demonstrations by exponents of the art at amateur meetings have provoked exclamations from the audience that "this is the same noise that we get." It is correct, that with practice the s.s.b. enthusiast can tune in a station faster than the inexperienced a.m. adherent whom the demonstrator hopes to convert. Usually the beginner manages to get a station tuned in just in time to hear him sign-off, or go over to other stations. One would expect the replying station to come up on the same frequency, but he often does not. A few cycles off-tune are enough to upset the adjustment completely and the weary procedure has to start all over again. Then there are the great thinkers who make a pause after each word and a longer pause between sentences. Their signals vanish each time they begin to think, and it is difficult for a novice to tune in something that is not there. This does not take into account that, at times, there is something there that ought not to be. All this makes life complicated and emphasizes the receiving problem.

If an a.m. operator with receiving experience calls an s.s.b. station he stands a good chance of getting a reply, provided his form of modulation reaches the other end. However, if an s.s.b. operator calls an a.m. station his prospects of a QSO are less favourable, because the other chap cannot decipher him. These conditions compel the s.s.b. stations to work in groups of their own, and the a.m. majority consider them as noisy spots which clutter up the bands. It is not an incentive for an a.m. operator, who can work plenty of stations with his inefficient method, to change to a better transmitting system if it suffers from increased receiving difficulties. This is an undesirable state of affairs.

### Possible Solutions

A suggested remedy is to shift the centre of gravity away from the flood of designs for bigger, better and simpler transmitters and to concentrate on receiving techniques and receivers. Some standard receivers have b.f.o.'s which are readily adjustable over a wide range of pitch and amplitude, others have not, and the latter are at a disadvantage. It may not sound unreasonable to ask an amateur to use a screwdriver on his perfectly good receiver to alter the b.f.o. setting so that it suits s.s.b. requirements, but there is a lot of explaining to be done before one can expect him to do it. To receive s.s.b. with an unsuitable receiver is the same as to fight one's way through the overcrowded bands with a t.r.f. receiver. Of course, it can be done, but such enthusiasm is rare. Some receivers have switched positions which bring appropriate circuits into play that aid the reception of various forms of transmission. It is unlikely that many of these extravagant receivers are in the hands of amateurs and the s.s.b. enthusiasts are getting along quite nicely without them. The latter are the ones best qualified to start a series of articles which are solely concerned with the technique of receiving s.s.b. signals easily. The everlasting recommendation to switch on the b.f.o., push it sideways, turn this up and that down just will not do. If it were as easy as that every amateur in the world would have found it out for himself, and by now amateur a.m. could be a forgotten religion.

The technique of receiving s.s.b. reliably on everyday receivers, and on specialized ones, requires to be explained in a way which this serious problem deserves. The utility or futility of external signal generators, synchronous detectors and whatever has been suggested from time to time should be reviewed. Unless it proves possible to convince the average amateur that s.s.b. reception is an easy matter the widespread application of s.s.b. must remain a pipe dream.

### Reference

[1] "Single Sideband," by Alan Fawcett (G2HQ), R.S.G.B. BULLETIN, May, 1958.

\*195 Woodford Avenue, Ilford, Essex.

# THE MONTH



DATE TIME	FREQ.	STATION CALLED	CALLED BY

STATION HEARD OR WORKED				IF QSO RESULTED	REMARKS
R	S	T	KC/S OR DIAL		

MY SIGS.			TIME OF ENDING QSO
R	S	T	

# ON THE AIR

By S. A. HERBERT (G3ATU)\*

ONCE again we are in the middle of the season of annual holidays, when all and sundry forsake the delights of radio—though, fortunately for this commentary, not all at exactly the same time—and divert themselves in other and more seasonal pursuits. Equally fortunate is the fact that DX conditions always fall off during the summer. Sunspot maximum or no, there is always a lull in the DX storm; it is just a matter of luck, more or less, to be on the air at those odd times when one of the bands does open to far distant parts.

Actually, persistent (or percipient) DX chasers have been rewarded by two decidedly out-of-the-common catches in recent weeks. Early risers have had at least a shot at Lord Howe Is., where VK2AYY/LH has been stirring things up in a big way, while late night specialists have been in pursuit of the almost equally rare YV0AB, operated by the ubiquitous Daniel Weil from Aves Is.

## Twenty Metres

This was the band that principally attracted the above-mentioned rarities and anyone lucky—or skilful—enough to bag them both would have little cause for complaint, even if he worked nothing else.

G6XL (Leeds) found VK2AYY/LH (060-07.00) and raised him on the first attempt. There was no "wolf-pack" at the time: most people still didn't realise where he was! The 6XL beam was directed on a 220° bearing at the time: 6XL heard him no more for a week, when he came up on the same frequency at S6 to 7, having put up a new aerial, 260 ft. long and 100 ft. high. G6XL heard ZD7SA (065) calling the VK "on sked"; later he worked the ZD (075-21.20), followed by YV0AB (075-07.40), and had a phone QSO with VR2BJ (195-07.15). He also heard a DL calling ZC6BE (050-06.25). G6XL pleads for approximate frequencies and times of rare DX heard. These details make all the difference to people trying to work new ones.

G3KAA (Luton) is a new and welcome reporter, though no newcomer to DX, with 148 countries worked. Of these, 140 are confirmed, thanks to recent cards from KC4AF, OQ5IE (an XYL), UF6 and one direct from VR2DG. 'KAA worked YV0AB twice with comparative ease (22.30), while UNIKAB was another new one.

G3EYN (Macclesfield) is also welcomed to these pages. Confirmations from VQ8AS and VS1BB/VS9 put him on the 192 confirmed mark and QSLs from just eight of the 13 other countries worked would make the magic 200. Recent c.w. rare ones worked were XW8AI (060-19.00), CR9AH (058-22.50), VS9O, VQ6AB (066-20.30), DU1OR (090-19.50), ZD7SA (20.15), UAOAZ (Dickson Is.), HSIC, FP8AV and YV0AB. G2DHV (Lewisham) has QSLs from XW8AI, VP5CM, YV5AB and ZP5KQ. G2DHV was active mobile from Thanet during June and July. G3KGV (Sunderland) worked a new one—UH8KBA—and has 100 QSLs en route to the A.R.R.L. G3ATU happened upon JZ0HA (050-15.00), UM8KAA (15.00) who wanders around the c.w. end, FO8AC (080-07.00) and heard a W calling KS6AG (14.00).

\* Roker House, St. George's Terrace, Roker, Sunderland.

B.R.S. 20135 (Newport, I.O.W.) was surprised to log KR6MD (18.45) in a welter of short-skip phone callers. B.R.S. 20317 (Bromley), despite the patchy bands, logged HK0AI (05.00, '190), a new one for him, and XE3AC on phone; while Morse signals were logged from VS9O, BV1US (080-16.40), EA6AM, FL8AB, KM6BK (13.00), FP8AB, OQ0VN, VS9AJ, ZD7SA (080-19.00 to 23.30), VQ3JO/P, 4JO/P and UAOKWA. B.R.S. 20106 (Pett's Wood) turned up H18BE (22.00), XE3BL (04.30), XW8AI (17.00), FP8AB (02.30), VP5BL, KR6 and FO8 on c.w. On phone, he noted SV0WB (Rhodes), HK0AI (04.30), OA4GF and TI2JV. B.R.S. 21762 (Loughton) stuck to phone and heard ON4UB, the Brussels World Fair station, VP3YG and PY0NA on Trinidad Is.

## The Fifteen Metre Band

Fifteen has had short spasms of excellent conditions, which make the long intervening periods of silence, either more or less vexatious, depending on whether you hit or missed the good patches.

G6XL was there to work CT3AB, VS9AS ('160-20.10), and to hear ZD7SA (080-22.30) on the key; on phone he QSOd VS9AD, JZ0PB ('140-15.00), VK9AA (New Guinea, 13.00) and VK5NE (Darwin, '180 at 13.20) and also heard CP5EC ('300-22.30). G3KAA found VP2LB (St. Lucia) on phone and called him successfully on c.w. Slow Morse did the trick. 2LB's QTH is Boris Auguste, c/o The Agricultural Dept., Castries, St. Lucia, B.W.I. G3EYN accounted for FQ8AP (16.30), VS1FJ, VS9AC, FP8AV (18.40) and UL7, all on c.w. PY7AN/0 whom he contacted some time ago, does qualify as a "new" one and he expects to be sending the second 100 cards to A.R.R.L. soon. After this he will settle for bundles of ten!

B.R.S. 20135 was pleased with ZD7SA, a strong phone signal, PZ1AG, VU2PS, EL2N, ZD1EO, MP4BFC and VE3BQL/SU. B.R.S. 20317 finally got his VP1—VP1EE ('250-01.00) doing the trick on phone—while c.w. provided him with HK0AI ('190-04.30), VQ3HD and FM7WU. He is now at 200 countries heard on c.w. only. Good going.

B.R.S. 20106 used phone to log SV0WN (Ciete). VP2GV (01.45), VP2DA (00.30), HL9KT (14.50), VR2AZ (07.50), VS1JF (s.s.b.) and c.w. for VP8CC, JA1QI (14.40), VS1 and also for two unusual ones—TA3EF and FB8BX (Nossi-Bé). Phone DX from B.R.S. 21762 comprises XE2MS, 11FP/M1, H18BE, OQ0PB, (new ones), VK9CK (Papua), YS1MS, XZ2SY, VS1BB/VS9, VP1DS, EA0AB (also a new one), ZS8O, ET3XY and FE8AP.

## Forty Metres and Above

More interest in these bands appears in the reports this month, and some creditable DX has turned up on forty and even eighty.

Yet another welcome newcomer to this column is G3LPS (Blackburn), who found forty quite good, working VO1BD, VP3YG, UO5, UF6, PYs 4ATJ, 5HJ, 6GE, 6JD, 6HL, 7ADR, 7AGY and LU9CK (whose QSL arrived by air-mail). G3KAA managed 4X4CK and LX2GH on the band, while G3EYN raised SP5LM/LA/P (22.10), 4X4, UF and PY. B.R.S. 20317 logged VP7BT (01.00), KP4 and YV5 on forty;



then tuned eighty for the VP7 (RST449, 3501-01.30), ZP9AY (051-01.00) and VQ5CF, who was very weak around 00.00, while working a ZS. B.R.S. 20106 found UA9AO, VP3YG (01.00), HC4IM, LU, PY and KP4 on forty, while eighty c.w. brought him 4X4DR, ZP9AY, ZB1AC, FA9VN, VE1DN/P, UA3 and UB5. On seventy-five phone, he logged W1EKJ (S9), W4GHO and K4AUX/P.

G6ZY (London, S.W.15) was mightily and deservedly pleased to contact ZP9AY on 3515 kc/s with RST559 reports both ways. '6ZY has been asked by VE7KX to enquire whether any European station is equipped for Radio Teletype operation. The VE7 has worked all other continents on RTTY. With a six wave rhombic beamed on Europe, he is anxious to complete a difficult and unusual W.A.C.

## N.F.D.—LEADING STATIONS

**Overall Leaders:** (1) Gravesend, 1,651 points; (2) Stamford, 1,432 points; (3) Stourbridge, 1,235 points.

**Scottish N.F.D. Trophy:** Edinburgh, 789 points.

**Bristol Trophy:** Coventry, 657 points.

**Band Winners:** 1-8 Mc/s—Oxford; 3-5 Mc/s—Stamford; 7 Mc/s—Gravesend; 14 Mc/s—Gravesend; 21 Mc/s—Gravesend; 28 Mc/s—Slough.

All subject to re-scrutiny

## News from Far and Wide

**Singapore:** The VSIHU (Kranji) R.N. Club is still mainly on 14 Mc/s c.w., though plans for 21 and 28 Mc/s are in hand. The 'IHU country score is 183/135 and new ones are VS8O, YS1O, ET2US, I5LV, LX1DW, KS6AD, PJ2AL, ZB1CR, EA9BM, ET3PRS and ZS2MI.

DX gossip reveals that ZD1EO is active on 28430 kc/s; skeds can be arranged via CN8GU, who is also his QSL manager; IIADW/MI should soon be on, but exact dates are unknown. VS1FJ has reached 200C in less than a year. Well done, O.M.! The VS1BB/VS9 trip is now ended and all QSLs have been dispatched. The Seletar gang have designs on pastures new, Car Nicobar or Andaman, perhaps? VK9JF left Cocos-Keeling for Penang, but ZC3AC remains active on Christmas Is. and now has a crystal for 14043 kc/s—mercifully remote from the phone-pestered spot he occupied formerly.

**B.E.R.S. 976** (R.A.F. Seletar) sends a list of phone logged on a vintage HRO-MX. On twenty, he heard XZ2KM, ZC3AC, VU2 and BV1US, who may be going back to the U.S. in October. On 21 Mc/s, he pulled in VK5NE, DU1LY, VS5JR, KA2ZZ as well as VK2, '5 and '6.

G3III is, of course, Greg Lovelock, ex-ZC4II and he is home after a tour via ZB1, ZC4, HN, AP, 4S7, VS1, ZC5 and VK. Quite a journey! As a result he can give first-hand news that by now, all 4S7 licences will have been withdrawn, pending the end of the emergency. Normally, 4S7RD, 'DT and 'KD would be on 14 Mc/s, using low power. A club is being formed at R.A.F. Ekala, under R.A.F.A.R.S. auspices. No activity is expected from ZC5 at the present, nor from Iraq (but very much more so now, in view of present happenings). Greg himself has been off the air, but by now, G3III may once again be doing his stuff.

**Bahrain:** Lee Grant (ex-ST2NG, ZD3G) writes to say that he's off to Bahrain on August 23 to replace MP4BFC. As to Gambia, Lee thinks that Jack Ward, ZD3E, is returning to Bathurst.

**Christmas Is.** (VR3): C. F. Gleeson (ex-JZ0PB) was recently licensed as VR3Q, sharing a rig with VR3P. They

spent endless hours putting up aerials in the direction of Europe and more hours finding when conditions were best for that path. Finally, with help from VK5AB and ZL2BE, despite QRM from stations determined to work them at any cost—the VR3s worked G3AWZ, '3BID, '2CDI, '5VT and '6UT. Then the blow fell. Orders were received from the Military Authorities that all transmissions must cease. As the order is a standing one it seems unlikely that there will be future activity from the island. Unfortunate, to say the least.

**Monaco:** G4LX (31, Harley Terrace, Newcastle 3.) says he has "somehow been chosen as QSL Manager for 3A2CF." Those in pursuit of 3A2CF cards should therefore send a s.a.e. to the above address.

**U.S.A.:** An official announcement by the A.R.R.L. (QST July 1958) discloses that the League is to discontinue and delete DXCC credit for current Kermadec activity by ZL1ABZ. This is because the ZL, who is allowed to transmit on 3-5 Mc/s only, has been making cross-band contacts, occasionally with the help of a third party. Although many genuine QSOs resulted, there were also several others where no direct "contact" resulted. The "middle station" technique was used to relay when the ZL was sending or receiving! As it is impossible to separate the sheep from the goats, the A.R.R.L. is regretfully refusing to acknowledge for DXCC all QSOs confirmed by ZL1ABZ while the present pattern of operation persists.

\* \* \*

*On which salutary note we close this month's offering, except to thank reporters new and old and to hope that as Autumn approaches—grim thought—many more will join in the fun. The last date for news for the next issue should reach Sunderland by August 18 and by September 18 for the following M.O.T.A. Good Hunting and good holidays. 73.*

## LONDON MEMBERS' LUNCHEON CLUB

will meet at the Bedford Corner Hotel, Bayley Street, Tottenham Court Road,

at 12.30 p.m. on Friday, September 19, 1958

Telephone table reservations to HOL 7373 prior to day of luncheon. Visiting amateurs especially welcome.



At a meeting in Glasgow on June 27, D. R. Macadie (GM6MD), Region 14 Representative, presented the Maitland Trophy to James Mathieson (GM3EH), the Scottish contestant with the highest aggregate score in the Second 1-8 Mc/s Contest 1957 and the First 1-8 Mc/s Contest 1958. In this picture, Mr. Mathieson is on the right.

# I.A.R.U. REGION I CONFERENCE

## Bad Godesberg, Germany

By JOHN CLARRICOATS, O.B.E., G6CL (General Secretary)

THE I.A.R.U. Region I Conference held in the City Hall, Bad Godesberg, Germany, from July 21 to 25, 1958, was attended by representatives from the National Amateur Radio Societies of Belgium (U.B.A.), Finland (S.R.A.L.), France (R.E.F.), Germany (D.A.R.C.), Ireland (I.R.T.S.), Italy (A.R.I.), Yugoslavia (S.R.J.), Luxembourg (R.L.), Netherlands (V.E.R.O.N.), Norway (N.R.R.L.), Spain (U.R.E.), Sweden (S.S.A.), Switzerland (U.S.K.A.), United Kingdom (R.S.G.B.). In addition Mr. A. L. Budlong, WIBUD, General Manager, A.R.R.L., and Secretary of I.A.R.U., and Mr. Douglas Bowie, VK3DU, Honorary Secretary, W.I.A., attended as observers. Mr. W. Baumgarten, HB9SI, attended as a representative of United Nations. D.A.R.C. held a proxy vote for the Austrian Society (O.V.S.V.).

Herr Rudolf Rapecke, DL1WA (President, D.A.R.C.) was elected President of the Conference at the Opening Session. After welcoming the delegates Herr Rapecke called upon the Bürgermeister of Bad Godesberg and representatives of the German Post Office and the German Radio Industry to address the meeting.

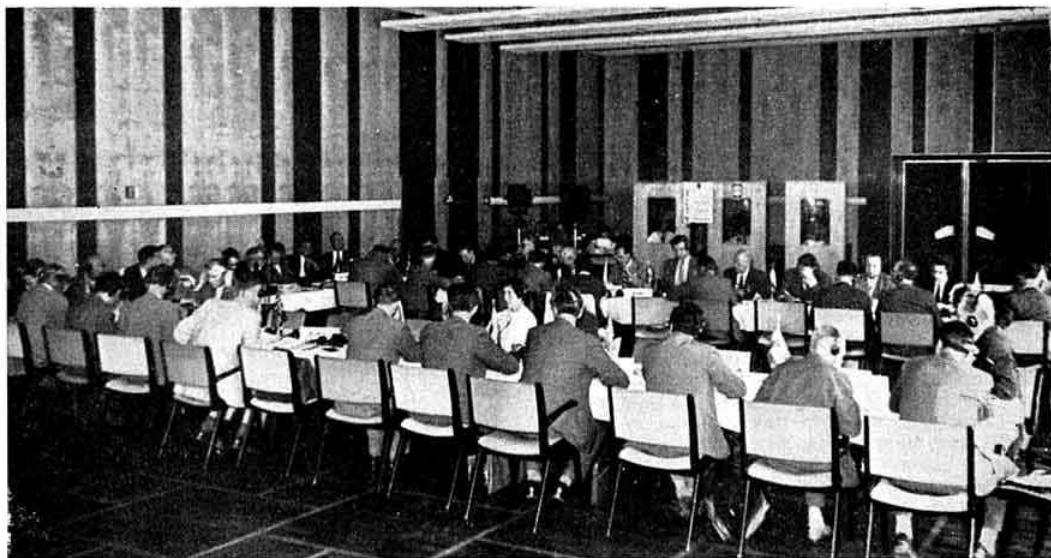
At the first Plenary Assembly, presided over by Mr. Harry Laett, HB9GA (Chairman of the Executive Committee), it was agreed to set up an Administrative Committee under the Chairmanship of Major Per-Anders Kinnman, SM5ZD, and a Finance Committee, under the Chairmanship of Mr. John Clarricoats, O.B.E., G6CL. The Plenary Assembly also requested the V.H.F. Managers present to form themselves into an *ad hoc* Committee to give consideration to a number of matters which had been referred to them.

### Administrative Committee

The following recommendations of the Administrative Committee were adopted at the final Plenary Assembly:

- (i) that I.A.R.U. Headquarters be advised that the Societies in Region I wish to be represented at the

- Ordinary Administrative Radio Conference, Geneva 1959, by an Observer Group;
- (ii) that in addition to the Observer Group, all Member-Societies be urged to have amateurs attached to their official Government delegations as advisers, at no cost to I.A.R.U. Region I Division;
- (iii) that Mr. John Clarricoats, O.B.E. (G6CL), General Secretary, R.S.G.B., and Major Per-Anders Kinnman (SM5ZD), Past-President, S.S.A., be the main delegates to the O.A.R.C. Geneva 1959, with Messrs. Otfried Lührs (DL1KV) and W. Dalmijn (PA0DD), as reserve delegates;
- (iv) that the Chairman and Secretary of the Executive Committee be authorized to nominate other reserve delegates in case of need;
- (v) that a letter be sent to the official observers thanking them for offering to attend the Geneva Conference: that a letter be sent to the Council of the R.S.G.B. thanking them for agreeing to allow the General Secretary to attend the Geneva Conference as an I.A.R.U. Observer;
- (vi) that every Member-Society in the Division be strongly advised to appoint a Public Relations Officer to handle domestic public relations;
- (vii) that a letter be sent to I.A.R.U. Headquarters asking them to urge the United Nations to give full support to Amateur Radio;
- (viii) that S.S.A. (Sweden) be invited to collect information on "fox-hunts" in the various countries in Region I and then to circulate the information to Member-Societies;
- (ix) that the area at present covered by the Region I Division be reconsidered by the Executive Committee as soon as possible after the O.A.R.C. Geneva with a view to putting forward a firm recommendation, if considered expedient, to the next Region I Conference.



A view of the main conference hall in the Stadthalle, Bad Godesberg, during one of the meetings of the Administrative Committee of the Region I I.A.R.U. Conference. In the background are the booths used by the interpreters.

### Finance Committee Recommendations

The following recommendations of the Finance Committee were adopted at the final Plenary Assembly:

- (i) that the accounts of the Division for the period from July 1, 1956, to April 30, 1958, as submitted by the Honorary Treasurer, and certified by Mr. Robert Protin, be accepted;
- (ii) that the sum of £300 be paid from Fund 1 to D.A.R.C. to offset the expenses incurred by that Society in organizing the Region I Conference (It was stated that the total cost of organizing the Conference would probably amount to £400, due largely to the high cost of providing the translation service);
- (iii) that the contributions from Member-Societies for the years 1959, 1960 and 1961 shall be at the rate of Swiss Francs 10,000 per annum (approximately £800) and that the proportions to be credited to the three funds shall be as follows: Fund 1 (25 per cent), Fund 2 (25 per cent), Fund 3 (50 per cent). (For the past six years Member-Societies in the Region have contributed approximately £1,200 per annum to the three funds, of which sum the R.S.G.B. has paid £285 annually. The R.S.G.B. contributions for 1959, 1960 and 1961 will be approximately £190 per annum.)

The Finance Committee reported that their computations had been based on 20,000 licensed amateurs who are members of their National Societies. The Committee also reported that the balances standing to the credit of the three funds as at April 30, 1958, were as follows:

Fund 1. £391 13s. 5d. (Swiss Francs 4,672.65).

Fund 2. £323 0s. 7d. (Swiss Francs 3,857.55).

Fund 3. £1,360 1s. 10d. (Swiss Francs 16,225.90).

(Fund 1 is to meet Region I Bureau general expenses, Fund 2 to meet Region I Executive Committee expenses and Fund 3 to meet the cost of sending delegates to I.T.U. and C.C.I.R. Conferences.)

The Finance Committee reported further that the estimated cost of sending delegates to the O.A.R.C. Geneva 1959 will be at least £1,500 (Swiss Francs 18,000).

The Plenary Assembly accepted a proposal by the Chairman of the Finance Committee (Mr. Clarricoats) that prior to each future Region I Conference the host society shall submit for approval to the Executive Committee a detailed budget of proposed expenditure and a full programme of activities.

### V.H.F. Committee Recommendations

The following recommendations of the V.H.F. Committee were adopted at the final Plenary Assembly:

- (i) that a Region I V.H.F. Committee shall be established consisting of a Chairman and Honorary Secretary and the V.H.F. Managers of Member-Societies in Region I;
- (ii) that a member of the Region I V.H.F. Committee shall be co-opted to serve on the Executive Committee;
- (iii) that the officers of the V.H.F. Committee shall be elected at each Region I Conference;
- (iv) that only a V.H.F. Manager elected or appointed by his National Society shall be eligible for the office of Chairman or Honorary Secretary of the Region I V.H.F. Committee.

### Elections

At the final Plenary Assembly the following elections took place:

#### Executive Committee

Chairman, Mr. Harry A. Laett (HB9GA).

Vice-Chairman, Major Per-Anders Kinnman (SM5ZD).

Honorary Secretary, Mr. John Clarricoats, O.B.E. (G6CL).

Honorary Treasurer, Dr. J. Simmonet (F9DW).

Ordinary Members: Mr. Otfried Lührs (DL1KV), and Mr. J. Znidarsic (YU1AA).

The retiring Honorary Secretary, Mr. A. O. Milne (G2MI), and Mr. H. L. Wilson (EI2W) were nominated to serve on the Executive Committee but were unsuccessful in the election.

(A motion by the R.S.G.B. to increase the number of Ordinary Members to serve on the Committee to four, as permitted by the Constitution, was rejected.)

### V.H.F. Committee

The Plenary Assembly confirmed the election of Dr. Karl Lickfeld (DL3FM) as Chairman and Mr. F. G. Lambeth (G2AIW) as Honorary Secretary of the V.H.F. Committee.

### Executive Committee Decisions

At a meeting of the Executive Committee held in Bad Godesberg on July 26, 1958, consideration was given to the various recommendations which had been adopted by the Conference in Plenary Assembly.

The Committee agreed that the Radio Society of Israel and all other I.A.R.U. Member Societies in Region I who are not yet members of the Division shall be invited to join.

The Committee resolved:

- (i) that co-opted members shall be invited to attend meetings of the Executive Committee only when matters of vital interest to a particular Committee (such as V.H.F.) or to an individual are to be discussed;
- (ii) to appoint Mr. A. O. Milne, G2MI, Honorary Editor of Region I News and Public Relations Officer to the Division with effect from August 1, 1958;
- (iii) that the Honorary Editor, Region I News, shall accept responsibility for all material published (Mr. Milne indicated to the Committee that he would work in close co-operation with the new Secretary to the Region I Division on all matters concerning Region I News and general publicity);
- (iv) that persons invited to attend meetings of the Executive Committee in a co-opted capacity shall be entitled to claim reasonable out-of-pocket expenses;
- (v) that a letter be sent to D.A.R.C. thanking them for the arrangements made for the Conference, mentioning in particular the thanks of the ladies for the visits;
- (vi) that the next meeting of the Executive Committee shall be held during the weekend March 15-16, 1959, in Copenhagen or Amsterdam.

### Next Conference may be held in England

During the later stages of the final Plenary Assembly Mr. L. E. Newnham (G6NZ), on behalf of the R.S.G.B., extended an invitation to the other Member-Societies in Region I to hold their next Conference in a south coast town in England. Mr. Newnham's offer, which is due to be considered by the Council on August 25, 1958, was warmly acclaimed by all delegates. (It is anticipated that the next Conference will be held during the autumn of 1960—J.C.).

A further report on the more detailed work of the Conference will appear in the September issue of the BULLETIN.

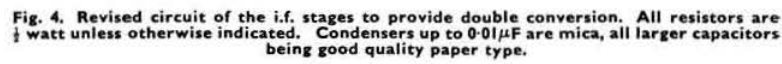
### VHF ACTIVITY NIGHTS

MONDAYS FROM 8 TO 10 ON TWO  
WEDNESDAYS FROM 8 TO 10 ON FOUR

See how many stations you can work, and report the results to G2AIW (V.H.F. Editor).







care would be necessary if polystyrene or p.t.f.e. holders were used.)

The first three stages were wired up according to Figs. 1 and 2(b). Small disc ceramic capacitors were used for bypassing, and all resistors were  $\frac{1}{2}$  watt rating. The new sub-chassis was then screwed in position and connected up to the coil packs and power supplies. It should be noted that the uppermost of the two connections at the front of the oscillator section goes to the 6.3 volt heater supply. The lower connection goes directly to the stabilized 90 volt supply.

It was found necessary to re-align the r.f. section of the receiver after carrying out these alterations due to the changes in valve and circuit capacities. This was done by using a signal from the station frequency meter, adjusting the calibration first with the oscillator trimmer and then the r.f. and mixer trimmers for maximum response using the "S" meter as an indicator. The 5 K ohm potentiometer in the mixer cathode was adjusted to give maximum signal-to-noise ratio on the h.f. band. It was adjusted by ear and found to be not too critical.

The rebuilding of the "front end" alone gave a very worthwhile improvement in signal-to-noise ratio.

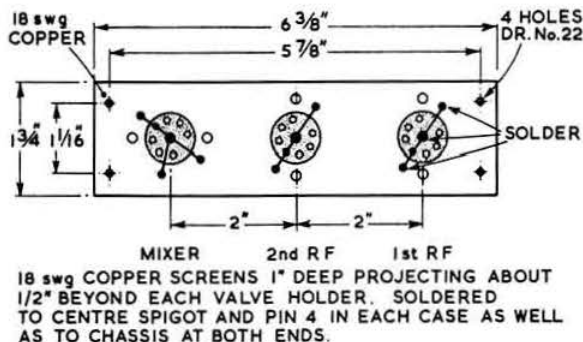


Fig. 3. Underneath view of the new "front end" sub-chassis showing the positioning of the valveholders and screens.

#### Conversion to Double Superhet

Changing the receiver to double conversion involved a fairly extensive rebuild. First, all the wiring and small components following the first i.f. transformer were stripped out, leaving only the valveholders and i.f. transformers in position. The last i.f. transformer was however removed and replaced by the third i.f. transformer (85 kc/s) from a BC453 Command receiver.

A small sheet of 18 s.w.g. aluminium was cut to fit the space formerly occupied by the generator and on it were mounted the two remaining BC453 85 kc/s i.f. transformers, a crystal holder, and octal and B7G valveholders.

The three-position switch on the front panel was removed and a 5 K ohm wire-wound potentiometer mounted in its place as r.f. gain control. The combined a.f./r.f. potentiometer was removed and replaced by a  $\frac{1}{2}$  Megohm audio gain control. A single-pole toggle switch was installed for a.v.c. on/off control. The output valveholder was replaced by an octal type for a 6J5 audio stage. The output transformer was removed and a small sub-chassis cut from 18 s.w.g. aluminium to take its place; on this were mounted a B7G valveholder and a small potted output transformer taken from the BC453. The circuit was then wired up as shown in Fig. 4, group boards being used where possible for the small components.

The use of the original 915 kc/s b.f.o. is not really recommended, but when the modifications were carried out an 85 kc/s b.f.o. coil was not available. The 915 kc/s b.f.o. is

quite stable and produces a T9 note, but as the main interest at G3IKR is telephony working, the b.f.o. has never been altered. For serious c.w. work a variable injection b.f.o. at 85 kc/s is recommended.

The value of Rx in the b.f.o. anode circuit was found by trial to give optimum injection and depends upon the circuit layout. A value of 68 K ohms is suggested as a start.

No details of the audio stages are given as some people like 10 watts of hi-fi, others being content with a low power stage driving headphones only. The circuit used in the writer's receiver incorporates a "Selectoject," an EL91 being used as a low power output stage giving ample volume with a 5 in. speaker.

In spite of previous articles to the contrary, a 1 Mc/s crystal is perfectly satisfactory as a second oscillator, although in fact a 500 kc/s crystal will work equally well. Accurate 1 Mc/s beats are produced throughout the tuning range which is useful for band-edge marking. The frequency can be adjusted to exactly 1 Mc/s by adjustment of the trimmer across the crystal. The other trimmer in the second oscillator circuit should be adjusted to give sufficient injection; its setting is not at all critical.

Realignment will be necessary after these modifications have been carried out. Originally the receiver was realigned using the station v.f.o. and the "S" meter, as no proper equipment was available. It was afterwards checked using a wobulator and oscilloscope and found to be very near the optimum position. No details for realignment are given as it is felt that those who carry out these modifications will have the necessary "know-how" and probably the equipment required to do it satisfactorily.

The provision of band-spread has been fully described elsewhere<sup>1</sup> and will not be dealt with here. Suffice it to say that the modification is very worthwhile both as regards actual bandspread and the increased performance effected by the better L/C ratios which are obtained.

#### Results

Results have been better than expected, although it was unfortunate that a standard BC348 was not available for direct comparison. On the DX bands the modified receiver compares favourably with an AR88 as regards signal-to-noise ratio and sensitivity and runs it a close second for selectivity, the main disadvantage being lack of variable selectivity. After three years' use the writer is still unable to work all that he hears, probably due to the long-wire aerial which is in use. Ninety-seven countries have been worked, mostly on 21 and 28 Mc/s phone with comparative ease. On the latter band a modified RF24 unit, using 6AG5 valves, feeds into the receiver on 7 Mc/s.

In conclusion the writer would like to thank Ian Cable (MP4BBW) for much assistance and advice in the early days—but for him the whole project might never have been started.

#### Reference

<sup>1</sup>"Band-spreading the BC348," M. A. Ryan (EI7D), *Short Wave Magazine*, December 1953.

#### A New Low Price Fire Extinguisher

THE development of the Gwish Aerosol Fire Extinguisher now makes it a very real possibility for a radio amateur to install an inexpensive fire fighting appliance close to his transmitting station to deal with minor outbreaks of fire instantly.

The Gwish contains 12 fluid ounces of extinguishing liquid, released as a powerful jet spray by depressing the discharge nozzle. Release of the nozzle completely cuts off the jet. The spray douses flames instantly and carries for 6 ft. with a 3 ft. diameter coverage. The extinguishing fluid used is a non-conductor of electricity, consequently Gwish is safe and effective on all fires whatever their cause.

Gwish extinguishers are available, complete with fixing brackets, price 12s. 11d. each, from Deb Chemical Proprietaries Ltd., Belper, Derbyshire.

# FOUR METRES



# AND DOWN

By F. G. LAMBETH (G2AIW)\*

## Two Metre Conditions Improve — More Auroral Activity

WELL, no one can say that the v.h.f. bands do not produce something more or less unexpected from time to time. Recently both 4m and 2m have come up with a summer aurora, which coincided with the advent of the first really good conditions this summer. The fact that it was in some directions a case of "one way" traffic only, does not detract from the interest of the phenomenon, and the long distance stations heard are some which are normally rarely heard in the south and west of England, at any rate.

The aurora of July 8 started in the west about 17.30 G.M.T. and ended at about 22.00. From the south-east some stations were workable, but again, most were only heard. Strangely enough, in part of the West Country (Bridgwater district) the aurora did not register: beaming to the north brought only stations located in that direction, with clear c.w. notes and good phone signals.

### Station Reports

**B.R.S. 19162** (Dewsbury) found generally poor conditions, except for the end of the period when things brightened up a little. On July 8 E12W was logged for a "first" and 10 counties were heard. Between 21.15 and 21.30 auroral effects were noticed on a number of stations which had been normal until then, in fact the auroral opening just about doubled '19162's list of stations logged! **B.R.S. 20133** (Melton Mowbray) who was away in Italy while the fireworks were going off here, spoke of poor conditions (up to July 4) and correctly prophesied that conditions would improve in his absence! We hope he is wrong about the deterioration expected on his return.

**G3JGJ** (Paignton) says his new QTH has come up to expectations. Many DX stations have been worked including G3MAR/P (near Birmingham). G4DC (Upminster) has been heard at good strength several times. The skeds with GC2FZC, G3KHA and GW3MFY are still going well, and G2RY is generally called between 18.00/18.30. G3JGJ is on the band at 06.30 looking for G4DC or any other station. After this come skeds with G6XM (first QSO, July 9, after many efforts) and G8DA, with G5BM round about 08.30. The aerial at G3JGJ is still a 4-element Yagi. Anyone going to Devon or Cornwall /P or /M who wants a signal on the way down, should send a postcard to G3JGJ. On July 8 G5MR (Hythe, Kent) was heard calling CQ at 19.10 B.S.T., and called unsuccessfully. An unidentified DL was heard calling G5MA while E12W was a strong signal (58) on phone, but no QSO resulted.

**G3BOC** (working as GW3BOC/M) had an hour in Crickhowell, Breconshire, on June 14 during which G3IER was worked, and G3HSN, G3JZG, G5DW, G5MA and G6VZ were heard. **GM3BOC/A** will be in Brora, Sutherland from August 31 to September 12 inclusive, with a small rig. Here's another chance for all you exotic county hunters! **G3LHA** (Coventry) worked G3IKV (Barrow in Furness) and

G3HYH (Manchester) on June 9, and PE1PL was a surprise QSO on June 12. Activity from the London area has been low; only G8VZ, G3HBW, G3JMA and G3LTF are regularly heard in the Midlands, with G8VZ as the most consistent. A 4-over-4  $\frac{1}{2}$  wave stacked Yagi aerial is now in use, which is a great improvement over the 3-element beam previously used. To and from the London V.H.F. Convention on May 17 G3LHA operated /M (St. Albans to Kensington and back) and portable from the usual site at Hampstead Hill. The best DX worked /P (10 watts input) was G2JF (Ashford, Kent). On leaving the Convention at about 23.00 B.S.T. the mobile gear was demonstrated to G3KEQ, G3JQN, G3LOA and G3JXN, all of whom dashed home, and proceeded to work G3LHA on the way back to Coventry.

**G3DIV/P** (Brightling Needle, Sussex) was out on Second Two Metre Field Day. After a late start they had a good day, and ended up with 86 QSOs, two more than last time. Conditions seemed slightly better than on May 4, and the northern portables were at good strength the whole of the day. Some very good signals were also received all day from the Welsh mountains, notably GW3MED/P, seven miles south of Conway and G3JGA/P. From the north, G2HCJ/P (nr. Church Stretton, Salop) was the outstanding signal with G8SB/P and G3ERD/P very good runners-up. The only

### V.H.F./U.H.F. Two-Way Records

50 Mc/s*:	
LU3EX—JA6FR	12,000 miles—March 24, 1956
70/72 Mc/s:	
G5KW—FA9VN	1,156 miles—June 22, 1958
144 Mc/s:	
W6NLZ—KH6UK	2,600 miles—July 9, 1957
220 Mc/s*:	
W8BFQ—W5RCI	700 miles—October 9, 1954
420 Mc/s:	
G3HAZ—DL3YBA	500 miles—June 19, 1957
1250 Mc/s:	
W6HK/6—W6VIX/6	190 miles—June 9, 1956
2300 Mc/s:	
W6IFE/6—W6VIX/6	190 miles—June 9, 1956
3300 Mc/s*:	
W6IFE/6—W6VIX/6	190 miles—June 9, 1956
5250 Mc/s†:	
W2LGF/2—W7FQF/2	31 miles—December 2, 1945
10,000 Mc/s:	
W7JIP/7—W7OKV/7	109 miles—August 8, 1954
21,000 Mc/s*:	
WINVL/2—W9SAD/2	800 feet—May 18, 1946

\* Not assigned to British radio amateurs.

† The nearest U.K. band is 5650 to 5850 Mc/s.

\*21 Bridge Way, Whitton, Twickenham, Middlesex.

station from across the Channel worked was F3ND (Rouen). During the afternoon ON4s and PA0s came in very well—five ON4s and 11 PA0s were worked, two of the PAs being portables. Searching for further DX on c.w. was fruitless, as all the DX was on phone, and c.w. produced nothing better. This is a pity, as we all know the advantage of c.w. on weak signals. The best mobile worked was G5CP/M. The gear used included a QQE06/40 (25 watts), 5-over-5 aerial fed with 300 ohm at 18 ft.; receiver 6J6 p.p.r.f., 6J6 p.p. mixer and c.c. oscillator into an Eddystone 640 tuning 24 to 26 Mc/s.

**G5MA** (Great Bookham) reports after some inactivity, but was on the band for the Second Two Metre Field Day when Westmorland was worked to complete the English County score (G3HII/P). Many DX stations in the north were worked or heard, GD3UB (I.o.M.) being consistent and regular. G5MA says GD3UB is doing a grand job from sea level. GM3FGJ/P (Stow, Midlothian) was heard on July 6 (tropo) and again from his home QTH on the 8th (aurora). On July 8 tropospheric/auroral conditions appeared to be running simultaneously. ON4DW was an auroral QSO and GD3UB and EI2W were worked 100 per cent by tropospheric propagation. GM3FGJ was heard via the aurora as mentioned above. On July 9 GM2FHH (Aberdeen) was worked by aurora at 03.00 and GM3EGW and DL3YBA were both heard. As the aurora progressed, the reflecting medium passed to the northerly direction. There were obviously two openings with a lull in between, which is in keeping with the latest knowledge. **G5MR** (Hythe, Kent) worked G3KHA (Bristol) by aurora and unsuccessfully called GM3FCJ, heard by the same mode. DL, ON, PA and many G DX stations were heard. There was a general fade out after 22.00 G.M.T., and although watch was kept until 01.00 G.M.T. little else was heard. During the Field Day GW3JGA/P and Midlands /P stations were worked, and the conditions were good.

Now what a change in the report from **G5DW** (Ashcott, Som.) who is now back in circulation. G5DW does not altogether agree with other peoples' idea of good conditions on Field Day and thinks that /P activity from ideal sites always gives the impression of good conditions, which is probably true. The regular fixed stations, says G5DW, were not above average. The aurora of July 8 did not show up at Ashcott. Phone signals from the north were very good and perfectly clear—c.w. notes were mostly T9 and nothing was heard from any DX station except on the normal beam heading. One thing noticed by G5DW on his return was that the band seemed full of new calls. Although quite surprising after six weeks absence, this probably happens all the time, and the sudden difference is only the cumulative effect. **G3GRA** (Plymouth) is giving up the unequal struggle as he cannot spare the time listening and calling on a band which appears dead even during contests. As these reports show, there has been plenty these last few days! G3GRA suggests that some keen types would like to journey west to see just where the Iron Curtain is!

**G5BM** (Highnam) says conditions have been fairly good mingled with bad, and ended up with the auroral opening of July 8. None of the stations was worked. G3EYV was first contacted, and reported that PA0EZ was audible by aurora. G5BM put out many CQs beaming north-north-west but had no replies presumably due to low activity level. A few garbled unidentifiable phone stations were heard. G5MR (Hythe, Kent) was heard at a steady 552 but no QSO resulted. Returning to the band at 21.15, G5BM found plenty of activity. G6XX and G3ATM were worked by aurora and various G, GM and continental stations were heard by the same mode. G5BM finally reports a sked with G3EHY (Banwell) at 07.30, in which G3JGJ sometimes joins. Conditions are often good at this time; perhaps more stations could check the band between 07.15 to 07.45 G.M.T. G5BM is usually around from 08.15. How about some GM and northern stations trying?

**B.R.S. 18572** (Mitcham) sends a very interesting "heard" list, which he says is rather short because he did not listen from the home QTH on July 6. On this day '18572 had the pleasure of opening the day at Tadworth (about 600 ft. a.s.l.) and what a difference was there, my friends! The number of stations heard, and their strengths in relation to those encountered at Mitcham (50 ft. a.s.l.) were a real eye-opener for '18572, who wishes he could live at such a location. The Tadworth station was run by some of the Mitcham club members under G3LCH/P. B.R.S. 18572's converter (changed from 6BQ7 to E88CC front-end) was used, the transmitter running 7 watts input, the p.a. being a 12BH7, the audio equipment being EF91—6C4—and 12AX7 with a pair of slots and two reflectors. Forty stations were worked, with good reports from GW and the Midlands. They might have done better, if the frequency (144.96 Mc/s) had been better chosen.

**G3JR** (Barnes) had a few interesting QSOs on July 6. GW3JGA/P was raised for Denbigh, and G2HCJ/P (Shropshire) was the outstanding distance signal, and must have found a very good site near Church Stretton. His signal was S9+ in Barnes on the indoor aerial. The aurora was noticed in its later phase in the early hours of July 9. GM2FHH, GM3EGW and G6UJ were all called without success. On the late evening of July 8, GD3UB and EI2W were both heard clearly, but not worked, for the first time. There was no aurora apparent at that time. Remember this was again on an indoor aerial. G3JR gives some interesting test data as between Yagis and quads. The tests were with G3EYV (Clapham) whose "S" meter has an accurate decibel hand calibration. His receiver voltages are also carefully stabilized. As the figures obtained for locally measured gains of single Yagis agree closely with commercial data obtained when such aerials were tested under ideal measuring conditions (mounted in the clear) results may be of interest although indoor aerials were used for the tests. Adjustments were for maximum gain. All quads had each square element vertically mounted so that two of the sides were horizontal. A 5-element quad signifies five squares.

#### Gain over Dipole

	Yagi	Quad
Two elements	5db	6½db
Three elements	7db	9db
Four elements	8½db	11db
Five elements	9½db	12½db

**G4LX** (Newcastle-on-Tyne) was in on the aurora of July 8/9. At 21.30 already noticeable on other bands, the aurora increased in intensity and signals were observed on 2m with the beam n.e. G3HBW was contacted at 21.48 G.M.T. and DL4WW, G2NY, G3HAZ, G5MA, G6XX, GM3DIQ, GM3FGJ and GM3LAV were heard. The aurora died down at about 22.25 G.M.T. G4LX says tropospheric conditions are still not good in the north but was still able to work several Scottish stations on Field Day. More were heard.

**EI2W** (Dublin) reports that conditions were excellent during the Field Day on July 6 with widespread activity and good signals. The all round activity appeared to be the best since 1953. The contacts made included many first time QSOs. The new 16-element stack is the "best ever" and is giving excellent results. Trouble with frequency shift on July 6 and 7 has now been cured. The trouble was due to a fractured crystal which has been replaced giving the new frequency as 144.084 Mc/s or about 100 kc/s lower than the old one. GW2HCJ/P gave EI2W two new counties—Pembroke and Carmarthen. With Angus and Berwick worked earlier in the week the counties total increased to 70. The strongest signal during the period was from GM3EGW. Conditions have been very good at times since July 6.



### **DXpedition to Scotland—GM3FZL/P and GM3IWA/P.**

These two stations were really one team, G3FZL being the c.w. portion and G3IWA the phone. They operated mainly from a point near Duns (Berwickshire) and Cairn o' Mount (Kincardineshire). Some time was lost owing to a broken piston in the car, but operation was commenced at Duns on June 28. On July 6 there were 18 contacts during the Field Day event. G3FZL says a lot of weak carriers were heard, and many southern stations missed Scottish QSOs because they apparently did not listen for c.w. With regard to the aurora, G3HBW reported to G3FZL his observations that the aurora appeared to shift roughly between n.w. and n.e. and this may account for some of the one-way traffic. It is stressed that merely turning beams to the north is not enough. The auroral signals must be looked for between N.W. and N.E. It is of particular importance to the I.G.Y. Co-ordinators to let them have as many reports on aurora as possible. The information required is (1) Beam heading for optimum signals, (2) Times of observations, beginning and end and (3) The furthest e/w or n/s stations at least heard during the occurrence. Listener reports are just as valuable as others.

### **More News from Scotland**

**GM2FHH** (Aberdeen) reports some interesting openings, both tropospheric and auroral. On July 6 GM2FHH worked (tropospheric) what is possibly the first GM/LA with LA7AE (we have a similar claim in respect of GM3HLH, but no date is given for this). Earlier, GM2FHH worked SM7BTT who was "S9 + 40db" on the meter! A fabulous signal, he uses 500 watts to a 13-element Yagi with a 24 ft. long boom! Tentative arrangements have been made for skeds during August with SM7BTT. GM2FHH reports the auroral opening of July 8/9 as an unusual one; only Gs. were apparently workable, DL, OZ and SM stations were heard, but no QSOs could be obtained from an east/west direction. Most stations seemed to be working on a north/south plan, i.e. G/GM, SM/SM-OZ, DL/DL-OZ-SM. The aerial beaming for this opening was much further to the east than normal at 35/40°. In the first aurora mentioned by GM2FHH (June 28/9) the contacts apart from GM3EGW, were all Gs.

**GM6WL** (Glasgow) reports similar happenings on July 8,

and says GM3DIQ and GM3GUO were in on this short burst of aurora. Many stations were heard, and GM3DIQ worked G5BM (Cheltenham). GM3GUO logged about eight stations. Having missed the first part, GM6WL waited up till 01.00 on the Wednesday morning and then retired about 1 minute too early! GM3EGW told GM6WL it started up again just then and lasted till 02.15! E12W heard PE1PL and an ON4 station at about 13.15 on July 6. On July 6, GM3DIQ and GM3LDU contacted GM3MED/P who was also worked by GM6WL. The Welsh station worked many other GMs including GM3HLH. GM3LDU is a ship's operator who goes on long voyages to Australia, etc., but was home rather unexpectedly and has greatly improved his reception and transmitter. He has already had QSOs with E12W and G13FWF and many GM stations previously inaudible to him. GM3NG has added a 3E29 (829B) to his transmitter and is now getting more solid reports from EI and GI which were his most difficult paths. GM6WL ends by bemoaning his fate at having too much gear "on the bench" to allow for much use of present interesting conditions. Anyway his regular QSOs with G15AJ still continue and he is also working G13FWF and E12W.

**GM3GUI** (Frickheim, Angus) has had several QSOs with GM2FHH during the period.

### **Switzerland**

**HB1RG** (Chassareille) will be operating on 50-05, 71, 145-105 and 435-315 Mc/s from August 22 to September 7.

### **Isle of Man**

It is very pleasant to hear from **GD3UB** (Ramsey) with a good list of G and GW stations worked as well as **DL4WW** heard. **GD3UB**'s transmitter is an SCR522, the aerial being a 12-element stack.

### **Seventy Centimetres**

**G3LHA** (Coventry) is back on 433.5 Mc/s until a crystal on the old frequency of 434.7 can be obtained. More grid drive has now been obtained for the QQV06/40 p.a. and there will be great activity at G3LHA during the coming months using a 48-element stack and G3BKQ converter. For the record, 12 counties have now been worked and 25 stations worked. The most consistent signals from the London area are G3HBW, G5DT and G8AL. **G3JWQ** (Ripley) recently heard G3LHA's phone at 50 miles distance.

### **Four Metres**

**G5MR** (Hythe, Kent) gives the interesting news that the aurora also affected 4m, which was of course to be expected, but it is the first report. After hearing various weird noises with the beam n.n.w., G5MR heard F3RA on that bearing at 564 (c.w.) and tumbled to what was happening. The signals became 559 with the beam turned on them. The Contest of June 21/2 was very much enjoyed; tropospheric conditions were good at first and three French stations were worked in the first half-hour. Towards midday on the Sunday an ionospheric opening occurred and G5MP, G5KW and G5MR all worked FA9VN and were heard by FA3JR. The record question will probably now need sorting out, as apart from the above, several French stations worked into CN8 on June 24 and it is reported that FA3JR worked PA0WO about June 22. Anyway, it is good to know that this activity is available to take care of the bright spots!

Members will have noticed that this band is to be available on a year to year basis. This concession should help to make up the minds of those who have hesitated because the band was to be withdrawn at the end of this year. Now that the sword of Damocles no longer hangs over it, we shall be earnestly awaiting reports from the new population which we are sure will arrive.

**E12W** calls every night on 70-662 Mc/s but no takers so far!

## **RADIO HOBBIES EXHIBITION**

ROYAL HORTICULTURAL SOCIETY'S OLD  
HALL, VINCENT SQUARE, LONDON, S.W.1

**November 26-29, 1958**

The Exhibition Committee invites members all over the country to offer for display equipment of every type from gadgets to complete transmitters and receivers. A Silver Plaque will again be presented in connection with the Constructors' Competition. Prizes value £10 and £5 will be awarded in connection with equipment exhibited by members living outside Region 7. **Offers only in the first instance should reach R.S.G.B. Headquarters by September 30, 1958.** Offers to do stand duty at the Exhibition should be sent direct to G. W. Norris (G3ICI), 134 Meads Lane, Ilford, Essex.

*Enquiries regarding stand space should be addressed to the Exhibition Organizer, P. A. Thorogood (G4KD), 35 Gibbs Green, Edgeware, Middlesex.*

## Six Metres

**G4LX** (Newcastle-on-Tyne) has still had no DX QSOs, but has been hearing some good DX signals, e.g. **ZE2JV** (June 16) and **CTICO** on several occasions, both on c.w.; **CTIAY** (June 26) on phone and **HB9BZ** and **HB9QQ** on June 24 phone and c.w. **ZE2JV**'s signals seem to be tropical "E" propagation and the same is probably true of the CTs. The **HB9** signals are definitely sporadic "E." On July 10 4m QSOs were made with **HB9QQ** (17.00 G.M.T.) and **HB9BZ** (17.12). Sporadic "E" was very intense at the time. **CTICO** was heard again at 17.25 G.M.T.



An interesting sort of bag this time if somewhat truncated, due to the Bad Godesberg Conference at which **DL3FM** was re-elected Chairman of the Region I V.H.F. Committee and **G2AIW** Secretary. Further details next month.

The deadline is back to normal for the September issue: reports by August 18 please. Good luck to all of you, especially the portables.

## Worked and Heard on V.H.F.

### Two Metres

**G3DIV/P** (Brightling Needles) July 6.

Worked: **G2HCP/P**, **3APY/P**, **3DVX/P**, **3ERD/P**, **3FKO/P**, **3GFD**, **3HWS/P**, **3ION/P**, **3JZG/P**, **3JWQ/P**, **3KMT/P**, **3MAR/P**, **4JJ/A**, **5CP/M**, **5YV**, **6XM/P**, **8SB/P**, **GW3GWA/P**, **3FGA/P**, **3MED/P**, **3YZ/P**, **ON4CP**, **4DW**, **4OZ**, **4ZK**, **4ZN**, **PA0EZ/A**, **0FP**, **0GVK**, **0JMS**, **0LOD**, **0LQ**, **0QC**, **0RBM**, **0ROK**, **0SU**, **0TP/A**.

**G3IWA/P**, **G3FZL/P** (Near Duns, Berwickshire.)

**G3FZL/P**: Worked: **G2NY**, **3APY**, **3CCH**, **3DIQ**, **3ENS**, **3HBW**, **3HYH**, **3HZK/P**, **3JWQ**, **3LDU**, **3MED**, **4HR**, **5YD**, **6LI**, **GM2FHH**, **3FZL/P** (Cairn o Mount).

**G3IWA/P**: July 6. Worked: **EI2W**, **G2HCP/P**, **2NY**, **3APV/P**, **3CCH**, **3ENS**, **3GFD**, **3HA**, **3HWF/P**, **3MAR/P**, **4JWQ/P**, **GM3EGW**, **3FGJ/P**, **3HLH/A**, **3KYI**, **GW3MED/P**, **3HR/P**. Heard: **G3ERD/P**, **5MA**, **GB3IGY**.

**G3IWA/P** worked during the trip: **G4LX**, **GM2FHH**, **3FSD**, **3LAV**, **3HLH**.

**G3JGJ** (Paignton) May 4-June 20.

Worked: **F3LP**, **G2RY**, **3BDL**, **3GHI**, **3GRA**, **3GVC**, **3IBI**, **3KHA**, **3KSR/P**, **3LOK**, **3LTF**, **4DC**, **4PS**, **5MA**, **8DA**, **GC2FZC**, **GW3MFY**, **8SU**. Heard: **G2JF**, **3DN/P**, **3FIH**, **3FKO/P**, **3HIF**, **3ION/P**, **3JMA**, **3NR**, **5BM**, **6VWY**, **GB3IGY**.

**G3JGJ** (Paignton) June 18-July 9.

Worked: **G2RY**, **3FKO/P**, **3GOP/P**, **3HTA**, **3ICA**, **3IER**, **3ION/P**, **3KHA**, **3LHA**, **3MAR/P**, **5BM**, **6XM**, **8DA**, **GC2FZC**, **GW3MFY**. Heard: **G2DTP/P**, **2HCU/P**, **2MV**, **3DIV/P**, **3ERD/P**, **3IRS**, **3JMA**, **3LTF**, **3LTS**, **4DC**, **4PS**, **5MA**, **5MR**, **5WVW**, **GB2RS**.

**G4LX** (Newcastle-upon-Tyne) 3 July 6.

Worked: **GM3FGJ/P**, **3HLH/A**, **3IWA/P**. Heard: **GM3EGW**, **4HR/P**.

**G5BM** (Highnam, Glos.) June 29-July 8.

Worked: **EI2W**, **F3LP**, **G2HCP/P**, **2JF**, **3ATM**, **3AYC**, **3EYV**, **3FCQ**, **3FD/P**, **3FKO/P**, **3GPW**, **3HRH**, **3JGJ**, **3JR**, **3LDY/P**, **3LTF**, **3MAR**, **3NR**, **4DC**, **5DW**, **6JK**, **6XX**, **8DR**, **8VZ**, **G3GXP**, **GW3MED**, **3YP/P**. Heard: **DL3NQ**, **3YBA**, **3WW**, **F3ND**, **G2NY**, **3WS**, **4LX**, **5YV**, **5MR**, **GD3UB**, **GM3FGJ**.

**G5BM** (Orcop Hill, Herefordshire) July 6.

Worked: **G3BJF**, **3GGR/P**, **3HTY**, **3HZN**, **3IER**, **3IRS**, **3JAZ/P**, **3KMT/P**, **5YV**, **8SB/P**, **GW3JGA/P**, **3JYZ/P**, **4LUJ/M**, **5SA/P**.

**G8VZ** (Princes Risborough) May 19-June 15.

Worked: **G3DJJ**, **3DKF**, **3ENY**, **3FGT**, **3GSO**, **3IRS**, **3JWQ**, **3JZG**, **3KHA**, **3LGI**, **3LHA**, **5DVV**, **5SK**, **5YV**, **6SN**, **6XX**.

**GD3UB** (Ramsey, I.O.M.) June 16-July 9.

Worked: **G2BVW**, **2NY**, **2OI**, **2HCJ/P**, **3CCH**, **3DA**, **3DJJ**, **3EKX**, **3FMT**, **3GGR**, **3GSO**, **3GUX**, **3HBW**, **3HYH**, **3HWS**, **3HZK/P**, **3IEA**, **3IKV**, **3ILX**, **3IRA**, **3IRS**, **3IWI**, **3JAZ**, **3JZN/P**, **3KEQ**, **3KJM/A**, **3KMT/P**, **3KQF**, **3LGI**, **3LHA**, **3MAR/P**, **3MJU**, **3WS**, **5MA**, **5YV**, **6NP**, **6XM**, **GW3GWA**, **3JGA/P**. Heard: **DL3WVW**.

**GM2FHH** (Aberdeen) May-June.

Worked: **G5YV**, **G5AJ**, **GM3DGI**, **3EGW**, **3FGJ**, **3GUI**, **3HLH**, **3YS**, **3KYI**, **3LAV**, **4HR**, **6SR**.

**GM2FHH** (Aberdeen)

Worked: (Tropospheric) **G2NY**, **5YV**, **6XM**, **G5AJ**, **GM3DGI**, **3EGW**, **3FZL/P**, **3HLH/A**, **3IWA/P**, **3KWI**, **3LAV**, **4HR**, **6SR**, **GW3MED/P**, **LA7AE**, **SM7BTT**. Worked: (Aurora) June 28-29. **G2NY**, **3ATM**, **3HYH**, **3JZG**, **3GAR**, **5YV**, **5BD**, **GM3EGW**. Worked: (July 8-9) **G3HBW**, **3WS**, **5MA**, **6XX**. Heard: **DL1LB**, **3YBA**, **4WVW**, **OZ2BB**, **SM6BTT**.

**GM5WL** (Glasgow) May 17-June 14.

Worked: **G5AJ**.

**EI2W** (Dublin) June 6-13.

Worked: **G2NY**, **2XV**, **3AGS**, **3AYT/P**, **3BNK**, **3BVW**, **3ERD/P**, **3EKP**, **3GFD/P**, **3GTN**, **3GSO**, **3HBW**, **3HWS/P**, **3HXN**, **3HII/P**, **3ILX**, **3IWI**, **3JAZ**, **3JWQ/P**, **3KEQ**, **3KFT/P**, **3KUH**, **3LGT**, **3LHA**, **3MAR/P**, **3ZM**, **4DC**, **5BM**, **5MA**, **5YV**, **6NB**, **6DT/P**, **6XT**, **6YU**, **8SB/P**, **8VZ**, **G3AXD**, **3GDB**, **3GXP**, **3IJM**, **GM3DIQ**, **3EGW**, **3IWA/P**, **3NG**, **4HR**, **6WL**, **GW2HCP/P**, **2HIY**, **2HIY/P**, **3MED/P**, **8SU**.

**B.R.S. 18572** (Mitcham) June 25-July 10.

Heard: **EI2W**, **G2BVW**, **2FNW**, **3EKX**, **3GSO**, **3GVC**, **3IIT**, **3JWQ**, **3JZG**, **3KHA**, **3LHA**, **3MED**, **3MNG**, **5CP/M**, **5CP/M**, **5YV**, **ON4DW**, **PA0TP**.

**B.R.S. 19162** (Dewsbury, Yorks.).

Heard: **DL4WVW**, **EI2W**, **2BVW**, **2FJR**, **2FNW**, **2XV**, **3BA**, **3EEV**, **3FIH**, **3FZL**, **3GGR**, **3GHO**, **3GSO**, **3HBW**, **3HHD**, **3HXN**, **3HZK**, **3JMA**, **3KEQ**, **3KQF**, **3LAY**, **3MED**, **3MUX**, **4LX**, **5BM**, **5KG**, **5MA**, **5MR**, **6JY**, **6LI**, **6NB**, **6XM**, **8VZ**, **G3GXP**, **GM2FHH**, **3FJG**, **PEIPL**.

**B.R.S. 20133** (Melton Mowbray) June 16-July 3.

Heard: **G2BVW**, **2CDB**, **2FMO**, **2FNW**, **2HCG**, **3APY/M**, **3BA**, **3DJJ**, **3DVK**, **3ENS**, **3EKX**, **3FAN**, **3GSO**, **3JWQ**, **3JWQ/M**, **3KQF**, **3KUH**, **3LCV**, **3MNQ**, **3HYH**, **4MK**, **5CP/M**, **5KG**, **5YV**, **6XM**, **6YU**, **8CZ**, **GB2RS**.

## R.S.G.B. QSL Bureau Sub-Managers

THE following is a list of the R.S.G.B. QSL Bureau Sub-Managers showing the call-sign groups for which they are responsible:

**G2 and DL2 calls:**

**G. Verrill (G3IEC)**, 10 Seahorse Street, Gosport, Hants. (Certificates Manager).  
**P. Jones (G3ESY)**, 94 Holme Lacy Road, Hereford.

**G3,4 and 5 two-letter calls & GC**

**A. J. Mathews (G6QM)**, 62 Ashlands Road, Hesters Way Estate, Cheltenham.

**G6 calls:**

**A. W. Gover (G4AU)**, 20A, Cambridge Road, Bromley, Kent.

**G8 calls:**

**M. Hassall (G3EMD)**, 99 Shenstone Valley Road, Quinton, Birmingham.

**G3AAA-BZZ:**

**C. A. Bradbury (B.R.S. 1066)**, 13 Salisbury Avenue, Cheltenham.

**G3CAA-DZZ:**

**W. J. Green (G3FBA)**, 82 Bloomfield Avenue, Bath.

**G3EAA-HZZ:**

**C. Usher (G2CCD)**, 24 Carlisle Road, Dartford, Kent.

**G3IAA-KZZ, B.R.S. and A numbers**

**G. C. Voller (G3JUL)**, 13 Marlborough Road, Ashford, Middlesex.

**G3LAA-MZZ:**

**T. R. Moore (GD3ENK)**, "Glyn Moar," St. John's, Isle of Man.

**GD calls:**

**W. H. Martin (G5HYV)**, "Swallow Lodge," Greenisland, Co. Antrim, Northern Ireland.

**GI calls:**

**D. Macadie (GM6MD)**, 154 Kingsacre Road, Glasgow, S.4.

**GM calls:**

**J. L. Reid (GW3ANU)**, 28 Walterston Road, Gabbala, Cardiff.

**GW calls:**

Envelopes for the collection of cards should be sent direct to the Sub-Manager concerned and not to the QSL Manager (Mr. A. O. Milne). Outgoing cards should not be sent to the Sub-Manager unless they are in the call-sign group for which he holds envelopes. For example, the holder of **G3J--** call may send cards for calls in the series **G3IAA-G3KZZ** to his own Sub-Manager, together with envelopes for the collection of cards, but he should not send to him cards in any other call-sign series. Sending cards for general distribution to the Sub-Managers only involves the cards in delay and the Society in needless expense. Mr. Milne's address is 29 Kechill Gardens, Bromley, Kent.

## North Eastern Regional Meeting and Mobile Rally

SUNDAY, SEPTEMBER 21, 1958

SPA ROYAL HALL,  
BRIDLINGTON,  
EAST YORKSHIRE

### Programme

Assemble - - - -	1.30 p.m.
Business Meeting - -	2.30 p.m.
Ladies' and Children's Tour	2.30 p.m.
Tea, followed by Draw -	5.0 p.m.

Prizes will be awarded for the best mobile installations. Talk-in stations will be in operation on Top Band and 80 metres. Accommodation for the week-end (Saturday and Sunday) can be arranged at prices from 35/- per person.

Tickets, price 6/6 each (including Tea and Draw), and further information may be obtained from Cliffe Metcalfe (G3DQ), 12 Cliff Street, Bridlington. (Telephone: Bridlington 4872 (day) or 5180 (night)).

# Single Sideband

By ALAN FAWCETT (G2HQ)\*

SINCE the first article in this series (May 1958) the writer has been on the continent, a trip which afforded an opportunity to visit ILOV at Malnate near Varese. Augusto and his son Gianni are well known to s.s.b. operators on 14 Mc/s. The station has outgrown its "shack" and a new wing is being built on to the house to accommodate the ever increasing gear. Augusto has an impressive array of aerials, with a large tower to support beams for 14, 21 and 28 Mc/s. An additional slender mast supports a 420 Mc/s beam. During the visit the opportunity was taken to handle the Collins 75A4 receiver and KWS1. A sked was kept with VS2DO in Kuala Lumpur.

the few ways we now have left to us for distinguishing summer from winter in this country!

In the first week 9G2AM/M in Kuwait was worked at great strength on 20m. He was using a KWM-1 and was apparently on a visit from HZ. About the same time and for several evenings HZ1AB was very active, and also came in at S9. VE3RM/P4X4 appeared one evening out of the blue. A new Australian station active when no other VK or ZL station could be heard was VK3AHO. He is the proud possessor of a Sterba curtain and a few mornings later when he was using a modified G4ZU four element beam, on which his signal was S3-4, a change to the Sterba had the effect of putting his signal up to S8, an amazing improvement. Reception at his end went up in the same degree.

A number of good openings seem to occur from time to time, and ZL, VK, W6 and 7 together with KL7 have been worked.

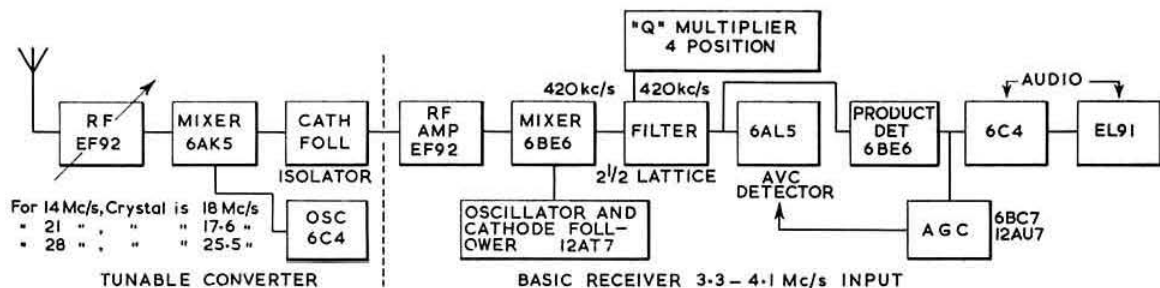


Fig. 1. Block diagram of the receiver used by G2HQ, and based on a design by G3MY.

At the beginning of June, a welcome and interesting visitor to G2HQ was Paul Stein (ex-VQ4EO), straight from his trip across Africa, and complete with the famous Land-Rover and radio equipment. It was very interesting to see the way that the gear has been arranged, and the efficiency and stability obtained. Whilst demonstrating the G2HQ sideband rig to Paul, a CQ call on 21 Mc/s was immediately answered by an incredibly strong signal from VSIHS in Singapore who was anxiously looking out for any G station. He said that we were the first station he had contacted in this country or Europe with his new s.s.b. transmitter. A number of the Malayan stations are at the moment building s.s.b. equipment and hope to be able to get on the air shortly in spite of the great handicaps under which they labour. They complain bitterly about the lack of components forthcoming from the homeland manufacturers, and wish that some one would take note that there is a ready market for such things as filters, phasing units, etc.

## S.S.B. Receiver

A block diagram of the receiver in use at the writer's station may be of some interest (Fig. 1). It is similar to that designed by G3MY and works very well indeed. It is stable in a short time after warming up thanks to the right balance between negative and positive condensers. The a.g.c. takes care of the overloading from strong signals.

The "Q" multiplier is useful not only in nulling out unwanted stations, but to improve the quality of speech, and to clear away background noise. The unit, which is built up on a separate small chassis before being incorporated in the receiver, has four positions: OFF, PEAK, NULL, C.W.

## Band Conditions

During June, conditions, like the weather, were bad and unpredictable, as is so often in mid summer. This is one of

Apart from American stations, 15m seems to be little used by s.s.b. operators. Throughout June, from early evening until after midnight, excellent conditions prevailed, and signals were coming in at phenomenal strength from W1, 2, 3, 4, 8. To check the worth of the band, tests have been made with 9G1BF. From early morning until late at night it was possible to effect communication at strengths of S9 and over on almost every occasion, and, for the most part, with an entirely silent background. Comparative tests between 15 and 20m have shown that for working to Ghana, 15 is by far the better band.

Owing to the lack of s.s.b. stations in the Far East one has to be content with working a.m. stations in that part of the world.

An interesting comparison was recently made with VS6DJ in Hong Kong who uses a 75A4 receiver. Using a.m. at G2HQ, signals were unreadable, but on switching to s.s.b. VS6DJ could read the signals 100 per cent at S4.

During July conditions have improved somewhat, and many s.s.b. stations in various parts of the world have been worked, amongst them VQ9GU who is on holiday in the Seychelles. He is working on 14 and 21 Mc/s, mostly in the early evenings. Other new stations on s.s.b. are ZP5BC in Paraguay and PK1CG in Java. F7RQ/M, who was on holiday near Geneva, was worked at S9 whilst his car was inside the garage.

## Mobile Working

There appears to be considerable interest in mobile working at the moment, and several amateurs in this country are planning to build new s.s.b. transmitters for this purpose. G2MF, having had a good innings on a.m. mobile, is now busy building such a rig and hopes to take a KWM-1 to Guernsey in the autumn. Does anyone know of any British firm manufacturing toroidal transformers for power transistor h.t. supplies?

\* 4 Woofindin Avenue, Sheffield 11



## Society News and Proceedings

### London Meetings

THE following programme of meetings and lecture meetings has been arranged:

- September 26, 1958 "Broadcasting Aerials," by H. V. Sims (Senior Lecturer, B.B.C. Engineering Training College, Evesham).  
October 24, 1958 "Radio Conditions in Antarctica," by Major G. Watson, ex-VP8BP (War Office).  
November 14, 1958 Annual General Meeting at the Overseas League.  
December 12, 1958 Presidential Address, followed by a technical film show.  
January 23, 1959 "Recent Developments in the Microwave Field," by K. W. Drummond (Mullard Ltd.).  
February 27, 1959 "Single Sideband Techniques," by B. J. Rogers, G3ILI (Bush Radio Ltd.).  
March 20, 1959

All the meetings, with the exception of the A.G.M., will be held at the Institution of Electrical Engineers, Savoy Place, Victoria Embankment, London, W.C.2. Meetings will commence at 6.30 p.m. Buffet tea from 6 p.m.

### Old Timers' Dinner

ABOUT 70 old timers, including seven Past Presidents of the R.S.G.B., have promised to attend the third Old Timers' Dinner which is to be held at The Horse Shoe Hotel, Tottenham Court Road, London, W.C.1, on Friday, October 10, 1958.

Radio amateurs who have held a full licence, issued by the United Kingdom Postmaster-General, continuously, including the war years, since January 1, 1933, are eligible to attend. The cost of the dinner, including service, will not exceed 25/- and lounge suits will be worn.

Those who wish to attend should send a stamped addressed envelope to Mr. John Clarricoats, O.B.E., (G6CL), 16 Ashridge Gardens, Palmers Green, London, N.13, for further details. Mr. Clarricoats is arranging the dinner in his private capacity but with the knowledge and approval of the President of the R.S.G.B. (Mr. L. E. Newnham, G6NZ).

The Horse Shoe Hotel was the venue chosen for the Second Old Timers' Dinner held in 1948.

### Regional Meetings

ABOUT 60 members and friends attended the Region 5 meeting at the Shire Hall, Cambridge, on Sunday, June 29, 1958. Council was represented by Arthur Milne (G2MI), Jack Hum (G5UM) and the General Secretary, John Clarricoats (G6CL).

Many of those who arrived by car enjoyed the happy experience of being "talked in" to Cambridge by either G2ALL/A on Top Band or by G3GGJ/A on 2 metres. The operators were G3GGJ/A (Top Band) and G2XV (2 metres).

After a pleasant lunch the ladies of the party were taken on a conducted tour of the colleges by Mr. and Mrs. Potter.

During the business meeting the General Secretary gave a full and informative account of the Society's work in recent months and was ably supported by G2MI and G5UM. A discussion took place on the number of members who attend O.R.M.s as compared with the number who attend Mobile Rallies and the opinion was expressed that it may

become necessary to revise the long-standing procedure in relation to meetings. The latter appear to be supported by a solid core of keen enthusiasts, whereas the Rallies attract a much greater number of people, probably because of the social nature of the events.

After the business meeting Ivan Howard (G2DUS) gave a most convincing demonstration of Amateur Television and stereo sound.

Tea was followed by a draw for prizes donated by the radio trade and others. A Taylor meter was awarded by popular vote to H. C. Collins (G2DQ) for the best mobile rig at the meeting.

Winding up the proceedings the Regional Representative (T. A. T. Davies, G2ALL) expressed his indebtedness to the Cambridgeshire County Council for their co-operation and help in providing the facilities for the meeting while the Cambridge T.R. (Mr. A. H. G. Waton, G3GGJ) thanked G2DUS, on behalf of all present, for arranging the Amateur TV and stereo sound demonstrations.

Visitors from other regions included Harry Lowe (G2HPF), Region 16 Representative, and Fred Lambeth (G2AIW), Region 7 Representative.

WELL over 100 members and friends attended the Region 9 meeting at Colson's Restaurant, Exeter, on June 29, 1958. All parts of the Region were well represented, many members travelling long distances to be present. Council was represented by Council Members C. H. L. Edwards (G8TL) and E. W. Yeomanson (G3IIR) and by J. A. Rouse, G2AHL (Deputy General Secretary). Other members of the Council present were Messrs. H. A. Bartlett (G5QA), D. A. Findlay, D.F.C. (G3BZG) and W. J. Green (G3FBA).

After an excellent lunch, members had an opportunity to fire questions at the Council representatives for nearly two and a half hours. Among the topics discussed were BULLETIN articles and advertising, TVI, the new *Amateur Radio Handbook*, R.A.E.N., subscriptions, and contests.

A special programme for wives and children was laid on. Following the business meeting, tea was served and a draw for many valuable gifts donated by the radio industry and press took place.

The arrangements for the meeting, one of the most successful held in the West Country in recent years, was in the hands of the C.R. for Devon, Basil Munro (G3FLK) and a committee of Exeter transmitting, B.R.S. and Associate members. A special word of thanks is due to Mrs. Munro, mother of G3FLK, for her hospitality to the committee on many occasions and for handling much of the correspondence.

### De Luxe Car Plaques

OVERSEAS members are asked to note that the price of the de luxe car plaque is now 21/- post paid. This increase is due to the fact that it now costs 5/6 to post a de luxe car plaque to an overseas address. The post paid price to U.K. members remains unchanged at 17/6.

### Panda Radio Co., Ltd.

AT a Creditors' Meeting of Panda Radio Co. Ltd., held on July 9, 1958, Mr. James Wild of 74 Blackburn Street, Ratcliffe, Lancs., and Mr. Gilbert H. Eaves, of 47 Mosley Street, Manchester 2, were appointed Joint Liquidators.



**Present:** The President (Mr. L. E. Newnam in the Chair), Messrs. W. H. Allen, N. Caws, C. H. L. Edwards, D. A. Findlay, W. J. Green, J. H. Hum, E. G. Ingram, W. R. Metcalfe, A. O. Milne, E. W. Yeomanson (Members of the Council), John Clarricoats (General Secretary), and John A. Rouse (Deputy General Secretary).

**Apologies for Absence**

Apologies for absence were submitted on behalf of Messrs. H. A. Bartlett and W. A. Scarr.

An apology for absence was received later from Mr. A. C. Williams.

**Absent:** Messrs. R. H. Hammans, F. Hicks-Arnold and H. W. Mitchell.

**Reports of Committees**

**Resolved** (i) to receive as Reports the Minutes of Meetings of the Exhibition, Membership and Representation, TVI/BCI, Technical, Finance and Staff and Publications Committees.

(ii) to accept a recommendation of the Exhibition Committee in respect to the preparation of technical leaflets for sale on the Society's stand at the National Radio Show and Radio Hobbies Exhibition.

(iii) to accept a recommendation of the TVI/BCI Committee in respect to a request for information concerning the negotiations which led to the introduction of the current Amateur (Sound) Licence with particular reference to Clause 4 (Non-Interference).

(iv) to accept a recommendation of the Finance and Staff Committee that all the Society's investments should be held in the names of the General Secretary and Honorary Treasurer. (Upon enquiry it has been ascertained that all Society investments are, in fact, held in the name of the Society.—EDITOR.)

(v) to accept recommendations of the Publications Committee in respect to a new edition of *A Guide to Amateur Radio* and the Society's Journal. (The recommendations authorize Headquarters (a) to publish a 64 page issue of the *Guide* (to sell at a price not less than 3/6) and (b) to increase occasional issues of the Society's Journal to 64 pages, in order to clear a back log of technical articles.)

**Proposed DX Convention**

It was reported that it had not been found possible to obtain suitable accommodation at a reasonable price for a dinner in Central London during the Saturday evening of the projected DX Convention.

**Finance**

The Cash Account for May 1958 was received and adopted.

**National Radio Show**

It was reported that the Radio Industry Council had offered satisfactory space for a Society stand at the Earls Court Radio Show.

**Scheme of Representation**

Members of the Council were invited to examine the present scheme of representation and to submit their views in writing to the Membership and Representation Committee.

**Frequency Proposals**

It was reported that members of the G.P.O. Liaison Committee had that day met representatives of the Steering Committee which had been set up by the Postmaster General to prepare the United Kingdom "brief" for the World Radio Conference due to open in Geneva on August 17, 1959. The meeting had discussed the frequency proposals put forward by the Council in November 1957.

(It is anticipated that the U.K. "brief" to Geneva will recommend that the frequencies allocated to amateurs in Region I shall in general remain unchanged.—EDITOR.)

**Membership**

**Resolved** (i) to elect 118 Corporate members and 20 Associates. (ii) to grant Corporate membership to 3 Associates.

The Secretary reported that he had written to a number of newly licensed amateurs who were not members of the Society inviting them to apply for election. Results had been very satisfactory.

The Secretary also reported that 94 of the 671 members whose subscriptions became due on March 1, 1958, became 3 months overdue on May 31, 1958, and that 17 of the members concerned had written to resign.

**Bulletin Editorials**

It was agreed that the phrase "Current Comment discusses topics of the Day" should appear in an appropriate place on the Editorial page.

It was further agreed that the *Current Comment* feature should be the responsibility of the Editor, who should be given discretion to invite members of the Council and other competent members to contribute comments on specified subjects.

It was agreed that the practice of sending a copy of *Current Comment* to the President for his approval should be continued.

*The meeting terminated at 9.30 p.m.*

**Sir Ian Fraser**

THE announcement that The Queen had signified her intention of conferring a life peerage on Sir Ian Fraser, C.H., C.B.E., M.P., will have been read with special pleasure by those radio amateurs who remember Sir Ian's keen and lively interest in the R.S.G.B. and in the old T. & R. Section.

Sir Ian operated an Amateur Radio station from his home in Regent's Park, London for several years after the first World War (in which holocaust he lost his sight), and he was an active member of the old T. & R. Section Committee. He became President of the R.S.G.B. in 1928 following Sir Capel Holden in that office and he opened the Amateur Radio Exhibition in 1952.

Sir Ian, who is Chairman of St. Dunstan's, is also closely associated with the Royal National Institute for the Blind. For eleven years he was President of the British Legion.

It is the hope of all his friends in the Society that the wisdom that has characterized Sir Ian's service as a Member of Parliament will for long be brought to bear on the deliberations of the House of Lords. On behalf of all members we offer him warm congratulations on his well-deserved preferment.

Sir Ian will be known as Baron Fraser of Lonsdale. Until his elevation he was Conservative member of Parliament for the Morecambe and Lonsdale division of Lancashire.

**Interference With Wireless Telegraphy  
Appointments to P.M.G.'s Advisory Committee**

THE Postmaster General has appointed Mr. O. W. Humphreys, C.B.E., B.Sc., M.I.E.E., as chairman of the Advisory Committee on wireless interference from ignition apparatus. The Committee was appointed under Section 9 of the Wireless Telegraph Act, 1949. Mr. Humphreys succeeds Sir Stanley Angwin, K.C.M.G., K.B.E., D.S.O., M.C., T.D., D.Sc.(Eng.), Hon. M.I.E.E., who has

resigned because of ill health. The Postmaster General has also appointed Mr. W. Nethercot, M.A., B.Sc., F.Inst.P., to be a member of the Committee.

**Amateur Television Convention to be held in London**

THE British Amateur Television Club is holding its fourth Convention on September 6, in the Conway Hall, Red Lion Square, Holborn, London, W.C.1, from 10 a.m. to 7 p.m. There will be displays of home-built amateur television equipment in operation, demonstrations of colour television and pictures received from the Club's mobile unit. Admission charges for non-members will be as follows: all day—5/-; after 2 p.m.—2/6.

Tickets will be on sale at the door but are also available together with further information from D. S. Reid, 27 Rose Valley, Brentwood, Essex; J. E. Tanner, 16 Norfolk Drive, Chelmsford; and D. W. E. Wheeler (G3AKJ), 56 Burlington Gardens, Chadwell Heath, Romford, Essex.

**Region 1 Field Day**

THE rules governing the Region 1 Field Day to be held on August 31, may be obtained from the Regional Representative, Basil O'Brien (G2AMV), 1 Watpark Road, Prenton, Birkenhead. Any individual group, with or without an appointed A.R. or T.R., may compete.

Participants will be looking for contacts with other portable stations outside the Region as such contacts will score extra points. It is hoped that the event will encourage others to operate portable on the day.

**Activity on Scroby Island**

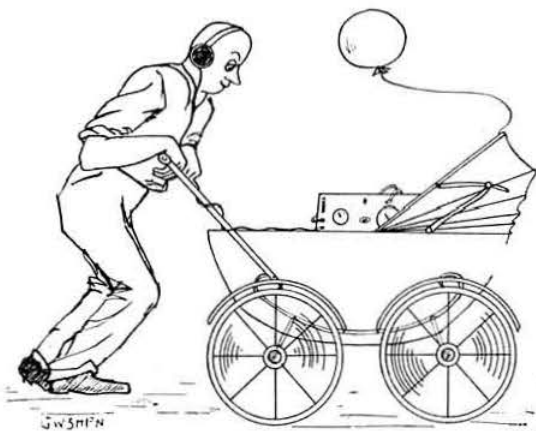
THE Great Yarmouth Group hope to land equipment on Scroby Island located 1½ miles East of Gt. Yarmouth on Sunday, August 24. Special QSL cards are being printed to verify contacts made on 3.5 and 7 Mc/s. The approximate operating time will be 09.00-13.00 B.S.T.

## Excellent Attendance at Stockport and South Manchester Mobile Rally

IN spite of heavy showers, the Mobile Rally on July 13, 1958, at Capesthorpe Hall, near Wilmslow, organized by the South Manchester and Stockport Radio Clubs, was a great success, with an attendance of more than 300 people. About half of the cars—over 100—were equipped for mobile operation, 35 entering the Mobile Merit Competition.

Prior publicity for the Rally was given not only by the radio press but also by local newspapers and the B.B.C. who broadcast an interview with G6DN on July 10.

G3AYT and G6DN were the judges of the Merit Competition, the factors taken into consideration being safety in operation whilst actually mobile, appearance, general neatness and absence of inconvenience to driver and passengers and other motorists. Possible fire risks were also considered. The first prize went to G2AUC/M whose equipment comprised a homebuilt 4.5 watts Top Band transmitter and a modified Command receiver used with an approximately centre loaded whip mounted on the rear bumper. The runners-up were G3DDO/M using similar equipment to a



What happens when the ardent mobilee's XYL takes the car to the Women's Institute?

base loaded whip above roof level and G3JJC/M whose transmitting and receiving installation was an excellent example of well-constructed and neatly installed gear. The prizes were presented by Mrs. Bromley Davenport, wife of Col. Bromley Davenport, M.P., who kindly made the grounds of Capesthorpe available for the Rally.

Among those present was the Regional Representative, Basil O'Brien (G2AMV).

The talk-in stations were G3KMS on Top Band, G3AQW on 3.5 Mc/s and G3AYT on 144 Mc/s.

The organization of the Rally was undertaken by a joint committee of the two sponsoring societies, who had the support of many members and their ladies. Particular mention must be made of the joint secretaries, Messrs. G. R. Phillips (G3FYE) and C. M. Denny (G6DN), who did so much to ensure the success of this, the first, but by no means last, Manchester and Stockport Rally.

## Hamfest and Mobile Rally to be held at Lincoln

A Hamfest and Mobile Rally is being organized by the Lincoln Short Wave Club at the Technical College, Lincoln on September 21. Attractions include a lecture on transistors by a member of B.T.-H., a tour of historic Lincoln, high tea, a junk sale and a competition for the best home-built mobile installation. Tickets, price 8/- and s.a.e. from: R. W. Sadler, 14 Hainton Road, Lincoln.

## WOBURN ABBEY MOBILE RALLY

Woburn Abbey, Bletchley, Buckinghamshire

(by permission of His Grace the Duke of Bedford)

Sunday, September 14, 1958

- ★ Competition for the most ingenious home-built mobile installation.
- ★ Tours of the Woburn Abbey State Apartments and the Zoo Park (3,000 acres, 7 miles of roads, more than 2,000 animals).
- ★ Childrens' Playground and Pets Corner.
- ★ Restaurant and Picnic Grounds.
- ★ Special Rally Car Parks.

### RALLY STATIONS

1.8 Mc/s—G3IIR/P 3.5 Mc/s—G4OL

144 Mc/s—G3FZL/P.

Organized by the Woburn Abbey Mobile Rally Group.

## Stamford Mobile Rally Cancelled

THE organizers have decided that the Mobile Rally which was to have been held at Burghley House, Stamford, on September 28, 1958, will not be held until 1959. It was considered that too many rallies were being organized for September.

## Flying Saucer Research Society

MR. H. BUNTING, 36 Ilkley Crescent, Reddish, Stockport, Cheshire, will be glad to hear from any radio amateur who is interested in ascertaining the truth and origin of the phenomena known as "flying saucers" or unidentified flying objects. The Flying Saucer Research Society, of which Mr. Bunting is vice-chairman, meets regularly twice a month in Milton Hall, Deansgate, Manchester.

## Can You Help?

- R. Baines (B.R.S. 21457), 89 Nelson Road, Gillingham, Kent, who wishes to know the types of valves used in the A.M. 361 Receiver?
- Borje Norstedt (SM7ATF), Box 124, Stockyard, Sweden, who requires details of the receiver type LB-12-3 which was manufactured or distributed by Kaysales Ltd. of Tunbridge Wells?

## Contests Diary

1958

September 6-7	- V.H.F. National Field Day <sup>1</sup>
September 6-7	- European V.H.F. Contest
September 6-7	- 1250 Mc/s Tests <sup>1</sup>
September 7	- D/F National Final (organised by Slade Radio Society)
September 14	- Low Power Field Day <sup>2</sup>
September 28	- R.A.E.N. Rally <sup>3</sup>
October 4-5	- Low Power Contest
October 4-5	- VK/ZL DX Contest (Phone Section) <sup>4</sup>
October 11-12	- VK-ZL DX Contest (C.W. Section) <sup>4</sup>
November 8-9	- Second 1.8 Mc/s Contest
November 15-16	- Second 70 Mc/s Contest
November 22-23	- 21-28 Mc/s Telephony Contest <sup>5</sup>

<sup>1</sup> For details, see page 33, R.S.G.B. Bulletin, July 1958.

<sup>2</sup> For details, see page 86.

<sup>3</sup> For details, see page 87.

<sup>4</sup> For details, see page 87.

<sup>5</sup> Details to be published in R.S.G.B. Bulletin, October 1958.

# R.A.E.N. Notes and News

By E. ARNOLD MATTHEWS (G3FZW)\*

TO a great extent the value of any emergency communications system is in proportion to its ubiquity. It is therefore very pleasing to record that new registrations have been flowing into H.Q. in a steady stream from many parts of the country. These reflect the growing interest in R.A.E.N. in regions away from the East Coast. In any one county the numbers may not seem impressive, but the total for the country is now very satisfactory. From Hampshire to Lancashire, and Londonderry to Loughborough there is a definite pattern of steady expansion.

Surprisingly, as this is not the traditional season for building equipment, there is a marked increase in the number of mobile stations coming into service. This allows controllers to change the pattern of their county planning away from the original aim of providing full county coverage with fixed stations. Many groups now comprise a few strategically sited fixed stations, supported by as many mobiles as possible, plus a transportable set for /A siting at user services' headquarters. This allows a more efficient service and eliminates the problem of recruiting in "difficult" areas. B.R.C.S. have a policy of "mutual aid" which requires divisions or county branches to go to their neighbours' aid when necessary. Mobiles are almost essential if R.A.E.N. is to accompany such excursions. They also allow Groups to follow a similar policy, and make possible a far greater diversity of exercises.

A recent report from West Essex Group shows that the reliable range for a mobile on 160m. is about 10-15 miles. It is suggested that when operating from poor locations, an intercepting mobile be used as a relay. No mention is made of night operation, and it would be instructive to have some data on the ranges of mobiles under these conditions, but with the background of high noise level which darkness brings.

## Around the Groups

A jubilant Essex Group left their County Police H.Q. during the evening of July 19. Exercise "Ampol" had successfully demonstrated an excellent standard of amateur operation to the Assistant Chief Constable and the Chief of the Communications Dept. More than 20 members, with ten mobiles, had reported at the H.Q. at 14.30 hours. Six cars were ordered to various police stations where they received messages for transmission to H.Q. The remaining four cars were moved to act as reserves or relay stations if required. All messages were received correctly within the time allowed. A further message was circulated from station to station round the net and back to control, again being received correctly. During the time when cars were driving to their locations the control station, operated by G3ABB (assisted by Mrs. Fenton), contacted G5SW/M located on Southend Promenade. Sgt. March of the Southend Constabulary (which is an independent force) was in the car and messages were passed between Sgt. March and Inspector Dyer, of the Essex force.

The Assistant Chief Constable was unstinting in his praise of the performance, both as regards signal strength and procedural efficiency. After being given tea the party was shown round the driving school, workshops and control and radio rooms of the Police H.Q., and were finally escorted to the bar for further refreshment. The members who operated the mobiles were:—G3CIM and G3DSW; G3HWG and G3JEE; G2BCX and Mrs. Judd; G3ERW and G3LIP; G2DQ; G3EHZ and G3KWP; G3KGS and G3LWA;

\* 1 Shortbatts Lane, Lichfield, Staffs.

G2HPF; G3MML and G3FEW; G3GDU. The exercise was controlled by G3GNQ, G3KGE, G2BCX and G8TL.

Belfast Group recently undertook an exercise in co-operation with B.R.C.S. when they attended the Killinchy "150" Motor Cycle race at Dundrod. At a previous conference the location of the stations was arranged and the names of personnel exchanged. Five outstations, and a control located close to the B.R.C.S. medical control tent were in operation. The medical staff showed great interest and spent some time listening to the net and examining equipment. Prompt action in reporting an accident earned much prestige. A.C. G1HXV comments: "The events are ideal for the exercise of co-operation and much experience has been gained by them and have placed us in good stead for the future." Operators and assistants were:—G1HXV, G1KYP, G1SUR, G1JFX, G1JGD, G1HNM, G1LQY, G1AXI, G1MIZ, Messrs. K. Skilton and J. Milligan.

The Northern Ireland C.C., G1BHX, will have visited all his groups by the commencement of Autumn, and has received enquiries from the Police, who are interested in the use of R.A.E.N. It is evident from reports sent in, that despite the difficulties there, G1BHX is building up a very useful organisation.

G3CED, C.C. Kent, held an exercise with St.J.A.B. on June 15 with Maidstone and Medway Groups participating. It was assumed that an aircraft had crashed at Broughton Cross, involving heavy casualties. Within 15 minutes of the alarm being given the network was alerted and two cars with mobile and portable equipment were dispatched to the scene of the incident. A number of lessons were learned, and a need for some method of route marking for incoming mobiles was found. The use of a fixed station in St.J.A.B., H.Q., was found to be invaluable. Afterwards, the St.J.A.B. officer in charge expressed his satisfaction with the results, which were mainly due to the good work of G3MC and G6NU, A.C.s. for Maidstone and Dartford.

Despite the great sparsity of amateurs in Hereford, the A.C., G3MPB, is managing to gain recruits, whilst in neighbouring Shropshire the A.C., G3JPB, has been heard testing a very useful mobile rig. At Southport, G3EFA reports increasing interest in R.A.E.N., as does G3CGE in Southampton.

## Nets

Would C.C.s and A.C.s willing to participate in an 80m net on Sunday mornings (once a month at most) please inform G3FZW, giving a suitable time?

## Silent Key

H. A. SAVAGE (G2SA)

With deepest regret we record the death, after a long illness borne with courage, of Arthur Savage (G2SA) of Burnham-on-Crouch, Essex, on July 2, 1958. G2SA was first licensed in 1929 and had been continuously active on the air since that date except for the war years. He was one of the Society's staunchest members having joined the R.S.G.B. some 30 years ago and supported local activities, notably National Field Day, whenever his many official duties permitted. He was a member of the F.O.C. and DXCC and his keenness in our great hobby was undiminished after nearly 30 years on the air.

During the first world war Arthur Savage volunteered as a youth and was awarded the Military Medal for bravery in the field on the Somme in March 1918.

The Society was represented at the funeral by Messrs. T. A. St. Johnston, G6UT, (Vice-President), H. H. Lowe, G2HPF, (Regional Representative), J. C. Frogatt, G3IWI, and Louis Varney, G5RV. A wreath on behalf of the Society and one on behalf of the members of the Chelmsford Radio Society was placed at the graveside.

Mr. Savage, who held the rank of Captain in the Home Guard and was a life member of the British Legion, was buried with military honours.

We extend our deepest sympathy to his widow in her great loss. —R. L. V.



# Tests and Contests

## 420 Mc/s Open Contest, 1958

THINGS are getting a little grim on 70cm. Contestants who have failed previously were either not active or sent check logs only on this occasion. In fact, only six entries were received compared with 15 for the 1957 420 Mc/s Contest, although forty-two stations were active, of which six were "heard" but not worked. Three check logs certainly helped in judging, especially as two made quite good scores. For the record, an Oswestry-Ashford (Middx) contact was the longest haul of the Contest. First and second last time have changed places this year.

Those operating during the period split almost equally into pre- and post-war call-signs.

The equipment used by the leading stations was as described in the August 1957 BULLETIN.

Check logs from G2WS, G2DDD and G3HBW are gratefully acknowledged.

### RESULTS

Posn.	Call-sign	Location	Points
1	G6NB	Brill, Buckinghamshire	1205
2	G2XV	Trumpington, Cambridgeshire	481
3	G3FP	Thornton Heath, Sussex	474
4	G2HDI	Ashford, Middlesex	458
5	G2FCA	Edware, Middlesex	204
6	G3IRA	Swindon, Wiltshire	107

## First 144 Mc/s Field Day 1958

CONDITIONS for the First 144 Mc/s Field Day were very good and it was not surprising that leading stations ran up high scores. Only three entries were received for the Mobile Section, which was won by GW2HCJ/M with a score of 10,232.

There were good openings in both the north-south and east-west directions, contacts in excess of 150 miles being commonplace. Many F, ON and PA stations were worked. G2CD, G3HBW, G4JJ, G12FHN, GM2FHH and GW3GWA are thanked for submitting check logs.



The leading station in the Mobile Section of the First 144 Mc/s Field Day 1958 was GW2HCJ/M who used the aerials shown in this picture mounted on his car.

## RESULTS

Portable Section			Mobile Section		
Position	Call-sign	Points	Position	Call-sign	Points
1	G3GNS/P	13,717	21	G3FD/P	6,299
2	G3DIV/P	13,046	22	G3APY/P	6,238
3	G3GZJ/P	10,487	23	G3JMA/P	6,004
4	G3JWQ/P	10,150	24	G3LHA/P	5,826
5	G8SB/P	10,061	25	G3GOP/P	5,817
6	G3ION/P	9,622	26	G3JBN/P	5,695
7	G3AYT/P	9,107	27	GW3JGA/P	5,662
8	G6XM/P	9,054	28	G3CGQ/P	5,586
9	G3MNM/P	8,531	29	G5BM/P	5,552
10	G3ERD/P	8,465	30	G3BBR/P	4,788
11	G3MAR/P	8,407	31	G3GGR/P	4,773
12	G5PP/P	8,290	32	G3FKO/P	4,678
13	GW8UH/P	8,209	33	G3DVK/P	3,959
14	G2XV/P	8,178	34	G3HWS/P	3,583
15	G3KMT/P	7,980	35	G3ELG/P	3,375
16	G2DTQ/P	7,852	36	G8LM/P	2,967
17	GW3YZ/P	7,781	37	GW4LU/P	2,921
18	G3EEQ/P	7,668	38	G3MA/P	2,792
19	G3KSR/P	7,339	39	G3FZG/P	1,644
20	G2DSW/P	7,154	40	G3ATM/P	1,091
	GW3BOC/M†	6,465	41	G8DA/P	638

\* Entry invalid. † Operating portable

Mobile Section		
1	GW2HCJ/M	10,232
2	G3ENY/M	4,544
3	G2AHL/M	2,281

## Slade/Rugby D/F Qualifying Event

THERE were 13 contestants in the D/F Qualifying Event on June 22, 1958, organized by the Radio and TV Section, B.T.H. Recreation Club, Rugby. Nine succeeded in finding the hidden transmitter. G. T. Peck (B.R.S. 15402) was the first to arrive at 3.13 p.m., followed by E. L. Mollart (B.R.S. 10977) at 3.17 p.m., P. N. Prior (B.T.H., Rugby) at 3.20 p.m. and D. H. Simmonds (Slade Radio) at 3.49 p.m. Messrs. Peck, Prior and Simmonds, not having previously qualified, go forward to the D/F National Final on September 7.

## 420 Mc/s Contest

THE 420 Mc/s Contest scheduled to take place on September 6 and 7, 1958, has been absorbed into the V.H.F. National Field Day to be held on those dates. The rules for the new event, which provides for operation on 144, 420 and 1250 Mc/s, were published on page 33 of the July issue of the R.S.G.B. BULLETIN.

## Low Power Field Day, 1958

THE only change in the rules governing this popular contest is to permit operation on Top Band as well as 3.5 and 7 Mc/s. The details are as follows.

**When:** 10.00 G.M.T. to 17.00 G.M.T. on September 14, 1958.  
**Eligible Entrants:** All fully paid-up Corporate members of the R.S.G.B. resident in G, GC, GD, GI, GM and GW. Multiple-operator entries will be accepted provided only one call-sign is used. (See General Rule 7.)  
**Contacts:** May be made on c.w. (A1) only in the 1.8, 3.5 and 7 Mc/s bands. Each transmission must include the letters LFD.  
**Scoring:** Five points may be claimed for each contact with a portable or mobile station, and one point for each contact with a fixed station.  
**Contest Exchanges:** RST reports followed by the contact number starting at 001 and the location, e.g., RST559001 Oxford.  
**Logs:** (a) Must be tabulated in columns headed (in this order): "Time (G.M.T.)", "Call-sign of Station Contacted", "My Report on His Signals and Serial Number Sent", "His Report on My Signals and Serial Number Received", "Location of Station Contacted", "Band (Mc/s)", "Points Claimed".

(b) The cover sheet must be made out in accordance with R.S.G.B. Contests Rule 5 and must include the weight of the equipment used. The declaration must be signed.

(c) Entries must be postmarked not later than September 29, 1958. **Equipment:** The total weight of all the radio and electrical equipment taken to the site must not exceed 20 lb.

**Awards:** At the discretion of the Council, the Houston Fergus Trophy will be awarded to the winning station and certificates of merit to the runner-up and to the non-transmitting member submitting the best check log in the opinion of the Contests Committee.

The General Rules for R.S.G.B. Contests published on page 437 of the March 1958 Bulletin apply to this contest.



## First 70 Mc/s Contest, 1958

WHAT a pity more stations do not take advantage of the 70 Mc/s band! A grand total of two logs arrived at Headquarters for this contest, yet both entrants made contacts over distances exceeding 1,000 miles. What other band provides both tropospheric and ionospheric DX?

Vernon Mellor (G5MR) of Hythe, Kent, won the contest with a score of 1,628 points from seven contacts. He worked FA9VN, near Oran, at 1,140 miles via the ionosphere, three F stations at from 110 to 160 miles via the troposphere, and three Gs at from 1 to 50 miles. The runner-up, B. W. F. Mainprize (G5MP) also of Hythe, made 1,190 points. He also worked FA9VN and two Gs at 1 to 50 miles.

Thanks are due to F8GH, F8NB, F8QL, G3CLW and G5KW for providing the contacts, and to F9CZ, FA3JR and FA8MB for signals heard, but, unfortunately, not worked. FA3JR heard G5KW, G5MP and G5MR, and worked PA0WO.

Both entrants used three-element Yagi arrays, fed by double tetrodes; a 3E29 with 45 watts at G5MR and an 832 with 24 watts at G5MP. G5MR used a cascade converter and G5MP a modified Type 26 converter.

All the contacts were made on c.w. More than half the reports were S9, and only one less than S7. This one was unique also in being less than R5.

## South Manchester D/F Event

SEVEN teams took part in the D/F Qualifying Event on July 13, organized by C. M. Denny (G6DN) and the South Manchester Radio Club, all except one finding the hidden and camouflaged transmitter some 10 miles away in a comparatively short time.

The first to arrive was J. J. Grant (B.R.S. 6395) of B.T.H.-Rugby who took exactly 1 hour, followed by D. H. Simmonds (1 hour 14 minutes) and G. C. Simmonds (1 hour 15 minutes), both of Slade Radio Society. The next arrival was D. Hyde (B.R.S. 21356) of South Manchester Radio Club (1 hour 20 minutes) with C. Hollick of B.T.H.-Rugby 17 minutes later. Last to arrive was J. R. Knight (G3JRK) of South Manchester who took 1 hour 50 minutes to find the hidden transmitter, G2AUC/M, who used a whip aerial and mobile rig throughout the event.

## D/F National Final

FULL details of the D/F National Final to be held on September 7, 1958, will be sent direct to all those who have qualified to take part, by the organizers, the Slade Radio Society.

## VK/ZL DX Contest, 1958

THE New Zealand Association of Radio Transmitters and the Wireless Institute of Australia invite all amateurs to participate in this year's VK/ZL contest. Rules for overseas stations may be summarized as follows:

**Sections.** Phone: 24 hours from 10.00 G.M.T. Saturday, October 4 to 10.00 G.M.T., Sunday, October 5. C.w.: 24 hours from 10.00 G.M.T., Saturday, October 11, to 10.00 G.M.T., Sunday, October 12.

**Scoring.** One point will be scored for each contact on a specific band with a VK or ZL district (ZL1, 2, 3, 4 and 5, VK0 (zero), 1, 2, 3, 4, 5, 6, 7 and 9). 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.

**Serial Numbers** will consist of six figures (five for phone), made up of the RS(T) report plus three figures which should commence with 001 and increase by one for each successive QSO, e.g. 001, 002, 003, etc.

**Logs.** Must show in this order: date, time in G.M.T., call-sign of station contacted, serial number sent, serial number received, band in Mc/s. Each new VK/ZL district should be underlined when contacted. Separate log sheets must be used for each band.

**Summary Sheet** to show call-sign, name and address (use block letters, please), details of rig, TOTAL SCORE (Districts multiplied by contacts = Total Score). A declaration that all rules were obeyed must be included.

**Awards.** Attractive certificates to the highest scorer in each country, and in each W/K call area. Other certificates will be awarded depending upon the number of logs received from each country and the activity on each band.

**Listeners' Section.** To count for points, a VK or ZL station must

be heard in a contest QSO, and the following details noted in the log—date, time in G.M.T., call of the station heard, call of station being worked, RS(T) of the station heard, serial number sent by the calling station, band. Scoring is on the same basis as for the transmitting section and the log should be similarly set out.

Entries must be posted to reach the New Zealand Association of Radio Transmitters, Box 489, Wellington, New Zealand not later than January 23, 1959.

## R.A.E.N Rally 1958

### Rules

1. The Rally is open to all R.A.E.N. members, who will be divided into three groups:

- Out stations (R.A.E.N. members operating portable or mobile);
- Fixed stations (R.A.E.N. members operating from home stations);
- Receiving stations (R.A.E.N. members operating as receiving stations at home or as outstations).

2. The Rally will take place on Sunday, September 28, 1958, from 09.00 to 12.00 G.M.T., 14.00 to 17.00 G.M.T. (telephony) and from 18.00 to 21.00 G.M.T. (Morse code A1). Operation will be in the 1-8, 3-5, 28, and 144 Mc/s bands. R.S.G.B. band planning must be observed. Licensed power must not be exceeded.

3. Outstation equipment will not be connected in any way to public mains electricity supply and must be located at least one mile from home, or other normal fixed station site.

4. Scoring—Transmitting Stations.

Contacts will score points as follows:

- Outstation to outstation—5 points.
- Outstation to fixed station—3 points.
- Outstation to non-R.A.E.N. Station—1 point.
- Fixed station to outstation—3 points.
- Fixed station to fixed station—2 points.
- Fixed station to non-R.A.E.N. Station—1 point.

Ten scoring contacts only will be allowed with non-R.A.E.N. stations during the rally.

No station may be worked more than once on each band by the same mode of sending. (G3XXX, G3XXX/P and G3XXX/M count as one station for scoring purposes.)

The best two periods' scores will be counted for placing.

5. Each participant will, on application to his A.C. (or the Honorary Secretary, R.A.E.N. Committee in cases where participants have no A.C.) be issued with a test phrase. This test phrase will be passed to the first R.A.E.N. station contacted, in exchange for the test phrase from that station. The test phrase received will be passed to the next R.A.E.N. station contacted, in exchange again, and so on. No test phrase will be passed to non-R.A.E.N. stations. A.C.s should make application for block issues of test phrases to the Honorary Secretary, R.A.E.N. Committee, by not later than September 20, 1958.

6. Stations will call "CQ from Raynet station..." and sign "from Raynet station..." The letters or word RAEN is forbidden.

7. Printed log sheets will be issued at the same time as the test phrases, by the Honorary Secretary, R.A.E.N. Committee, to all participants through A.C.s in cases where there is an A.C.

Completed entries for all the periods worked must be returned to the Honorary Secretary, R.A.E.N. Committee, 1 Shortbatts Lane, Lichfield, Staffs., postmarked not later than Monday, October 13, 1958. Location and signal reports must be given, received and logged.

Participants should complete, on the top sheet of their log, the details of their station, in the appropriate spaces provided. The declaration must be signed.

8. Receiving Stations—Scoring and Logs.

Receiving stations will score three points per R.A.E.N. Station heard in contact, provided that the details required by the printed log sheet are correctly recorded therein.

Receiving stations operating portable or mobile will receive a bonus of one point per R.A.E.N. Station correctly logged.

Logs must be submitted on printed sheets obtained from the Honorary Secretary, R.A.E.N. Committee through A.C.s or direct where participants have no A.C. The details and declaration required should be completed and signed on the top sheet only.

Entries should be posted to reach the Honorary Secretary, R.A.E.N. Committee and should be postmarked not later than Monday, October 13, 1958.

9. Awards will be made to the participants who score the highest number of points in each of the groups: Outstations, Fixed Stations and Receiving Stations.

See us at  
**THE RADIO  
SHOW**  
.....  
EARLS COURT  
AUG 27 - SEPT 6



STAND NO.  
**306**  
IN THE  
GALLERY

# Courses of Instruction

## Radio Amateurs' Examination

**C**COURSES of instruction for the Radio Amateurs' Examination will be held at the following centres during the coming session in addition to those listed on page 34 of the July BULLETIN:

**Glasgow:** Corporation Further Education Dept., Allan Glens School, Montrose Street.

Enrolment for two courses for the radio enthusiast will take place on September 8, 9 and 10. Details are as follows:

(i) *Amateur Radio Course (C. & G.)*. For those wishing to sit for the Radio Amateurs' Examination in May 1959. Theory instruction will be given by A. M. Fraser (GM3AXX) on Tuesday evenings from 7 to 9.30 p.m. and Morse instruction by James Sey (GM8MJ) on Thursday evenings from 7 to 9.30 p.m. This course will commence on September 16.

(ii) *Amateur Radio Course (General)*. For those requiring a more generalized course in the principles and theory of radio. Classes will be held on Thursday evenings from 7 to 9.30 p.m. commencing September 18.

No previous knowledge will be assumed for either course, the fee for each being 20/-.

**Islington L.C.C. Men's Evening Institute, Montem School (formerly Isledon), Hornsey Road, London N.7.** A course of instruction in preparation for the Radio Amateurs' Examination will take place on Mondays and Wednesdays (repeat lecture) commencing September 22 (Theory 7 to 9 p.m., Morse 9 to 10 p.m.). The instructors will be S. H. Iles, G3BWQ (R.A.E.) and Messrs. Barber and Ralph (Morse). Enrolments will take place during the week September 15 to 19 from 7.30 to 9 p.m. but applications should be made in the first instance to A. W. H. Wennell (G2CJN), 145 Uxendon Hill, Wembley Park, Middlesex. The fee will be 20/- for one subject or 22/6d. for both.

**Ilford Literary Institute (High School for Girls), Cranbrook Road, Ilford, Essex.** (Adjacent to Gants Hill Station, Central Line). Two classes have been arranged by the East London R.S.G.B. Group in association with the Essex County Council:

(i) *Radio Amateurs' Examination Course*. Wednesdays, 7.15 to 9.15 p.m. An eight month course for those intending to take the R.A.E. in May 1959.

(ii) *Morse and Codes of Practice*. Mondays, 7.30 to 9.30 p.m. A six month course for those who wish to take the G.P.O. Morse Test. Arrangements have been made for those who, in the opinion of the instructors, have reached the required speed to be tested at the Institute by a Post Office representative.

The fees for students living in the Essex County Council area will be 30/- for the R.A.E. and 20/- for Morse and Codes of Practice. Students from other parts of London will be admitted as out-County students provided the local authority is notified. Enrolments will take place on September 8, 9, 10, 11 and 12 from 7 to 8.30 p.m. Classes commence on September 22. Those who intend to enrol are advised to send their names to C. H. L. Edwards (G8TL), 28 Morgan Crescent, Theydon Bois, Essex, at once so that a place may be assured.

**Manchester: Openshaw Technical College, Further Education Dept., Whitworth Street, Openshaw, Manchester 11.** Classes in preparation for the Radio Amateurs' Examination will be held on Tuesdays and for the G.P.O. Morse Test and Practical Work on Thursdays commencing September 23, provided sufficient students enrol. Courses are already established for the City and Guilds Radio and Television Servicing examinations. Further information may be obtained from the Registrar at the College or from the

Honorary Secretary, South Manchester Radio Club, "Greenways," 11 Cemetery Road, Denton, Manchester.

**Portsmouth: North End Evening Institute, Drayton Road, North End.** Applications to join a proposed course in preparation for the Radio Amateurs' Examination should be made to the Institute by September 15. The course is expected to begin on September 18. It is hoped that the lecturer will be L. E. Newnham, B.Sc. (G6NZ), President of the R.S.G.B.

**Wembley Evening Institute, Copland School, High Road, Wembley**

Enrolment for Morse and Radio Theory classes for those wishing to take the G.P.O. Morse Test and the Radio Amateurs' Exam. will take place during the week September 15 to 18, from 7.15 to 9.15 p.m. each evening. The classes will be held on Mondays: Morse from 7 to 8 p.m. and Radio Theory from 8 to 10 p.m.

## Morse Training Course

**L**EARNING to read Morse is largely a matter of regular, preferably daily, practice. One method is to listen to the slow Morse practice transmissions (details of which are given on page 90 of this issue) but it is not always possible for the student to find a suitable transmission at a convenient time. Recently, Mr. C. H. L. Edwards (G8TL), who organizes the Society's practice transmissions, has examined the Morse Training Course made by S. N. Bennett (G3HSC) of Belding and Bennett Ltd., 53 Woodcote Road, Wallington, Surrey. Mr. Edwards reports that the Course should be of considerable help to those anxious to pass the G.P.O. Morse Test.

The Course comprises a double-sided long playing record which can be run at 33½, 45 and 78 r.p.m. and an instruction pamphlet. The student starts learning by running the record at 33½ r.p.m. at which speed the letters are sent at eight words per minute but with long gaps between them. As the student progresses, the record can be played at 45 and 78 r.p.m. to produce faster sending. Proficiency at 45 r.p.m. should ensure success in the G.P.O. Test.

The pamphlet stresses the need for regular daily practice and suggests that 15 minutes a day is ideal.

## City and Guilds of London Institute Examinations, 1959

**T**HE examinations of 1959 will begin on Saturday, May 2 and candidates should notify centres of their entries by February 21. The Radio Amateurs' Examination will probably be held during the evening of Friday, May 8.

Regulations and syllabuses for the examinations in 1959 can be obtained from the Publications Section, City and Guilds of London Institute, Gresham College, Basinghall Street, London, E.C.2, price 4/6 by post.

## How to Become a Radio Amateur

**N**OW that the exemption system has been abolished the Post Office have found it necessary to revise their pamphlet *How to Become a Radio Amateur*.

The new edition gives information on the types of licence in force, licence fees, the conditions which govern the issue of the various licences, the Post Office Amateur Radio Certificate, the Radio Amateurs' Examination and the Post Office Morse Test. Appendix 1 is an extract from the Amateur (Sound) Licence, Appendix 2 lists the frequency bands, power and classes of emission available to amateurs, Appendix 3 contains the syllabus of the Radio Amateurs' Examination, Appendix 4 is a Morse Test Application Form and Appendix E is an Application Form for a Licence or an Amateur Radio Certificate.

Copies of *How to Become a Radio Amateur* can be obtained on application to the G.P.O. Radio Services Dept., Headquarters Building, St. Martins-le-Grand, London, E.C.1.

## Regional and Club News

**Acton, Brentford and Chiswick.**—On August 19, G2CAJ/M is to give a talk on mobile operation with particular reference to his own 100 watt transmitter. Morse practice is given every Tuesday at the Club Room, 66 High Road, Chiswick, W.4. Recent events have included an inquest on N.F.D. Hon. Secretary: W. G. Dyer (G3GEH), 188 Gunnersbury Avenue, Acton, London, W.3.

**Bristol.**—Sixty members were present at the July meeting when, to encourage local v.h.f. activity, C. N. Chapman (G2HDR) gave a talk on "An Introduction to V.H.F." Proposals for the formation of a Listeners' Group in Bristol were put forward by B.R.S. 10167, the principal object being to help the younger B.R.S. and Associate members. B.R.S. 19985 described two simple receivers he had constructed: members wishing to duplicate these sets should contact B.R.S. 19985 who will supply the necessary circuit and constructional details. Hon. Secretary: D. F. Davies (G3RQ), 51 Theresa Avenue, Bishopston, Bristol 7.

**British Two-Call Club.**—The new President is G2CUR and the Vice-President G8SC. Membership continues to increase. Further details and application forms may be obtained from the Hon. Secretary: G. V. Haylock (G2DHV), 63 Lewisham Hill, London, S.E.13.

**Cornish Radio and Television Club.**—At the July meeting in Redruth, D. Old (G3CZZ) of the Cornwall Technical College lectured on transistors. The next meeting will be held at the Y.M.C.A., Falmouth, on September 3. Hon. Secretary: J. Brown (G3LPB), Marlborough Farm, Falmouth, Cornwall.

**Grafton Radio Society.**—In the last five years, the society has had 85 passes in the R.A.E., 26 of them at the examination in May. The next course starts on September 22. Hon. Secretary: A. W. H. Wennell (G2CJN), 145 Uxendon Hill, Wembley Park, Middlesex.

**Lincoln Short Wave Club.**—The club is holding a mobile rally on September 21, and full information may be obtained from R. W. Sadler, 14 Hainton Road, Lincoln, from whom tickets are available, price 8/- each. The club continues to meet fortnightly and is busy preparing for a Hamfest in September. While the Technical College is closed, meetings are being held at the Percolator, Monks Road, where visitors will be welcome. The next meeting is on August 20. Hon. Secretary: F. B. Travis (G3BCA), 202 Monks Road, Lincoln.



During a recent visit to the R.A.F. Station at Locking, Somerset, Mr. Charles Ian Orr-Ewing, O.B.E., Under-Secretary of State for Air, visited the Headquarters of the R.A.F. Amateur Radio Society. The dexterity with which Mr. Orr-Ewing operated the controls at G8FC puzzled many onlookers until he disclosed that he holds the call G8OG! In this picture Mr. Orr-Ewing is in QSO with old timer W/Cdr. Wally Dunn, O.B.E., G2LR, who, until his retirement from the R.A.F. a year or so ago was closely associated with the R.A.F. Amateur Radio Society.

**Lothians Radio Society.**—The new session will open at 7.30 p.m. on September 11 at 25 Charlotte Square, Edinburgh. The meeting will start with an address by the President. Prospective members and visitors are cordially invited to attend. Hon. Secretary: L. Lumsden, 33 Hillview Drive, Edinburgh 12.

**Mitcham and District Radio Society.**—Permission has been obtained to set up a club station and the first meeting for this purpose will be held on August 29. Other meetings at "The Canons," Madeira Road, Mitcham, are arranged for September 12 ("Oscilloscopes" by A. Dyer, Mullard Ltd.), September 26 ("Spanning the Globe," by E. T. Slope, Cable & Wireless Ltd.) and October 10 (Aerial Lecture and Demonstration by "Dud" Charman, G6CJ). Hon. Secretary: D. Johnston, 23 Woodland Way, Mitcham, Surrey.

**Norwich and District Radio Club.**—On August 31, the club is holding a "Bucket and Spade" Party at Hunstanton. G3HRE/M and G3HRK/M will be active on Top Band, 3.5 and 28 Mc/s. Full details may be obtained by sending an s.a.e. to the Hon. Secretary: O. F. Simpkin (G3HYJ), 15 Hillside Road, Thorpe, Norwich.

**Plymouth Radio Club.**—The club is exhibiting home-constructed equipment at the Plymouth and District Model Engineering Society's annual exhibition at the Royal Assembly Rooms until August 16. The club meets on Tuesdays at 7.30 p.m. in The Virginia House Settlement, The Barbican, forthcoming arrangements including a talk on radio-isotopes and counting equipment by L. Hummerstone on September 16 and a scenic slide show of Devon and Cornwall by G3JYB on September 30. Hon. Secretary: H. R. Dean, The Flat, Chaddleswood House, Plympton, Plymouth.

**Ravensbourne Amateur Radio Club.**—The club took part in N.F.D. for the first time using the call-sign G3HEV/P. Meetings have ceased temporarily during the holiday season. Hon. Secretary: J. Wilshaw, 4 Station Road, Bromley, Kent.

**Tees-Side Amateur Radio Club.**—The club recently held an emergency exercise at a small village near Cleveland, North Yorks., using a 30 watt all band transmitter, a 19 set and a home-built 160/80 metre transmitter. Stations in Canada and Europe were worked on phone with two 132 ft. aerials and a G5RV type. Top Band operation resulted in plenty of activity and attracted many mobiles. The operators were G3KBD, G3LXG, G3JYH, G3LCZ, G3INO, G3JOQ and G3JMO who had the assistance of two young S.W.L.s. It is expected that the club will be taking part in the Middlesbrough Show which opens on August 30 and the Show Station will be set up on August 29. Hon. Secretary: A. L. Taylor (G3JMO), 12 Endsleigh Drive, Middlesbrough.

**Torbay Amateur Radio Society.**—At the well-attended July meeting, the society's experimental manager, Arthur Hook (G3CMT), gave a most informative talk on multi-band aerials. On August 9, P. H. Longman of the South Western Electricity Board was due to speak to members. Visitors are always welcome at meetings, details of which may be obtained from the Hon. Secretary: George A. Western (G3LFL), 118 Salisbury Avenue, Barton, Torquay.

**Wirral Amateur Radio Society.**—Another course for the Radio Amateur Examination is to be held during the forthcoming term at the Birkenhead Technical College and it is also hoped to run Morse classes. Anyone interested in joining the classes should contact the Hon. Secretary as soon as possible. The last course achieved a 75 per cent success, under the instruction of G3EGX. Hon. Secretary: H. V. Young (G3LCI), 9 Eastcroft Road, Wallasey.

**Worthing and District Amateur Radio Club.**—This year's "Bucket and Spade" Party was a great success, and despite the weather almost 100 amateurs and their families made the trip to Worthing. Many mobiles attended and G3GVM/A was kept busy giving them directions. A new feature was a raffle which proved most popular, everyone receiving at least one gift. Suggestions for next year's event will be appreciated. The next meeting at the Adult Education Centre will be the A.G.M. on September 8. Meanwhile, fortnightly meetings at Beach House continue—see *Forthcoming Events*. Hon. Secretary: J. R. Tootill, 113 Kings Road, Lancing, Sussex.

### R.A.E.N. Membership Cards

In an emergency the Police may require R.A.E.N. members to produce their membership cards. Carry yours with you—always.



## Forthcoming Events

Details for inclusion in this feature should reach the appropriate Regional Representatives not later than the 18th of the month preceding publication. T.R.s and club secretaries are reminded that the information submitted MUST include the date, time, venue of meeting, name of lecturer or details of any other special event being arranged.

### REGION 1

Bury (B.R.S.).—September 9, 8 p.m. (Technical Forum—TV Receiver Faults), George Hotel, Kay Gardens.

Wirral (W.A.R.S.).—August 15 (Plans for Region 1 Field Day); September 5 ("Getting Down to Earth"—a technical discussion); September 19 (Discussion on Frequency Measurement), 7.45 p.m., No. 4 Hamilton Square, Birkenhead.

### REGION 2

Middlesbrough (T.S.A.R.C.).—September 12 ("Instrumentation" by Brian Wilson, G3LXG); September 26 (R.S.G.B. Recorded Lecture), 8 p.m., Settlement House, Newport Road.

South Shields (S.S. & D.A.R.C.).—August 27, 7.30 p.m., Trinity House Social Centre, Laygate. (Talk on preparation of club magazine *The Spectrum* by D. Forster, G3KZZ).

### REGION 3

Birmingham (M.A.R.S.).—August 19, 7.15 p.m. (Informal Discussion), Midland Institute, Paradise Street.

Coventry.—August 22, 7.30 p.m. (Formal Meeting), Vine Street Schools.

Stourbridge & District (S.T.A.R.S.).—August 22, 8 p.m. (Informal Meeting), White Horse, Ambleside. September 2, 8 p.m. (Film Show), Brotherhood Hall, Scotts Road.

### REGION 4

Derby (D. & D.A.R.S.).—August 17 (Mobile Rally, Marketon Park, Derby); August 20 (Prizes Draw); August 27 (Film Show); September 3 (Surplus Gear Sale); September 10 (Open Evening); September 17 ("For the Beginner"), 7.30 p.m., Room 4, 119 Green Lane, Derby.

Leicester (L.R.S.).—August 25 (Open Evening); September 1 (Members' Display by G3KKU and G3BMD); September 8 (Open Evening); September 15 (Members' Display by G3LMR and G3DUP), 7.30 p.m., Old Hall Farm, Braunstone Lane, Leicester.

### REGION 5

Cambridge (C. & D.A.R.C.).—August 25, 8 p.m., (Film Show), "Jolly Waterman," Chesterton Road, Cambridge.

### REGION 7

Acton, Brentford & Chiswick.—August 19 ("Mobile Working" by G2CAJ); September 16 ("Miniature Gear" by G3JGM), A.E.U. Rooms, 66 High Road, Chiswick, W.4.

Barnet (B. & D.R.C.).—August 26, 7.30 p.m. ("Single Sideband Techniques," F. Bliss, G3IFB), No. 1374 Squadron, A.T.C., Gloucester Road, New Barnet.

East Molesey (T.V.A.R.T.S.).—September 3, Carnarvon Castle Hotel, Hampton Court, ("R.S.G.B. Contribution to the I.G.Y." G. M. C. Stone, G3FZL and C. E. Newton, G2FKZ).

Enfield.—August 17, 3 p.m., Geo. Spicer School, Enfield. (Tape Lecture).

Holloway (G.R.S.).—September 5, September 12 (A.G.M.), September 22 (R.A.E. and Morse classes commence), Montem School, Hornsey Road, Holloway, N.7. (No meetings during August).

Norwood & South London.—August 16, Windermere House, Westow Street, Crystal Palace. ("Backyard Aerials.")

### REGION 8

Worthing (W. & D.A.R.C.).—August 21, September 4, September 18 (Slow Morse), 8 p.m., Beach House; September 8 (A.G.M.), 8 p.m., Adult Education Centre.

### REGION 9

Bath.—September 6, 7.30 p.m. (Auction Sale), 12 James Street West. (No meeting in August).

Bristol.—August 22, 7.15 p.m. ("The Art of QSL-ing, by K. J. W. Creamer, B.R.S.10167), Carwardine's Restaurant, Baldwin Street.

Exeter.—September 16, 7.30 p.m. (Annual General Meeting), Heavitree Social Centre, Fore Street, Heavitree.

Torquay.—September 13, 7.30 p.m. ("What is a Good Receiver?" by E. J. Hayman, G3ABU), Y.M.C.A., Castle Road.

Yeovil.—August 20, 8 p.m. (R.S.G.B. Tape Recording), Grove House, Preston Road, August 23, 3 p.m., Visit to P.O. Radio Station, Highbridge.

### REGION 10

Port Talbot.—September 2 (Junk Sale), September 16 (R.A.E. Instruction), 7.30 p.m., The Talbot, Taibach, Port Talbot.

### REGION 14

Glasgow.—August 29, 7.30 p.m., Christian Institute, 70 Bothwell Street, Glasgow, C.2. (Film Show for Beginners' Night).

### REGION 16

Chelmsford (C.A.R.C.).—September 2, 7.30 p.m., Marconi College, Arbour Lane ("Radio at Sea," R. Ferguson, G4VF).

Norwich (N.D.R.C.).—August 15, 22, 29, September 5, 12, 7.30 p.m., "The Golden Lion," St. John's Maddermarket. August 31, "Bucket and Spade" Party at Hunstanton.

## Slow Morse Practice Transmissions

B.S.T.	Call-sign	kc/s	Town	B.S.T.	Call-sign	kc/s	Town	
<b>Sundays</b>				<b>Wednesdays</b>				
09.00 ...	G3GYV ...	1900 ...	Hartford, near Northwich	21.00 ...	G3LZW ...	1900 ...	Shipley, Yorks.	
09.30 ...	G3BKE ...	1900 ...	Newcastle-on-Tyne	22.00 ...	G3JJC ...	1990 ...	S.E. London	
10.15 ...	G3FBA ...	1910 ...	Bath	<b>Thursdays</b>				
11.00 ...	G2FXA ...	1900 ...	Stockton-on-Tees	18.30 ...	G3NC ...	1825 ...	Swindon	
11.30 ...	G3JDO ...	1900 ...	Hebburn-on-Tyne	19.00 ...	G3LXL ...	1850 ...	Nottingham	
12.00 ...	G3LP ...	1850 ...	Cheltenham	20.00† ... 21.00 ...	G2ABR ...	1919 ...	Hull, Yorks.	
12.00 ...	G1SUR ...	1860 ...	Belfast		G3FCY ...			
15.00 ...	G3LEQ ...	1990 ...	Tunbridge Wells		G3GWT ...			
15.00 ...	G3LGK ...	1850 ...	Ilkeston, Derby		G3KTO ...			
20.30 ...	G3HTA ...	1850 ...	Exeter	20.30 ...	G3GDZ ...	1910 ...	Kingsbury, N.W.9	
21.00 ...	G2FIX ...	1812 ...	near Salisbury	21.00 ...	G3LZW ...	1900 ...	Shipley, Yorks.	
21.00 ...	G3LZW ...	1900 ...	Shipley, Yorks.	21.30 ...	G3HMY ...	1850 ...	Exeter	
<b>Mondays</b>				22.00 ...	G3JIT ...	1990 ...	S.E. London	
18.00† ...	G3IHH ...	1990 ...	R.E.M.E., Arborfield, near Reading	22.00 ...	G3JKY ...	1985 ...	Beckenham, Kent	
	G3LEQ ...							
	G3GIE ...			<b>Fridays</b>				
18.30 ...	G3NC ...	1825 ...	Swindon	19.30 ...	G3FUA ...	1850 ...	Kilburn, Derby	
19.00 ...	G3KTP ...	1850 ...	Heanor, Derby	19.30 ...	G3MHR ...	1850 ...	Swanwick, Derbys.	
19.00 ...	G3LMT ...	1850 ...	Exeter	20.30 ...	G3ICX ...	1915 ...	Sutton Coldfield	
20.30 ...	G3LSF ...	1900 ...	Southport	21.00 ...	G3LZW ...	1900 ...	Shipley, Yorks.	
21.00 ...	G3LZW ...	1900 ...	Shipley, Yorks.	21.30 ...	G3MGS ...	1970 ...	Chislehurst	
<b>Tuesdays</b>				21.30† ...	G3KLZ ...	1900 ...	Bradford	
18.30 ...	G2FXA ...	1900 ...	Stockton-on-Tees	22.00 ...	G3INW (or G3KSS) ...		Bradford	
20.00 ...	G2FCI ...	1850 ...	Exeter		G3KYU ...	1859 ...	Bournemouth	
21.00 ...	G3EFA ...	1855 ...	Southport	<b>Saturdays</b>				
21.00 ...	G3LZW ...	1900 ...	Shipley, Yorks.	13.00 ...	G2FXA ...	1900 ...	Stockton-on-Tees	
21.45 ...	G2UK ...	1875 ...	Lowestoft	21.00 ...	G3LZW ...	1900 ...	Shipley, Yorks.	
<b>Wednesdays</b>								
19.00 ...	G3LZC ...	1830 ...	Heanor, Derby					
19.00 ...	G3HUB/A ...	1902 ...	Chelmsford					
19.00 ...	G8RQ ...	1850 ...	Chesterfield					
				† Alternately.				

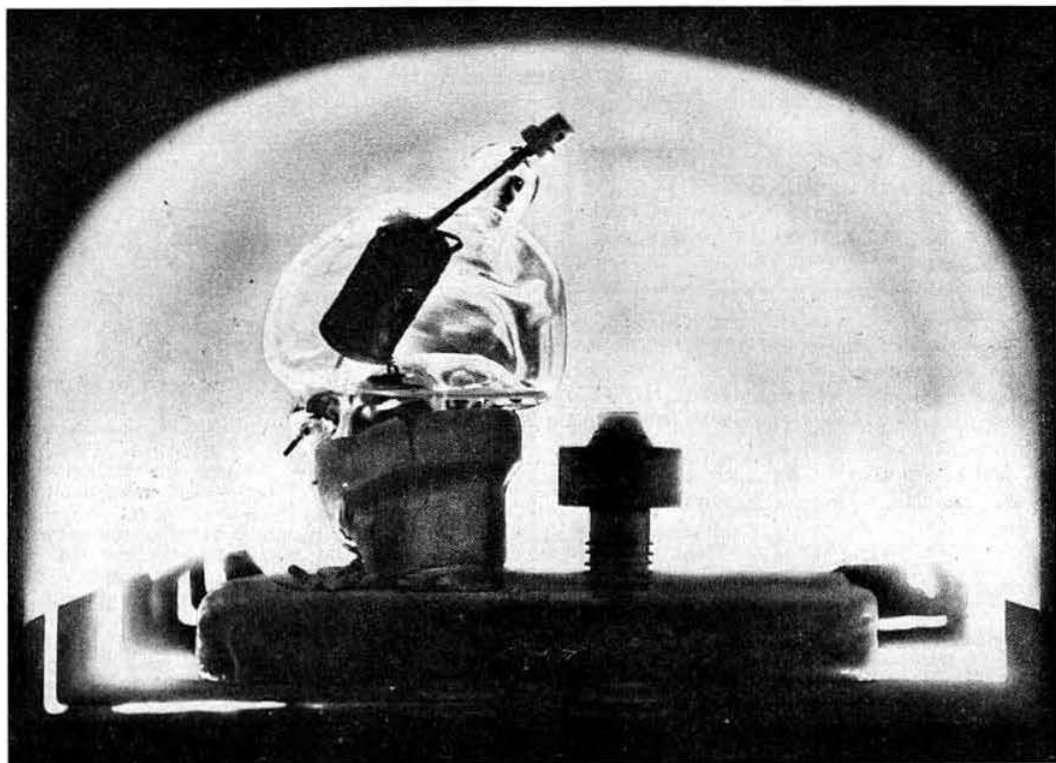
† Alternately.

### Can You Help?

● R. Marriott (G3LTN/A), A.M.W.T. Station, R.A.F. Weyhill, near Andover, Hants., requires information on modifications to the oscillator circuit of the R1392D to make the receiver suitable for use on 2m.

● G. R. Wigg (G6JF), Yabbacombe Farm, Kingsbridge, Devon, who requires information on the U.S. Navy Bureau of Ships u.h.f. Walkie-Talkie TBY7 type CR1 43044?





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1D6 10/6	6AK5 8/-	6H6GTG 3/6	7C5 8/6	128J7 8/6	80 9/6	DH76 7/6	ECH35 9/6	FW4800 10/-	OA71 5/-	SP41 3/6	UY85 10/6
1H6GT 11/-	6AL5 6/6	6J6G 5/-	7C6 8/6	128K7 8/6	83V 12/6	DH77 8/6	ECH42 11/-		OB2 17/6	SP42 12/6	V1507 5/-
1L4 6/6	6AM6 7/6	6J6GTG 5/6	7D7 8/6	128Q7 8/6	85A2 15/-	DK91 8/6	ECH81 9/-	GZ30 10/6	OC2 30/-	SP43 12/6	V1549A 23
1LD5 5/-	6AQ5 9/6	6J6GTG 6/6	7Q7 9/-	128R7 8/6	150B2 15/-	DK92 10/6	ECL80 14/-	GZ32 12/6	OZ4 6/6	SP44 12/6	V1549A 23
1LN6 5/-	6AT6 6/6	6J6 5/6	787 10/6	12Y4 10/6	807 7/6	DK96 10/6	ECL82 12/6	GZ34 14/-	P61 3/6	TP22 15/-	VP9(7) 15/-
1N5GT 11/-	6AU6 10/6	6J7G 6/6	7V7 8/6	14R7 10/6	956 3/6	DL2 15/-	EF36 8/6	H30 5/-	PABC80 15/-	U404 10/6	VP4(7) 15/-
1B5 8/-	6B4G 6/6	6J7GT 10/6	7Y4 8/6	1487 17/-	1203 7/6	DL33 9/6	EF37A 8/6	H63 12/6	PC84 9/6	U16 12/6	VP13C 7/6
1B6 8/-	6B7 10/6	6K7G 5/6	8D2 3/6	19AQ5 11/-	4035L 12/6	DL66 15/-	EF39 6/6	HABC80 13/6	PC85 12/6	U18/20 10/6	VP41 7/6
1TA 6/6	6B8G 4/6	6K7GT 6/6	8D3 7/6	19H1 10/6	5763 12/6	DL92 7/6	EF40 15/-	HK30 10/6	PC89 9/6	U22 8/6	VR105/80
1U5 10/6	6B8GTG 5/6	6K8G 8/6	9D2 4/6	20D1 16/-	7193 5/6	DL94 9/6	EF41 9/6	HL23 10/6	PCF82 12/6	U31 10/6	
2A7 10/6	6BA6 7/6	6K8GT 11/6	10C1 15/-	25L6GT 10/6	7475 7/6	DL96 10/6	EF42 12/6	HL41 12/6	PCL82 12/6	U43 10/6	VR150/80
2C85 4/6	6BE6 7/6	6L6G 9/6	10F1 19/6	25Y6 10/6	9002 5/6	DL810 10/6	EF50(A) 7/6	HL133DD 12/6	PCL83 14/-	U45 10/6	
2D13C 7/6	6BJ6 7/6	6L18 13/6	10P9 11/6	25Y6G 10/6	9003 5/6	DM70 8/6	EF50(E) 5/6		PEN40DD 12/6	U50 8/6	VT61A 5/6
2K3 4/6	6BR7 11/6	6N7 8/6	10P18 12/6	25Z4G 10/6	9006 6/6	EA60 2/-	EF54 5/6	HVR2 20/-	PEN46 7/6	U52 8/6	VT691 5/6
3A4 7/6	6C8 9/6	6Q7G 10/6	10L13 8/6	25Z5 10/6	AC/OPEN 7/6	EA76 9/6	EF73 10/6	HVH2A 6/6	PEN46 7/6	U76 7/6	W76 7/6
3Y4 18/6	6BW7 8/6	6Q7GT 11/6	10P13 7/6	25Z6G 10/6	AC/DDL 15/-	EA76 9/6	EF78 8/6	KF35 8/6	PEN46 7/6	U78 7/6	W61M 6/6
3B7 18/6	6BX6 8/6	6R7G 10/6	11E3 15/-	28D7 7/6	AC/P4 8/6	EA91 7/6	EF85 8/6	KL35 8/6	PL82 10/6	U251 15/-	X61 12/6
3D6 6/6	6C4 7/6	6SA7GT 8/6	12A6 6/6	30 7/6	AL60 10/6	EB34 2/6	EF86 17/6	KT2 5/6	PL83 11/6	UAC80 10/6	X63 10/-
3Q4 7/6	6C5 6/6	6SC7 10/6	12AH7 8/6	30C1 8/6	AP4 7/6	EB41 8/6	EF89 10/6	KT33C 10/6	PM2B 12/6		X65 12/6
3Q6GT 9/6	6C6 6/6	6SG7GT 8/6	12AH8 10/6	30F5 8/6	ATP4 5/6	EB41 8/6	EF91 7/6	KT44 15/-	PM12 6/6		X66 12/6
3A4 7/6	6C8 12/6	6SH7 8/6	12AT6 10/6	30FL1 10/6	ATP4 5/6	EB91 6/6	EF92 6/6	KT93 7/6	PM12M 6/6		XD (1-5) 6/6
3Y4 8/6	6C9 12/6	6SJ7 8/6	12AT7 8/6	30L1 9/6	AZ31 10/6	EB93 7/6	EL32 5/6	KTW61 8/6	PM20 9/6		XB41 8/6
6U4G 8/6	6C10 12/6	6SK7GT 8/6	12AU7 7/6	30P12 13/6	BL63 7/6	EB94 10/6	EL41 11/-	KTW62 8/6	PM20 9/6		XFY12 6/6
6U4G 11/6	6CH6 12/6	6SL7GT 8/6	12AX7 9/6	30P14 12/6	CK66 6/6	EBF80 10/6	EL42 11/6	KTW63 8/6	PM20 9/6		XFY12 6/6
6X4G 12/6	6D6 6/6	6SN7GT 7/6	12BA6 9/6	31 7/6	CK62 6/6	EBF89 9/6	EL41 15/-	KTW64 8/6	PM20 9/6		XC85 10/6
6Y3G 8/6	6E5 12/6	6S87 8/6	12BE6 10/6	33A/158M	CV33 10/6	EC62 5/6	EL84 10/6	KTW65 10/6	PM20 9/6		XC85 10/6
6Y3GT 8/6	6F6G 7/6	6U4GT 14/-	12B1 30/-	35/51 12/6	CV55 12/6	EC64 6/6	EL91 5/6	KTW66 10/6	PM20 9/6		XC85 10/6
6Y4 12/6	6F6GTG 8/6	6U6G 7/6	12C7GT 4/6	35/51 12/6	CV57 10/6	EC70 12/6	EL91 5/6	KTW67 10/6	PM20 9/6		XC85 10/6
6Z3 12/6	6F8 12/6	6U7G 8/6	12D7GT 10/6	35A5 11/-	CV42 30/-	EC83 15/6	EM80 10/6	KTW68 10/6	PM20 9/6		XC85 10/6
6Z4G 10/6	6F12 7/6	6V6 7/6	12E6GT 10/6	35L6GT 9/6	D1 3/6	EC83 15/6	EN31 34/9	KTW69 10/6	PM20 9/6		XC85 10/6
6Z4GT 12/6	6F13 12/6	6V6GTG 8/6	12K8GT 14/-	35W4 8/6	D42 10/6	EC83 15/6	EV51(Large)	KTW70 10/6	PM20 9/6		XC85 10/6
6A8 10/6	6F17 12/6	6X4 7/6	12Q7GT 7/6	35Z3 10/6	D63 5/6	EC85 8/6	EL91 5/6	KTW71 10/6	PM20 9/6		XC85 10/6
6AB7 8/6	6F22 10/6	6X5GT 6/6	12SA7 8/6	35Z5GT 9/6	D77 6/6	EC85 8/6	EV51(Small)	KTW72 10/6	PM20 9/6		XC85 10/6
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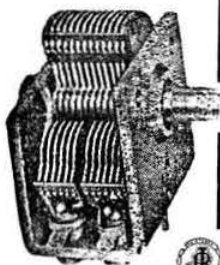
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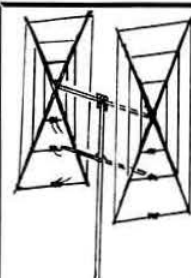
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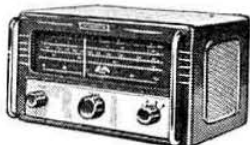
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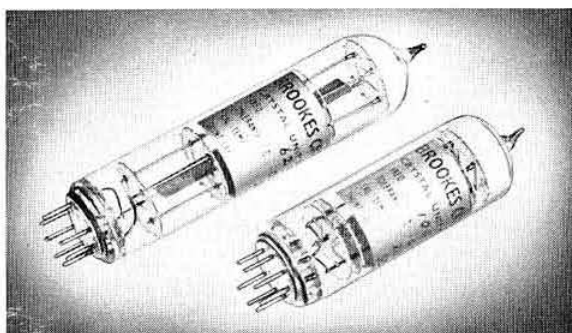
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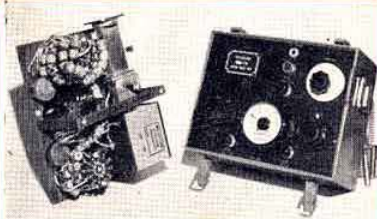
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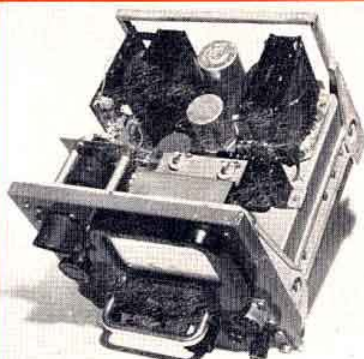
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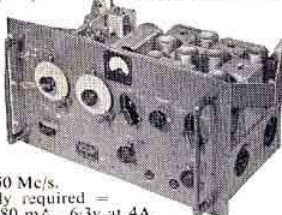
Gold Plated wave guide with adjustable input calibrated in db. Eleven step bridge with 44 wire wound  $\frac{1}{2}$  per cent precision resistors balanced by 200  $\mu$ A  $3\frac{1}{2}$  in. meter. Provision for external battery and external thermometer and battery and range adjusting potentiometers. Fully tropicalized.  
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### INDICATOR UNIT 247

Used with a simple triode rectifier probe of either 50 or 75 ohms impedance this unit measures transmitter power output on a directly calibrated three-range  $4\frac{1}{2}$  in. rectangular meter of 1 mA f.s.d. basic movement which is brought initially to full scale deflection on the required range by a null setting potentiometer used in conjunction with a magic eye indicator.  
 The demodulated input signal is applied to the grid of an EF50 pentode amplifier and then passed to an integrating circuit and VR92 diode from which the resulting D.C. is fed to the CV-51 tuning indicator. Operates from 12v D.C. or 80, 110, 115, 180 or 230v A.C. at 50 or 400 c/s with metal rectifier voltage doubling circuit to 400v H.T. Supplied in an attractive metal cabinet, 8  $\times$   $8\frac{1}{2}$   $\times$  10 in., in excellent used condition, complete with handbook, for only £3. 17. 6., carriage paid.

### 95-150 Mc/s (2-3 R1392 RECEIVER



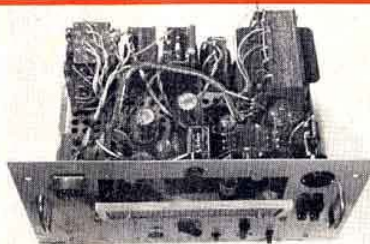
15 valve Super-het. Normal Crystal Controlled, but can be tuned over 95 to 150 Mc/s. Power supply required = 240-250v at 80 mA. 6-3v at 4A. Standard Rack Mounting, 19  $\times$  10 in. Complete with valves and circuit diagram. Air tested. £6. 19. 6. Carriage 10/-.

### SIGNAL GENERATOR AND WAVEMETER Type W 1649

In copper lined case. Freq.: Sig. Gen. 140-240 Mc/s. Wavemeter 150-235 Mc/s. Complete with valves, 4 VR91 and 1 VR135, and 5 Mc/s crystal. Power required 6-3v and 120v. £2. 10. 0. Carriage 10/-.

### POWER UNIT TYPE 234

For receiver 1392 on 250v, 50 c/s. mains. Double smoothed output 240v at 100 mA. 6-3v at 6 A. Input and output fused, switched meter reads both in and out voltages. Standard rack mounting, size: 19  $\times$  10  $\times$   $6\frac{1}{2}$  in. £4. 10. 0. Carriage 10/-.



### 36 SENDER POWER PACK AND MODULATOR

Superb, heavy-duty, power unit and modulator chassis housed in handsome oak cabinet with slide-out front; size:  $24\frac{1}{2}$   $\times$  16  $\times$  15 in. Weight 120 lb. Built-in speech amplifier, push-pull 807 modulator (less trans.) and separate power supplies for V.F.O. Bias and P.A. Input 100/110v and 200/250v, 50 c/s at 350 watt. Outputs: 200-0-200v, 50 mA, 2  $\times$  500-0-500v, 200 mA, 6-5v, 8A (c.t.) and 3  $\times$  4v, 4A. Circuit diagram supplied. £6. 0. 0. Carriage 15/-.

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