# RSGB

# BULLETIN

DECEMBER 1965
VOL. 41, No. 12


JOURNAL OF THE RADIO SOCIETY OF GREAT BRITAIN

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MM16

**Volume 41 No. 12**

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**4/- Monthly**

# RSGB BULLETIN

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**As this issue went to press the reciprocal licensing agreement between the UK and USA was completed at the Foreign Office. Full details next month**

*The RSGB Bulletin is published on the first Wednesday in each month by the Radio Society of Great Britain as its official journal and sent to all members.* 
*The closing date for copy for the January issue is December 3, and for the February issue January 7.*

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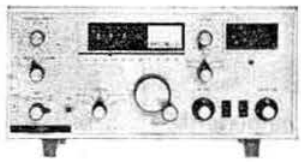

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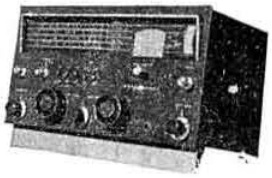

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A. O. Milne, G2MI, 29 Kechill Gardens, Bromley, Kent

# A Christmas Message from the President

ONCE again a year draws to its close and it becomes my duty, following the example set by previous Presidents, to send to you all a Christmas Message dwelling briefly on the outstanding events of the past year and trying to foresee what the future may have in store for us.

During the past year, in addition to the vast amount of work carried out by the Society's committees as part of the normal services to members, the themes set in 1964 in regard to Education and to International Friendship have been pursued vigorously. The Education Committee, first formed in 1964, actively supported a symposium on Amateur Radio held for the benefit of Youth Leaders and others at Ollerton in Nottinghamshire. The success which this event enjoyed augers well for any future functions of a similar nature.

*Mr E. W. Yeomanson, G3IIR*
*President 1965*

In the international field, Tuesday, March 16, 1965, will go down in the Society's history as a date of great importance to amateurs both in the United Kingdom and overseas, for it was on this day that the Postmaster General, in reply to a Private Question in the House of Commons, agreed to enter into reciprocal arrangements with other countries to enable licences to be issued to foreign amateurs to operate in the United Kingdom. I consider it an honour to have been able to prepare the dossier used by the Member of Parliament concerned in presenting his case and I extend my thanks to all those members of the RSGB who provided much of the information contained in the dossier.

As Chairman of the RSGB Exhibition Committee I should like to thank all those who supported our effort to make this year's International Radio Communications Exhibition a greater success than ever before. To those who spent long hours working on the Society's stand my grateful thanks and to those, and there were some, who complained that the number of Home Constructed exhibits was small, I would pose the question " Which was your piece of gear? " I sincerely hope also that the many overseas visitors whom we were pleased to welcome felt that the visit was worth while.

It has been my privilege during 1965 to represent the Society at functions in Holland, France, Belgium and Switzerland and I have been greatly impressed by the friendly way in which I was received, and by the esteem in which our Society is held in other countries. Let us all ensure that our actions both on and off the air do nothing to destroy this image.

I know, as indeed every President knows, that, from time to time, some members become dissatisfied with what they " get out of the Society." I must remind you however that you, yourselves, are the Society and, in the main, you will get out just as much as you put in. The Council are the members you elect to run the Society and your President is its temporary figurehead. The rest is up to you. See that you elect your local AR and that an active RR is elected for your Region. In this way, through your Regional Representative, Council will know your wishes and the Representation Scheme will work. If you are not represented it cannot work. (See page 816).

What of the future? It would be foolish to make predictions but one thing is certain. With the continual international fight for frequencies every effort must be made by the national Amateur Societies to safeguard our frequencies. Delegates from Region I of the International Amateur Radio Union, the Region to which we belong, will meet next May at Opatija in Yugoslavia and it is essential that, through good will, we arrive at a formula so that Region I, together with Regions II and III can present a united front on a world wide basis at the next ITU Conference. This is vital for, without adequate frequency allocations none of us can pursue our hobby.

May we, during the coming years, show that, through the hobby of Amateur Radio which recognises neither class, creed, colour or race, we have an infinite power in our hands which, used properly, can only result in better understanding between all men.

A Happy Christmas to you all.

# Nuvistor Pre-amplifier for 432 Mc/s

BY R. S. J. SMITH, G2DCI*

IN an endeavour to obtain an improved signal-to-noise ratio on the 430 Mc/s band compared with the usual crystal mixer converters, pre-amplifiers employing Nuvistor valves types 6CW4 and 8058 were constructed and tested, and apart from certain difficulties with the 6CW4—which were overcome—these pre-amplifiers have proved their worth. Of the two valves mentioned, the 8058 has a slightly better signal-to-noise ratio, but is rather more costly than the 6CW4.

The 8058 can only be used in a grounded-grid configuration

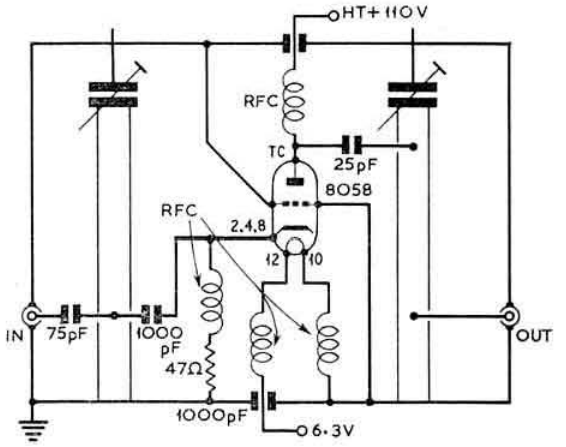


**Fig. 1. Circuit diagram of the pre-amplifier employing a type 8058 Nuvistor.**

since the guiding lugs and the metal shell form the actual grid connection. As for the 6CW4, all attempts to use this in a grounded-grid circuit failed. No matter what arrangement was tried, instability resulted, and it would appear that the residual grid lead length is too long to permit stable operation on these frequencies in this manner. In a neutralized grounded cathode circuit, however, the 6CW4 worked well.

Both the 8058 and the 6CW4 amplifiers will be described in detail, and while the construction deviates somewhat from practices on the lower frequencies, the majority of amateurs with v.h.f. experience should have no difficulty in duplicating them. Having passed this observation, it should perhaps be commented that a lathe would be helpful in producing the lines, but with due care and attention, hand tools will give quite acceptable results.

Very little need be said about either circuit since they are both straightforward. Fig. 1 employs an 8058 and Fig. 2 a 6CW4. It is the construction and layout which requires the greatest explanation.

## Construction

Both amplifiers are housed in Eddystone die-cast boxes measuring 3⅝ in. × 4⅝ in. and have other common features.

In each case, 1000pF feed-through capacitors are employed to take the heater and h.t. supplies to the circuit through the body of the box. To make a good electrical connection to the die-casting from the metal shanks of these capacitors is not particularly easy and, furthermore, due to the soft nature of the alloy used for the box, they soon tend to work loose even if they are tightly fitted in the first instance.

To overcome these difficulties, the 1000pF feed-through capacitors are retained by the copper clips shown in Fig. 3(d). Initially, the feed-through capacitor is placed in position so that its skirt will be on the same side as the fixing clip. The end large hole in the clip is then slipped over the body of the capacitor and down on to the skirt of the capacitor. The clip is then secured by means of a 6BA screw to the body of the die-cast box which has previously been tapped for this purpose. As an aid to a good connection between the capacitor and the clip, a little solder may be run on to them both where the small metal shank of the capacitor protrudes through the clip. The clip, as will be seen from the illustration, is made with an integral solder tag. In each case, these capacitors are fitted adjacent to the copper screen which divides the box, and a connection run from the tag end of the fixing clip to this screen.

Both amplifiers employ tuned lines fabricated from ¼ in. brass rod. One way of tuning such lines is to fit a ½ in. diameter disc to the end of a length of studding and to vary the distance between the end of the line and the disc by turning the studding in a matching threaded section. In these pre-amplifiers the writer has used what he believes to be a better method, and certainly one which is less susceptible to variations in capacity due to expansion of the rod or lines. With the method to be outlined, while capacity changes will still take place with expansion, they are of a smaller nature, and from this results a worthwhile increase in tuning stability.

The ends of the lines which are tuned are bored or drilled ¼ in. in diameter to a depth of 1 in. Into these holes are slid 2BA screws to the end of which have been fitted a short

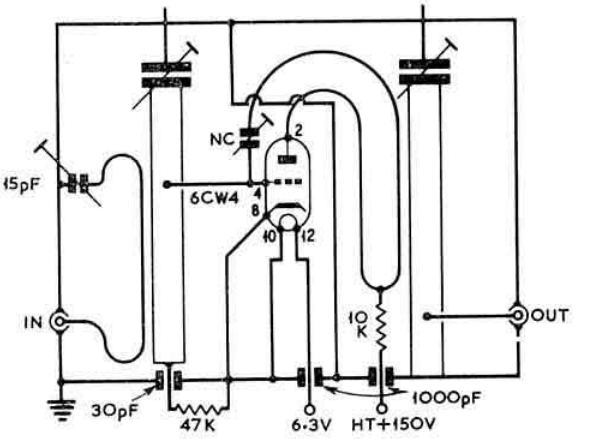


**Fig. 2. Circuit diagram of the 6CW4 pre-amplifier.**

*15 Russell Bank Road, Four Oaks, Sutton Coldfield, Warks.

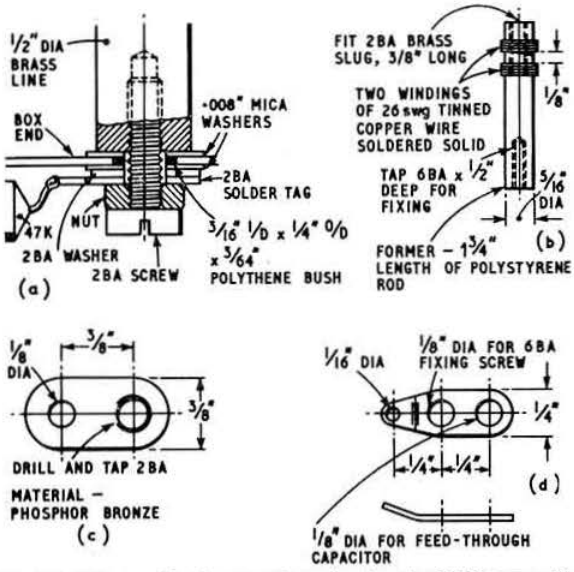


**Fig. 3. (a) The combined support/capacitor for the 6CW4 preamplifier grid line. (b) The 6CW4 anode-grid neutralising capacitor, which is adjusted by varying the position of a threaded brass slug. (c) Two phosphor-bronze clips are required for each unit for tentioning the tuning capacitors. (d) The clip required for mounting each of the 1000 pF feedthrough capacitors.**

length of $\frac{3}{16}$ in. bore × $\frac{1}{4}$ in. outside diameter polythene tube, the purpose of which is to align the screw to the bore of the line. The 2BA screws themselves work in matching threads on the side of the die-cast box. Since the wall thickness of the box is inadequate to accept a reliable 2BA tapping, the wall thickness is increased at this point by fixing to the side of the box a length of brass strip $\frac{1}{8}$ in. thick and $\frac{1}{2}$ in. wide which is secured by 6BA screws at each end. Naturally this must be fitted before the threads are cut. This assembly may be clearly seen in both Fig. 4 and Fig. 6.

Once the tuning capacity has been correctly set, the 2BA screws may be locked in one of two ways. First, a lock nut may be fitted to these screws, and run up to their heads before they are screwed through the side of the box, and once the correct position is found, these nuts run down the screw until they come into contact with the reinforcing bar.

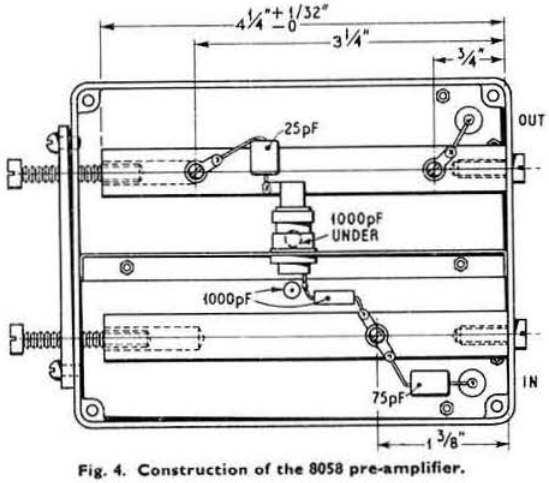


**Fig. 4. Construction of the 8058 pre-amplifier.**

If this method is adopted, then the length of the reinforcing bar will have to be increased so that the nuts clear the fixings for this bar. A second method is to fit the 2BA screws with phosphor bronze leaf spring tensioners. These are illustrated in Fig. 3(b). The $\frac{1}{8}$ in. diameter hole passes the fixing screw for the reinforcing bar, the spring being positioned so that its 2BA valley hole aligns with the 2BA hole in the bar. To give the required tension, at the point midway between the two holes, the leaf spring should be bent to an angle of about 20°. If continuous adjustment to these capacitors is expected, then the small leaf springs described are to be preferred.

### 8058 Pre-Amplifier

The construction of the 8058 pre-amplifier is shown in Fig. 4 together with all the relevant measurements and component dispositions. The centre of the die-cast box is divided by a copper screen which is constructed according to Fig. 5, and as will be seen, the valve holder is mounted on this.

The grid of the 8058 is earthed by the guiding lugs which form part of the shell. The cathode of this valve is connected through an r.f. choke and a 47 ohm resistor to a solder tag placed under the centre screw which retains the partition in place. From pin 10—heater—another r.f. choke is

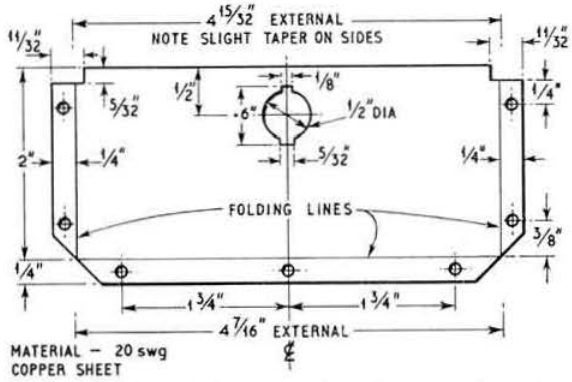


**Fig. 5. Dimensions of the screen used to divide the die-cast box.**

connected to the same earth point. Alongside this central fixing screw, a 1000pF feed-through capacitor is mounted. This is the heater supply point. From pin 12 of the valve, another r.f. choke is run to this feed-through capacitor. Cathode connections, pins 2, 4 and 8, are joined together and taken via a 1000pF ceramic capacitor to the tuned line, to which point the aerial socket is connected by a 75pF capacitor.

On the other side of the partition is mounted another 1000pF feed-through capacitor, and this takes the h.t. supply to the 8058 anode. A standard $\frac{1}{4}$ in. spring clip is used to make connection to the 8058 anode, and from this clip a 25pF ceramic capacitor is connected to the line as shown. From this clip, another r.f. choke runs to the h.t. supply feed-through capacitor.

It will be apparent that, apart from the components themselves, all leads are r.f. chokes. These are constructed by winding 12 turns of 26 s.w.g. enamelled wire on a $\frac{1}{8}$ in. diameter rod, removing the mandrel, pulling the turns apart slightly, and then compressing them so that the overall length of the winding of the choke is about $\frac{3}{8}$ in.

***Alignment*** Prior to aligning the 8058 pre-amplifier it should be noted that the h.t. supply must be limited to 110V. The current taken by the 8058 is 10mA, and if the supply source is higher than the required 110V, then a

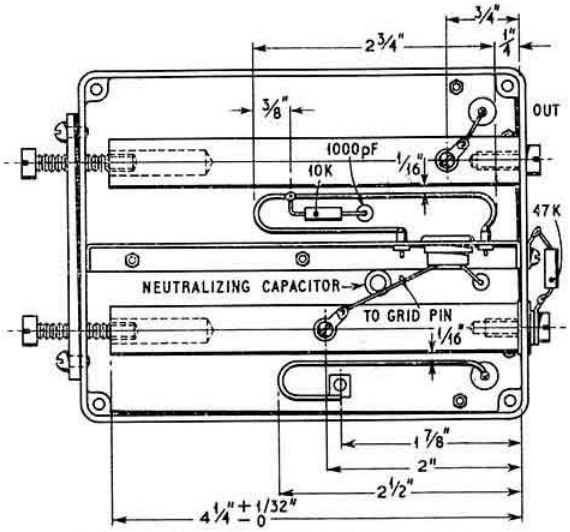


**Fig. 6. Construction of the 6CW4 pre-amplifier.**

series dropping resistor of the required value must be included in the supply line.

Alignment simply consists of adjusting the capacitors on each line for maximum signal. Optimum noise factor is, however, given when the cathode line is tuned slightly high in frequency but, despite this, tuning for maximum signal will produce very worthwhile results. If a noise generator is available, then the pre-amplifier can be aligned for optimum signal-to-noise ratio.

## 6CW4 Pre-Amplifier

The construction of the 6CW4 pre-amplifier is shown in Fig. 6 while the central dividing screen is shown in Fig. 7.

The layout follows broadly the procedure for the 8058 pre-amplifier although, as the 6CW4 is a single ended valve, a resonant loop is employed to couple the anode of the valve to the output tuned line. In addition, neutralizing is required.

The connections for the anode loop are made to the anode of the valve, and to the neutralizing capacitor via nylon feed-through bushes fitted to the partition.

Neutralizing originally presented a problem in that there are no capacitors of the required value available. A suitable component was therefore constructed. It is shown in Fig. 3(b) and adjustment of the 2BA brass slug sets its capacity.

One point which requires special explanation is the input tuned line since this is isolated from direct connection to

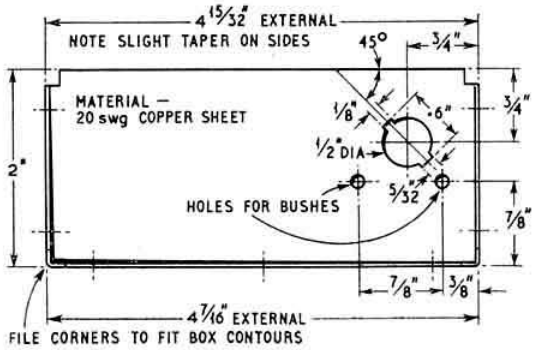


**Fig. 7. Dimensions of the central dividing screen.**

the end of the die-cast box. The manner in which this end of the grid line is constructed is shown in Fig. 3(a); it will be seen that it also forms the construction of the 30pF capacitor at the same time.

The wire loops are made from 16 s.w.g. tinned copper wire formed as shown on the illustration.

***Alignment*** In the first instance h.t., is not connected during alignment of the 6CW4 pre-amplifier.

Initially, the neutralizing capacitor is set too high in value by screwing fully in the 2BA brass slug. Then on a strong local signal, and still *without h.t. applied*, the input and output lines are tuned for maximum signal. Next the neutralizing is provisionally adjusted. Still using the strong local signal, the 2BA brass slug is slowly withdrawn until the point is reached where the incoming signal is reduced to its lowest value, if indeed it does not disappear altogether. When making this adjustment, it is advisable to fit the lid to the die-cast box to ensure that stray signal is not picked up by the output line and its associated wiring.

H.t. may now be applied to the pre-amplifier and, on a weak signal, the input and output circuits adjusted for maximum gain. Provided that the null point has been found on the neutralizing capacitor, the amplifier should be stable.

## Conclusion

While in some circumstances it may not be essential to ensure complete r.f. screening between each half of the pre-amplifiers, it does contribute to the overall margin of stability. Such screening can be arranged in these amplifiers by using the parts illustrated in Fig. 8. The lower part is formed into

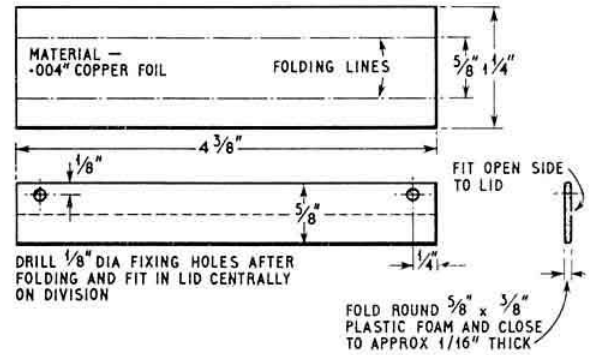


**Fig. 8. Suitable screens for attaching to the lid of either amplifier.**

an *L* and fitted centrally down the longer length of the lid and on the inside. The upper part, which is made from copper foil, is first cut to size, scribed with lines, and then folded around a length of plastic foam in the manner indicated in the section diagram. The slightly open central section of this sandwich—righthand side of the section diagram—is then slid along the projecting part of the *L* so that, when they are together, the two parts take the form of an extended *T*. Quickly join one of two spots of the top of the *T* to the stem by three or four solder spots. If too much solder is used, the springy nature of the top of the *T* will be destroyed.

When the lid is now fitted to the die-cast box, the top of the *T* will contact the top of the fixed screen and so complete the screening.

Both these pre-amplifiers will bring about a very worthwhile improvement in equipment employing crystal mixers on 430 Mc/s.

Special thanks are due to G3BA for his suggestions in connection with the improved tuning arrangements, and to RCA (Great Britain) Ltd. who supplied the 8058 Nuvistor to the RSGB for evaluation.

# The G3LRQ Crystal Calibrator

By MICHAEL J. HUMPHRIES, Grad.I.E.R.E., G3LRQ*

TO comply with the GPO licensing regulations, an essential adjunct to any amateur radio station is a stable, accurate frequency reference source. By elaborating on the usual basic crystal oscillator, however, a versatile piece of auxiliary apparatus can be produced which will be of continual service, not only for ensuring that transmissions are within the allocated bands, but in addition for checking the frequencies of transmitted and received signals. A 1 Mc/s crystal oscillator followed by the pulse shaping action of dividers also possesses the valuable property of providing higher harmonic output at 30 Mc/s than a simple 100 kc/s oscillator.

The block diagram of a transistorized calibrator working on the divider principle is illustrated in Fig. 1. The output of a 1 Mc/s crystal oscillator is divided by ten to

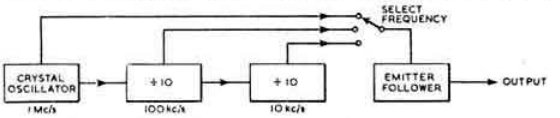


**Fig. 1. Block diagram of the G3LRQ calibrator.**

produce 100 kc/s, and this stage is followed by a further divider to give a frequency of 10 kc/s. The desired range may be selected and the signal passed through an emitter follower to provide a low impedance output.

Referring to the circuit of Fig. 2, TR1 is a Pierce-type crystal oscillator, the output of which is fed into TR2 base. TR2 acts as a switch to provide trigger pulses for the first divider circuit. The 1 Mc/s output for the emitter-follower is taken from the collector of TR2.

The divider circuits are of the step-counter type, and operate in the following manner. CR1 conducts on the positive pulses from TR2, and C11 charges up a small amount, determined essentially by the ratio of C10 to C11, but this pulse is, however, insufficient to make CR2 conduct. The positive pulse also appears at TR3 base, and TR3 goes into conduction, discharging C10 in readiness for the next pulse. On the following pulse, C11 is charged up further, this new pulse being added to the one already stored. Then, dependent on the ratio of R6 to R7, when C11 has received a small additional charge several times, as shown in Fig. 3, CR2 will conduct, discharging C11 and operating TR4 and TR5 which act as a complementary high-speed switch, producing a negative output pulse at the junction of R6, R7.

This output pulse is fed to the base of TR6, which acts as a switch in the same manner as TR2, the 100 kc/s output for the emitter-follower being taken from the collector of TR6.

Trigger pulses for the 10 kc/s divider are also taken from TR6 collector, the step-counter comprising TR7, TR8 and TR9, operating in the same way as the 100 kc/s version. Negative-going 10 kc/s pulses are obtained from the junction of R11, R12 and, these are fed to TR10, a switch, in order that the same level of signal as the 1 Mc/s and 100 kc/s outputs may be applied to the emitter-follower, TR11. The 10kc/s signal is taken from the collector of TR10.

A switch, S1, is incorporated in the base circuit of the emitter-follower, TR11, to select the desired output. The emitter-follower isolates the output from the frequency control circuits, in order to prevent any load from affecting them. The output is taken from C18, via the potentiometer VR1, which varies its amplitude.

The prototype was constructed on a tagboard, the only precautions being to keep the switch leads reasonably short, being at high impedance. The photograph shows the final unit, in which printed circuit board construction was employed.

## Alignment

Two methods of setting-up the calibrator will be outlined, one using a receiver, and the other employing an oscilloscope.

**The receiver method** is carried out as follows: Connect the output of the calibrator to the aerial terminal of the receiver, from which the aerial should be removed for the entire setting-up procedure, except when adjusting the 1 Mc/s oscillator for zero-beat with a standard frequency transmission, as outlined below.

Switch S1 to the 1 Mc/s position, and tune the receiver to a

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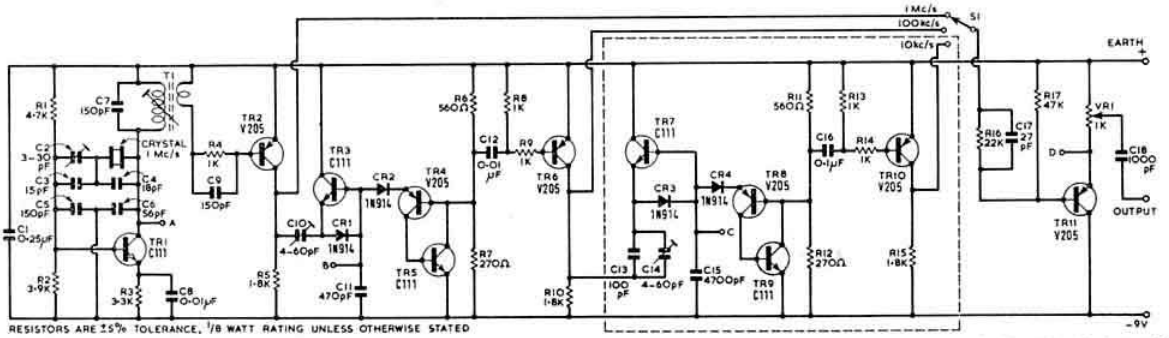
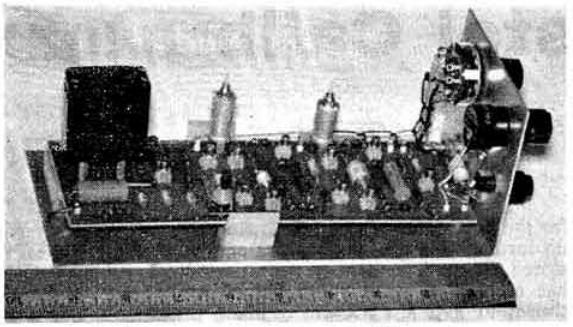



**Fig. 2. The G3LRQ calibrator circuit. The resistors may all be ¼ watt at 5 per cent tolerance. C3, C4 and C17 should be ± 2 pF, while C5, 6, 7, 9, 11 and 13 are ± 2 per cent. C15 and C18 are ± 5 per cent. VR1 is a 1 K ohms non-inductive resistor. T1, primary, 130 turns, 38 s.w.g. s.s.e. pile wound, Secondary, 65 turns, 38 s.w.g. s.s.e. interwound with the last 65 turns of the primary on a 3/16 in. diam. former with a dust iron core. The transistors and diodes are manufactured by S.G.S. Fairchild.**



Top view of G3LRQ Crystal Calibrator.

convenient harmonic, e.g., 2 Mc/s, and locate the marker with the aid of the b.f.o. Then, switch off the b.f.o., and the carrier should easily be heard. With the receiver a.v.c. also off, adjust T1 until this carrier has reached its peak amplitude; there should be a maximum within the adjustment range of the core of T1. If the receiver has an S meter, this task is made considerably easier. The frequency of the 1 Mc/s oscillator can be altered slightly by the adjustment of C2, and this should be altered to obtain zero beat when listening to a suitable harmonic beating with a standard frequency transmission, such as MSF on 5 Mc/s. The 1 Mc/s oscillator circuit is then operating properly.

With the switch S1 still in its 1 Mc/s position, turn the b.f.o. on once more, and locate the next harmonic, noting the two readings on the receiver tuning dial (e.g., 2 and 3 Mc/s). Turn S1 to its 100 kc/s position, and, tuning between the two selected harmonics, there should be heard a series of


Fig. 3. Waveform on C11.

markers. Adjust C10 (preferably with an insulated trimming tool) until nine markers are heard between the two 1 Mc/s points. This adjustment will require a certain amount of care, but should not be found too critical. When nine markers are heard between the 1 Mc/s points, the 100 kc/s divider is correctly adjusted.

The setting-up procedure for the 10 kc/s divider is identical with that for the 100 kc/s divider described above, except that two adjacent 100 kc/s points are selected, and C14 must be adjusted until nine markers are heard between these two points.

**The oscilloscope method,** which was used by the writer, lends itself readily to setting up a unit of this nature. A fairly low-capacitance probe should be used (of the order of 12 pF) to prevent high oscilloscope capacities from introducing errors during alignment. The position of S1 is not important with this process.

Attach the probe to the collector of TR1 (point *A* in Fig. 2) and adjust T1 for maximum waveform amplitude. Adjustment for zero-beat with a standard frequency transmission should be carried out as detailed in the receiver method.

With the probe attached to the " live " side of C11 (Point *B*, Fig. 2), a waveform similar to that shown in Fig. 3 should be obtained, and C10 should be adjusted until a display with ten steps is achieved.

The probe should then be moved to the "live" side of C15 (point *C*, Fig. 2), and C14 should be adjusted until a further 10 steps are obtained on the oscilloscope trace. This completes the adjustments to the 100 kc/s and 10 kc/s dividers.

The output at the emitter of TR11 (point *D*, Fig. 2) may be observed, and switching S1 should produce output pulses of 1 Mc/s, 100 kc/s or 10 kc/s p.r.f. depending on its setting.

### Version of Calibrator without 10 kc/s Divider

As silicon transistors have been specified throughout, and the cost of *p-n-p* types is still rather high, some economy may be achieved by dispensing with the 10 kc/s divider, the calibrator then only giving outputs of 1 Mc/s, with 100 kc/s marker points. Such a unit would be quite adequate for band-edge marking Top Band and 80m, and on other bands careful interpolation between 100 kc/s points on the receiver tuning dial would give approximate readings. For example, the top end of the 40m band is 12,450 kc/s. Markers would be heard at 21,400 kc/s and 21,500 kc/s. Then, if the receiver tuning scale was linear between these two points, 21,450 kc/s would lie half way between them.

The 10 kc/s divider can be deleted by leaving out the circuit enclosed by the dotted lines in Fig. 2, and the 10 kc/s setting-up procedure can then be ignored.

### Results

The crystal used in the prototype gave an accuracy of $\pm 3$ c/s, and the counting circuits remained stable over a temperature range of 25°C. The counting circuits also remained correct for a change in supply voltage of $\pm 0{\cdot}5$V. It is worth bearing in mind that the current consumption for the unit is necessarily quite high at 30mA, so that if it is operated by a battery, it should only be switched on for the period of use to prevent excessive battery current drain.

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### The Gerald Marcuse Memorial Award 1966

At the 1962 Reunion of the Radio Amateur Old Timers' Association it was decided to establish an Annual Prize Award in memory of the late Gerald Marcuse, G2NM.

The terms of the award are as follows:

(i) The award will be made annually in May to the United Kingdom licensed radio amateur under 21 years of age on December 31 previously, who shall have submitted to the Radio Amateur Old Timers' Association the most meritorious article describing a piece of equipment which he shall have constructed and used in his station, or a journey which he shall have made during the previous 12 months to a Commonwealth or foreign country where he met and visited other licensed radio amateurs. Entrants must be Corporate members of the Radio Society of Great Britain.

(ii) The manuscript of the article shall be either typed, using double spacing, or written legibly on lined foolscap.

(iii) All manuscripts will be judged by a panel consisting of three members of the Association.

(iv) The closing date for entries shall be February 28.

(v) The winner of the award will be invited to attend the Annual Reunion of the Association, as a guest of the Association.

(vi) The award will take the form of books or book tokens to a value of not less than £2.

(vii) The winning manuscript will be offered to the Editor of the RSGB BULLETIN for publication.

Entries for the 1966 award should be sent to reach The Founder-Secretary, RAOTA, 16 Ashridge Gardens, London, N.13, not later than February 28, 1966.

The first winner of the award was Mr A. J. Shepherd, G3RKK, whose description of his Amateur Bands receiver in the July 1963 issue of the RSGB BULLETIN subsequently earned for him the Ostermeyer Trophy. No entries were received for 1964 and 1965.

# Indicating Wavemeter

BY F. G. RAYER, G3OGR*

WHENEVER an oscillator or transmitter is built, a wavemeter covering about 1·8 Mc/s to 30 Mc/s is useful for checking that each stage is in fact working on the correct frequency. The wavemeter described here is ideally suited to this application, covering 1·6 Mc/s to 32 Mc/s in three bands, with plug-in coils. A lamp is used as resonance indicator, this allows the wavemeter to be of small size, and also reduces cost.

A wavemeter is intended to check the order of harmonics obtained from frequency multiplier stages, harmonic crystal oscillators, etc., as well as the band to which the p.a. is tuned. With home designed transmitters and coils, a rapid check of this kind is almost essential.

### The Wavemeter Circuit and Components

The wavemeter circuit is shown in Fig. 1, and a 6V 0·06A bulb is fitted as indicator. This will light even when coupled to

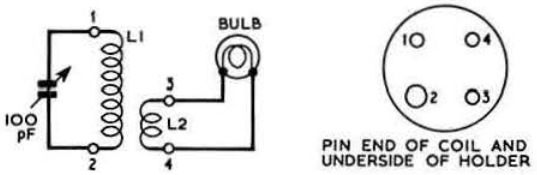



**Fig. 1. A wavemeter merely consists of a link coupled coil, capacitor and bulb.**

low power stages, therefore when checking higher power stages, coupling must be loose, or the bulb will blow. In use, the wavemeter coil is moved towards the oscillator or other anode coil, and the wavemeter tuned to resonance, as indicated by maximum brilliance of the lamp. Coupling is reduced as necessary by moving the wavemeter away, or turning its coil at an angle, so that the bulb only glows at the exact tuning point. The frequency band is then shown by the wavemeter scale.

Fig. 2 shows the type of construction adopted by G3OGR, the paxolin forming a handle which allows the wavemeter to be introduced into awkward positions. Extreme care should be used, particularly with transmitters, to keep the wavemeter away from h.t. Eddystone 4-pin miniature coils were used, which are about $\frac{7}{8}$in in diameter. The coil holder is held with bolts and stand-off sleeves, or extra nuts. The bulb, with leads soldered to it, is cemented in a hole. Changing the bulb alters calibration.

The scale is 2 in × 2 in covered with Perspex of similar size, which may be secured by the variable capacitor nut, or by using nuts and bolts or bolts into tapped holes, at each corner. The perspex is only fitted after calibration.

Each coil is wound as in Fig. 2, with L1 fairly near the end of the former, and L2 close to L1. Suitable coils could be wound on old 4-pin or octal valve bases, or any other formers available, turns being adjusted if necessary to secure suitable coverage. The smallest coil covers 32 Mc/s to 12 Mc/s and L1 is 11 turns of 20 s.w.g. wire on the threaded type of former. L2 is about 3 turns. The second coil tunes from 14 Mc/s to 4 Mc/s and has 28 turns of 32 s.w.g. enamelled wire, close wound, on a smooth ribbed former. L2 is 4 turns. The largest coil can consist of 86 turns of 34 s.w.g. wire, with 8 turns for L2. Sharper resonance was obtained with a Litz wound surplus medium wave coil, some turns being removed. This coil was $\frac{1}{2}$ in outside diameter, and was cemented in the former. L2 then consisted of 8 turns of 34 s.w.g. wire, wound on the ribs over L1. An old, single conductor, miniature medium wave coil is equally suitable, to save winding by hand. Coverage is 1·6 Mc/s to 4 Mc/s.

Turns are cemented, and everything is made rigid, so that calibration will not be lost.

### Calibration

If an accurately calibrated grid dip oscillator is available, this is ideal. G.d.o. and wavemeter coils are loosely coupled in the usual way, and the g.d.o. is set to various frequencies, and the wavemeter tuned to resonance, as shown by the g.d.o. meter. The wavemeter scales can then be marked.

A transmitter already lined up, may be used to calibrate the wavemeter for amateur bands. In this case the bulb is used as indicator.

Calibration is also obtainable from a receiver with a signal strength meter. The wavemeter is coupled to a loop of a few turns in the receiver aerial lead. Reasonably stable signals of various wanted frequencies are tuned in on the receiver, and the wavemeter is tuned until a dip in signal strength is noted on the receiver meter. This dip is slight, if coupling between wavemeter and aerial lead is loose, as it should be.

Some signal generators have a carrier level meter. If so, this will give a similar indication as the meter of the g.d.o. If the generator has a 75 ohm or similar output, a loop of two or three turns can be connected from prod to co-ax outer sheath, and brought near the wavemeter.

If a t.r.f. receiver is adjusted so that its detector is only just oscillating, and the wavemeter is loosely coupled to the detector coil, the receiver will go out of oscillation when the wavemeter is tuned to the receiver frequency.

With some transmitting equipment it is occasionally impossible to insert the wavemeter to provide coupling with the coil. If so, a temporary link line may be used. This has about three turns each end, and can be of co-ax or twin flex. One loop is loosely coupled to the inaccessible transmitter coil, and the other loop is coupled to the wavemeter coil.

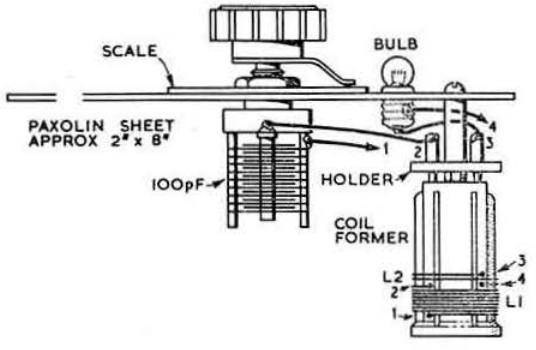



**Fig. 2. The simple method of assembling the absorption wavemeter. The capacitor is 100 pF.**

* Longdon Heath, Upton on Severn, Worcs.

# QUA Associates

## conducted by "JIX"

THE absence of any exhibit or stand representing Youth Amateur Radio at this year's Radio Communications Exhibition has been commented on by several correspondents. I was pretty confident that something could have been done in the way of a " QUA . . . Corner " but there was not enough support for our Roding Boys Society stand to materialize. Naturally it is a disappointment to all boys involved. Mind you, much more push and volunteering for project work must come from you, to pull off any efforts to show any Youth Amateur Radio achievements. Actually, next year's projects should be in the planning stage now. As your Scribe, I would like two volunteers right now. One to help organize an " A " Member's meeting in London, with perhaps a visit, and secondly, a chap to correlate a list of keen " A " members and others who will join in on an Amateur Radio Cabin project in Sussex next year. Please write to me so that I can report developments in the BULLETIN.

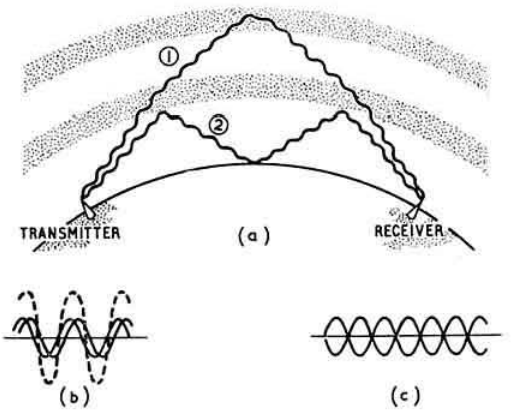



**Fig. 1. If the path length over distances (1) and (2) change, the waves arriving at the receiver will either be in phase (b) or out of phase (c). The signal will vary widely in strength with the changing conditions. This produces QSB.**

Our next letter is ***F***

**Frequency** has already been mentioned in connection with E.M. waves last month. All actions which repeat at regular intervals have a frequency of operation, measured in cycles per second. Alternating currents vibrate to and fro, and radio waves, resulting from high frequency alternating currents, vibrate everywhere at the frequency at which they started (except when the Doppler effect influences them). The currents set up in receiver circuits vary in sympathy with the incoming signals and it is the job of the tuned circuits to select the required frequency.

**Fading.** This is also known as QSB in amateur circles. When radio waves arrive at a receiving station via two different routes, and if the path lengths vary relative to one another, the waves go in and out of phase. This means they alternately build up and cancel, causing the received signal to vary in strength (Fig. 1). This effect is often noticeable when an aircraft flies overhead and v.h.f. reception is being used. The signal rapidly " flutters " up and down in strength as the 'plane moves and the signal reflected from it alternately builds up with and cancels the direct one. The moving layers in the ionosphere have the same effect. A.g.c. (automatic gain control) in receivers is an attempt to overcome this.

**Field,** in the radio and electrical sense, is the region surrounding a charge or current that is some way affected by this charge. There is some kind of strain set up at a distance by the charge or current. The rapidly varying currents in an aerial cause a radiation of energy in the form of electric and magnetic fields (E.M. waves again). Fields in radio are measured in *volts per metre* and the field strength pattern of an aerial is the " map " of how the field varies with the direction round the aerial. A field strength meter is a simple portable receiver that indicates the distribution of the field in some region. These devices can be absolutely calibrated, or made to just indicate relative field strengths. Nearly all amateur f.s.m.s are of this latter type (Fig. 2).

**Farad.** This is the unit of capacitance. It is that capacity which will hold one coulomb of charge at a pressure of one volt. Named after Michael Faraday, it is a very large unit, and micro-farads ($\mu$F) or pico-farads (pF) are used in radio.

### News from Associates

**Michael Seaward, A4329,** wrote in from Stratton, Cornwall.

*(Continued on page 786)*

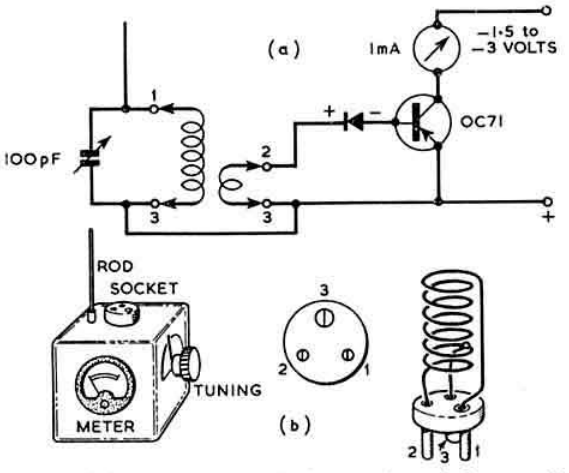



**Fig. 2. A field strength meter. The box can be made from wood, or can alternatively be a suitable plastic container about 4 in. square. The coils can be wound on formers, and based on 2 amp, 3 pin mains plugs fitting a suitable socket. Very little current flows in the transistor before the bias produced by a signal at the diode switches it on, and so the battery may be left " on. "**

* K. L. Smith, G3JIX, 82 Granville Road, Walthamstow, London, E.18.

# THE TWO METRE TRANSLATOR BALLOON

By K. MEINZER, DJ4ZC, J. de KLERCK, PA0IJ and J. KROON, PA0IF

ON Sunday, August 22, 1965 at 05.49 GMT, a balloon carrying transmitting and receiving equipment similar to *OSCAR III* was launched near the city of Utrecht. The translator received signals within the band 144·1 Mc/s ± 20 kc/s and retransmitted these on 144·900 Mc/s ± 20 kc/s with a power of 300 mW. A beacon was also incorporated using the frequency of 145·950 Mc/s. The launching of this equipment, designed and constructed by DJ4ZC, was primarily intended for test and evaluation purposes and was organized in the Netherlands by PA0IF and PA0IJ.

Immediately beneath the 6½ ft. diameter balloon was suspended the parachute, and 13 ft. below this was a crossed dipole aerial. A further 5 ft. down hung the translator in its expanded polystyrene case for protection against low temperatures. To enable it to be tracked by radar a special target was carried 35 ft. beneath the balloon.

The balloon exploded at about 90,000 ft. After a free fall of one minute the parachute opened, which brought the equipment down safely approximately 75 miles NNE of the release site. The equipment could have worked for another 45 minutes, had not the sudden deceleration, owing to the parachute opening, torn the co-axial cable from its plugs.

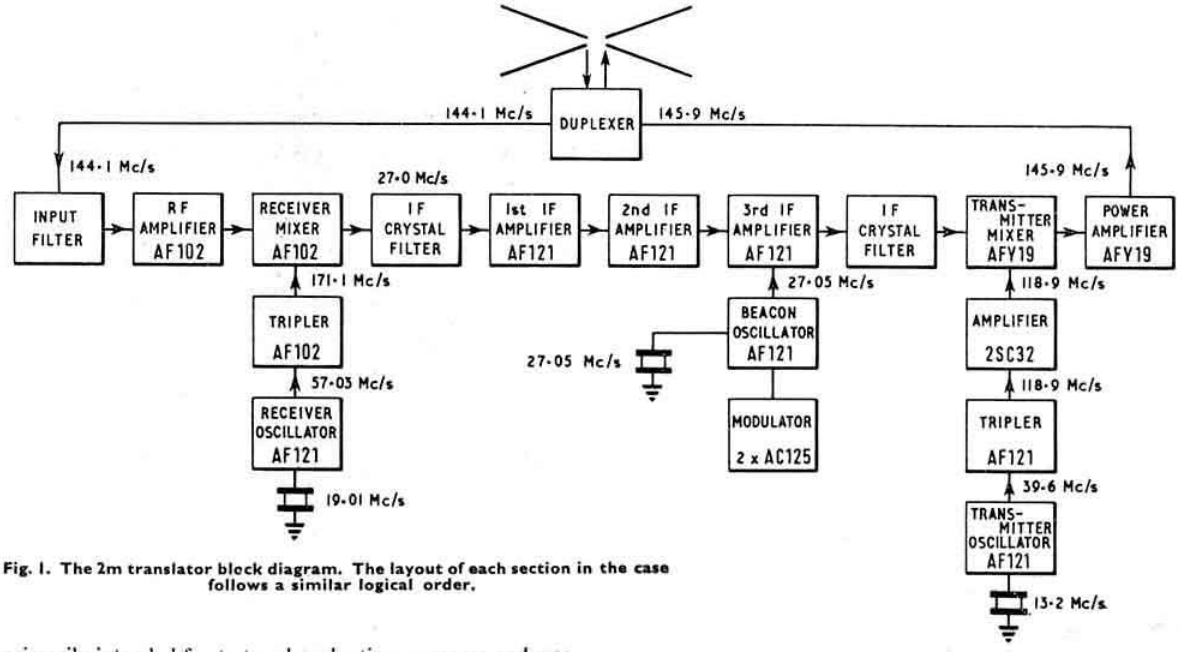



**Fig. 1. The 2m translator block diagram. The layout of each section in the case follows a similar logical order.**

## The Design of the Translator

Assuming an altitude of 80,000 ft. the radio horizon is 400 miles away, and with a 10db aerial at the ground station the attenuation over this path is 122db. For a signal-to-noise ratio of 38db in the ground station receiver, a translator transmitter power of 300 mW p.e.p. is required, provided that the translator relays one signal only and that the ground receiver bandwidth is 2 kc/s.

Based on statistical considerations, the signal-to-noise ratio will drop from 38 to 28db when 200 stations are relayed simultaneously with the same 300 mW p.e.p. available. Relaying 200 s.s.b. stations would require a bandwidth of at least 400 kc/s, which is quite difficult to achieve on 2m. As the greatest bandwidth that can be obtained at reasonable cost is 40 kc/s, only 20 s.s.b. stations can be relayed at the same time, but in consequence, the signal-to-noise ratio in the ground receiver will improve to 33db for 300 mW translator output.

A ground station at 400 miles range having an output of 100 watts p.e.p. will put a signal in the translator receiver about 30db above the noise, with a translator bandwidth of 40 kc/s. A ground station using 2 kc/s bandwidth receiver will receive the noise of the translator receiver 13db weaker, and therefore, at the ground station, the translator noise will be approximately 43db below the level of the relayed distant station. At some distance from the translator, of course, the translator noise will grow so weak that it will be masked by the noise in the r.f. circuits of the ground station receiver.

The greatest problem in designing a translator is the pre-

vention of noise generation by the transmitter chain. As a result of the large bandwidth of resonant circuits at 144 Mc/s, the noise spectrum of the transmitter chain will extend beyond the receiver frequencies, and care should be taken to keep the level of this transmitter noise below the noise of the receiver input circuitry.

Total amplification of the translator is 98db, and with an input signal-to-noise ratio of 30db, the transmitter noise at the receiver passband must be 128db down relative to the transmitter output for an equal noise contribution from the transmitter as from the receiver. In practice, a 6db margin is allowed, requiring a figure of 134db.

The translator launched on August 22, 1965 in the Netherlands fully met the foregoing requirements.

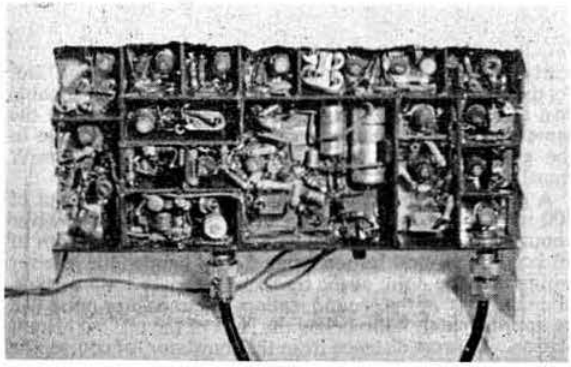
### Construction

As the photograph shows, it is built on printed circuit board to keep the weight low and still obtain adequate screening. The block diagram is given in Fig. 1.

A duplexer made from co-axial cable is fitted, which allows the transmitter and receiver to be connected to the crossed dipoles. A non-directional radiation pattern in the horizontal plane is achieved, while vertically a circular polarized field is generated. The duplexer provides clockwise polarization for receiving, and anti-clockwise polarization for transmitting. In this manner, a reasonable isolation between the receiver and transmitter is obtained.

The beacon oscillator is modulated by a flip-flop. In future launchings the flip-flop frequency would be made temperature dependent, so that the effectiveness of the polystyrene insulation could be assessed during flight.

The translator does not use an a.g.c. circuit. On one hand it would create severe design problems, and furthermore an a.g.c. system would favour strong signals from the ground. The a.g.c. would be controlled by the strongest incoming signal, so that for the weaker stations only a small fraction of the output energy would be available. Instead of using a.g.c., a limited system is built into the translator to act as a clipper on strong signals. This limiter works properly until 10db overdrive, but when an incoming signal is 15db too strong, a blocking effect occurs. The sensitivity of the system then decreases and severe intermodulation is present producing splatter over the whole translator band. Under these conditions it is obvious that a ground station using a proper power level can no longer use the translator. During the August 22 test this effect was clearly noticeable and future users of this facility are urged to utilize the appropriate power level.



**The actual unit which was used on August 22. The transmitter compartments are on the left, while the receiving section is to the right.**

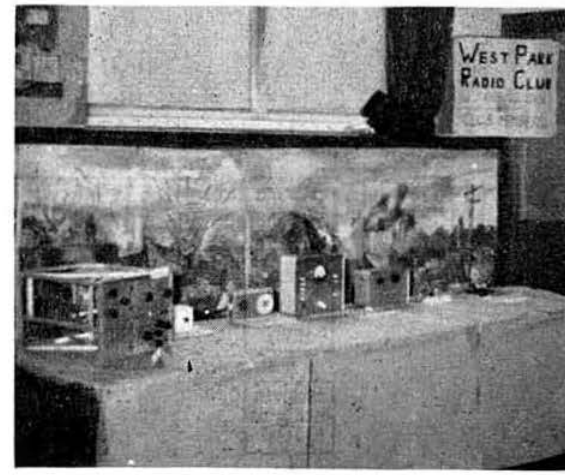
## QUA Associates (Continued from page 784)

He says that a Short Wave Club is successfully running in his area, and in fact included a copy of a certificate that is awarded by his club.

**David Cotter,** who is now **G3UKR** (congrats.), sends some information concerning the radio club at school. He does say that ideas for club work are needed, and that camps and such like are out because of GCE, etc. I *still* cannot see what these exams have to do with Amateur Radio and Social activities! (Hi)

**Desmond Walsh** of Carrick-on-Suir, Co. Tipperary, Ireland drops a line to " QUA . . ." for the first time, giving details of his receivers. One is an Eddystone 870, but it sounds as if a bit of lining up is required. Des. appears to be a little isolated, but this is f.b. from the QRM point of view.

**J. Monally, A4585,** says that he has a circuit for a 40, 20, 15 and 10m aerial tuner, and he would be pleased to send a copy of this to any " A " Members, so how about dropping him an s.a.e.?




**A recent display of work by the St. Helens School Club, the West Park Radio Club.** *(Photo by A4035)*

**Terence Wright, BRS25192,** writes again and discusses details of rigs for radio control. Terry also had a letter in *Practical Wireless*, I see, concerning PCR Modifications.

**Martin Goodrum, A4798,** lives at Norwich, and he has a science teacher who is a licensed amateur (that's good luck!). Martin is busy with the Morse Code, so it shouldn't be long now before a new licence is obtained.

**Stephen Shaw, A4124,** has written to me again, after quite a break. All his normal observations are still going ahead, as before. So keep it up, Stephen!

That is all for this time. It will be a new year when next you read this column. So, in the meantime, may I wish you all the very best for Christmas and the New Year, and may your hopes be fulfilled in 1966. 73, JIX.

### Power Ratings of S.S.B. Transmitters

In connection with the article published in the October issue, S.S.B. Products of Derby, manufacturers of the Sphinx transmitter and Pyramid linear amplifier, wish to point out that these units have adjustable bias voltages and variable loading capacitors.

# RTTY

JOE McElvenney, G3LLV, who has conducted this quarterly feature since January, 1965, and was secretary of BARTG, has moved to Malawi to carry on his business activities there. With little hesitation, we imagine, he accepted this post and left England at the beginning of September, calling in at RSGB Headquarters *en route*. He mentioned a wish to carry on submitting material for *RTTY*, but it would naturally be some time before he could settle down and even think of preparing articles for the BULLETIN. We hope it will not be long before he puts 7Q on RTTY however, for the equipment was despatched by sea, and is expected to reach him during December. The band will almost certainly be 20m, and the speed usually 45·5 bauds.

**FG7XT, winner of the BARTG Spring RTTY Contest.**

RESULTS—BARTG SPRING CONTEST 1965

| Position | Call-sign | Countries Worked | Continents Worked | Total Score |
|---|---|---|---|---|
| 1 | FG7XT | 19 | 5 | 45,030 |
| 2 | KP4AXM | 18 | 5 | 40,572 |
| 3 | K8MYF | 21 | 6 (WAC) | 38,388 |
| 4 | W2RUI | 21 | 6 (WAC) | 37,296 |
| 5 | W3KDF | 19 | 6 (WAC) | 32,718 |
| 6 | W3ZVJ | 19 | 6 (WAC) | 30,096 |
| 7 | W0MPF | 18 | 5 | 27,648 |
| 8 | VE3BIJ | 15 | 6 (WAC) | 27,360 |
| 9 | W1GKJ | 16 | 6 (WAC) | 26,368 |
| 10 | VE3IR | 14 | 6 (WAC) | 22,260 |
| 11 | ZS6UR | 14 | 5 | 19,992 |
| 12 | W2MXN | 16 | 5 | 19,904 |
| 13 | ON4HW | 13 | 5 | 19,006 |
| 14 | I1ORS | 13 | 4 | 18,434 |
| 15 | W8CQ | 17 | 6 (WAC) | 17,748 |
| 16 | K9OXA | 14 | 5 | 17,080 |
| 17 | W8GPB | 12 | 5 | 15,768 |
| 18 | YV5AVW | 10 | 4 | 13,820 |
| 19 | K8JTT | 13 | 4 | 13,806 |
| 20 | WA9NHO | 12 | 5 | 13,776 |
| 21 | K8YJQ | 13 | 4 | 13,208 |
| 22 | W3ISE | 10 | 6 (WAC) | 13,140 |
| 23 | W8FWG | 13 | 4 | 13,026 |
| 24 | GM3ENJ/P | 10 | 4 | 13,020 |
| 25 | W3ILZ | 12 | 4 | 12,936 |
| 26 | WA8FYF | 13 | 4 | 12,922 |
| 27 | W6LVQ | 10 | 5 | 11,800 |
| 28 | K7POF | 10 | 5 | 11,580 |
| 29 | WA6WGL | 10 | 4 | 11,220 |
| 30 | G2HIO | 10 | 3 | 8,880 |
| 31 | K9QNV | 9 | 4 | 8,586 |
| 32 | DL6EQ | 9 | 3 | 8,064 |
| 33 | VE4BJ | 8 | 3 | 6,896 |
| 34 | K5OLU | 8 | 3 | 6,496 |
| 35 | ON4DM | 7 | 2 | 6,314 |
| 36 | VK3KF | 7 | 4 | 6,258 |
| 37 | K5QBU | 7 | 3 | 5,264 |
| 38 | W1BGW | 9 | 2 | 5,166 |
| 39 | OZ8US | 7 | 3 | 4,984 |
| 40 | WA2KIZ | 7 | 3 | 4,942 |
| 41 | K4JQY | 7 | 3 | 4,662 |
| 42 | G6CW | 6 | 3 | 4,212 |
| 43 | KL7CWO | 5 | 2 | 3,810 |
| 44 | KP4BFD | 5 | 3 | 3,570 |
| 45 | G2FUD | 7 | 2 | 3,500 |
| 46 | WB6HZH | 6 | 2 | 3,312 |
| 47 | F3PI | 6 | 2 | 3,144 |
| 48 | F8KI | 5 | 2 | 2,760 |
| 49 | KL7DTR | 4 | 2 | 2,680 |
| 50 | VE3CM | 5 | 2 | 2,610 |
| | ZS1FD | 5 | 2 | 2,610 |
| 52 | I1LCF | 5 | 2 | 2,310 |
| 53 | GM8FM | 3 | 3 | 2,220 |
| 54 | PA0FB | 4 | 2 | 2,000 |
| 55 | G3LDI | 4 | 2 | 1,848 |
| 56 | DJ5DT | 4 | 1 | 1,480 |
| 57 | W2FAN | 4 | 1 | 1,088 |
| 58 | VK2EG | 2 | 2 | 848 |
| 59 | WB6OEN | 2 | 1 | 496 |

Check logs and letters received, with thanks, from OZ7T, W6EV, and ZL1WB.

To help fill in the gap while G3LLV is unable to contribute, the British Amateur Radio Teleprinting Group's Honorary Contest Manager, Alan Walmsley, G2HIO, has passed on some news and also the results of the 1965 BARTG Spring Contest, for which there was a gratifying number of entries from abroad.

The usual outstanding signal from FG7XT won Jean first place in this contest, and a photograph of him leisurely operating his station is reproduced here.

With conditions on the upturn towards the middle of October, and the 21 Mc/s band showing signs of life, the results of the RTTY Contest on October 16 are anxiously awaited as they would seem to have been promising.

## RTTY Operating News

**ZS6UR** and **ZS1FD** are both on 15m, and the East Coast and Mid-West stations of the USA (not forgetting FG7XT of course) are coming in during the afternoons. The longer skip has helped considerably on 20m too, for West Coast stations are very strong now, and three way QSOs are possible with the East and West Coast at the same time. YV5s are now appearing, for YV5AVW and YV5AFA can be heard most evenings.

The calls that have been heard recently on the DX bands from this country are W7ESN, FG7XT, FG7XX, VE6UM, WB6ICM, W3KDF, K3GIF, VE3BIJ, W6CG, K8DKC, ZS6UR, OA4BR, W0RX and ZS1FD.

The latest news from **EL8B** (Ake) is that he has had some difficulty trying to adapt his rig for a.f.s.k. He should, however, have completed the modifications for f.s.k. by the time that this appears in print.

Bud, **W6CG** spent a happy but rather belated honeymoon at the QTH of K3GIF, and enjoyed many contacts with European stations from Ed's place. We are sure that everyone wishes him plenty of happiness in the future. Bud's column in the *RTTY Magazine* is always well worth reading.

Eighty metre activity is on the upturn too. **G3SZN** and **G3PLX** are very much in evidence, and several others in the UK can be found on Sunday mornings around 3535 kc/s.

We welcome **G8LT** who, after being an ardent enthusiast for so long, is now to be heard with a good signal on 80m.

**G2FUD** and **G3MWI** are starting to carry out tests on 2m, but it is hoped that they will not vacate the h.f. bands altogether.

A new signal on 80m is **SM5DIA** who usually operates around 3600 kc/s.

Digressing to 10m, KA stations are only licensed for this band on RTTY. They are continually checking for

openings, and when conditions do lift, this prefix is worth searching for.

### 45·5 v 50 bauds

The current topic of which speed should be used for RTTY QSOs is still causing some argument amongst operators. In the July " RTTY " column, G3LLV argued that 45·5 bauds would inevitably become an international standard, and that Great Britain would possibly be left with its own speed. But just when it seemed that all, or nearly all, countries would fall into line with 45·5, new developments in the commercial world have thrown another spanner in the works. The whole situation is well summed up in G2FUD's introduction to the October *BARTG Newsletter*:

The right speed for quick brown foxes to jump out of our teleprinters has certainly been a burning question since the subject was aired in our last issue. Many letters, 'phone calls and comments during RTTY QSOs have been received, from both British and overseas RTTYers.

Some were strongly pro-50 bauds, some equally strongly pro-45, but the significant fact is that the majority urged the intelligent use of both the speeds we are fortunate to be able to use. These RTTYers, almost without exception, urge the exclusive use of 50 bauds for G-to-G contacts, and the use of 45 bauds for overseas contacts. Most of them also expressed the hope that BARTG would sponsor and publicise new designs of dual-speed governors.

The majority of overseas RTTYers (e.g., *all* Ws) have no choice of RTTY speed: they are licensed at the moment for 45 bauds only. In our own early days in G we, too, would have been confined to one speed only: 50 bauds . . . but for the fact that BARTG's founder members fought for the use of two speeds. But for this freedom of choice, no G would have been able to work overseas RTTYers and vice-versa. International contests would have been out of the question.

Of course, no one will be happy at the fact that this disparity of standards exists in the first place. The important thing to realize, however, is that now is not the time to force the issue one way or the other. In the near future, following commercial example, we are bound to see international agreement on amateur RTTY speed—and it seems unlikely that this will be 45 bauds. International commercial RTTY standards are to be 50, 75 and 100 bauds, and it is understood that US commercial interests have agreed to these. In the future, therefore, we can expect to see surplus 50 bauds printers on the American market. It must also be remembered that the Teletype Corporation already make *new* teleprinters at a price that many US amateurs can afford.

Incidentally, some of the current models of page-printers, reperfs., tape-readers in commercial and Service use (e.g., Creed 75, and the Siemens models used by our own Services) have provision for quick change to different speed standards.

It seems likely, too, that US RTTYers will start to press the FCC for 50, 75 or 100 bauds in the near future. Indeed, it is understood that their MARS networks use 75 bauds already.

Some of our pro-45 G-RTTYers often say that if we all changed to 45 bauds there would be no problem afterwards . . . but if the US RTTYers begin to use other speeds, we shall be back where we are now.

Many members have written to express concern at the report in July *QST's* " IARU News," page 40, that the RSGB was pressing for a 50 baud standard.*

* The RSGB has not, in fact, made any proposals regarding baud rate, and this subject was not even scheduled to be discussed at the Region I Executive Committee meeting at Opatija, the information in *QST* apparently being completely unfounded. It seems likely that the reference to the RSGB pressing for 50 bauds, however, was misinterpreted from a paragraph in the *IARU Region I Bulletin*, April 1965, which merely commented that British amateurs have been trying to persuade Ws and Ks to use 50 bauds to come into line with European practice. Even this statement referred to the situation a year or two previously, though, and does not reflect current thought.—Ed.

**Sandy Fried, KP4BRY, operating KP4AXM which came second in the RTTY Contest.**

In the present situation, therefore, it would seem wise to make the best use of the two speeds we have, while keeping a close watch on the international RTTY situation.

The greater the freedom of the individual in society, the greater is his responsibility towards others, and our freedom to use either 50 or 45 bauds as necessary similarly makes it essential that we make this choice intelligently.

There's another angle too . . . some of the G's who decided to switch to 45 bauds on 80m earlier this year have now come back on to 50 bauds. As one of them remarked this month: " All these long-winded QSOs are even more frustrating when you slow them down to 45 bauds!"

### Special Event Station

The Maldon and Dengie District Boy Scouts Association is holding a Christmas Fayre at the Congregational Hall, Maldon (Essex) on Saturday, December 4, 1965. A special event station will be operated on Top Band and 2m using the call G3ISK/A. The station will be on the air from 2 p.m. until 6 p.m., and will be operated jointly by G3ISK, G3PYW and G3LRQ.

### Second International Convention, Knokke, Belgium

The International Ham Convention arranged by a group of Belgian amateurs and held at Knokke near Ostend during the third weekend in September, 1965, was so successful that a repeat performance is being organized for the period September 16-18, 1966.

Further details can be obtained from Victor Claeys, ON4UM, Hoogstraat 68, Beersel, Belgium, or from Bob Fevery, ONL1322, Meerminlaan 22, Knokke, Belgium.

### IARC Celebrates ITU Centenary

The Second International Amateur Radio Club Convention (Geneva, September 17-19, 1965) was high-lighted by the visit of delegates attending the ITU Plenipotentiary Conference, as well as by radio amateurs from many parts of the world. Modern radio techniques, satellite communications and international radio legislation were discussed in the technical sessions as was a new field of activity for radio amateurs—that of under-water communications.

The ITU Centenary edition of the IARC annual, *Interadio-4U1ITU Calling*, is now available from IARC, Headquarters, Geneva.

J.C.

# An Indoor Pylon Slot Aerial for 145 Mc/s

By WING COMMANDER A. P. MORGAN, D.F.C., RAF. (Ret.), G8DV*

RECENTLY a requirement arose for an aerial to test some newly constructed 2m equipment in a temporary location. The aerial had to be indoors, omnidirectional (to avoid the complications of rotation), cheap and simple to construct. The design adopted proved unexpectedly successful and it is thought that it may be of interest to others.

The writer is convinced that success with indoor aerials depends upon using flatly tuned designs with moderately wide band characteristics, e.g., folded dipoles, cages or cones. Past experience has been that such sharply tuned aerials as Yagis, W8JKs or inductively loaded designs are disastrously affected by the proximity of water pipes and rafters.

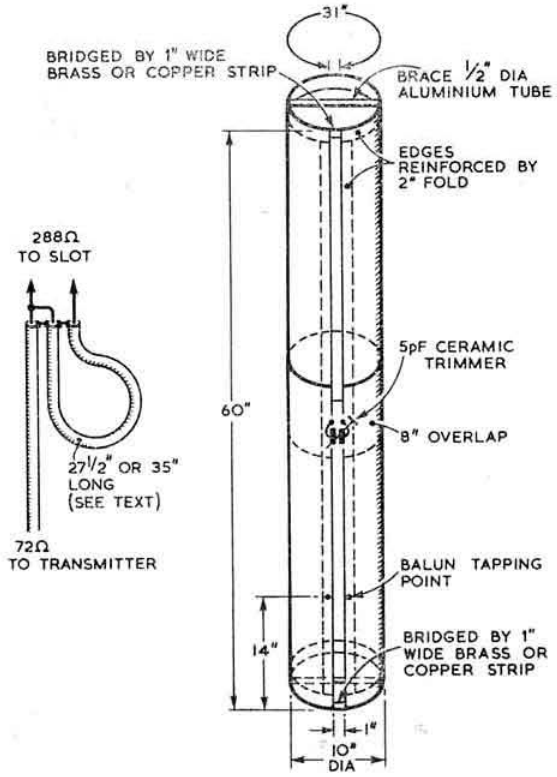



**Fig. 1. Construction of the aerial and the balun.**

The design adopted is based on some notes on the " pylon slot " which appeared in *Mobile Column* for February, 1963. It consists of a 10 in. diameter metal cylinder, 60 in. in length with a 1 in. slot in the side, short-circuited at each end. This resonates just above the 2m band and is brought to precise resonance by loading with a small capacity connected across the centre of the slot. By making the cylinder slightly longer, the natural resonance could be brought down to the 2m band and the loading capacitor dispensed with. The present arrangement, however, provides a convenient means of adjustment to compensate for possible slight variations due to materials or construction.

The aerial is fed by 72 ohm semi-air spaced co-axial cable through a 4 : 1 balun (see *RSGB Handbook*, page 396). The feed point is about 14 in. from the lower end of the slot and the feeder, with balun tied to it, is run through the centre of the cylinder. The balun section is 35 in. long (27½ in. if solid dielectric cable is used, although 26 in. may be more suitable with some solid dielectric types).

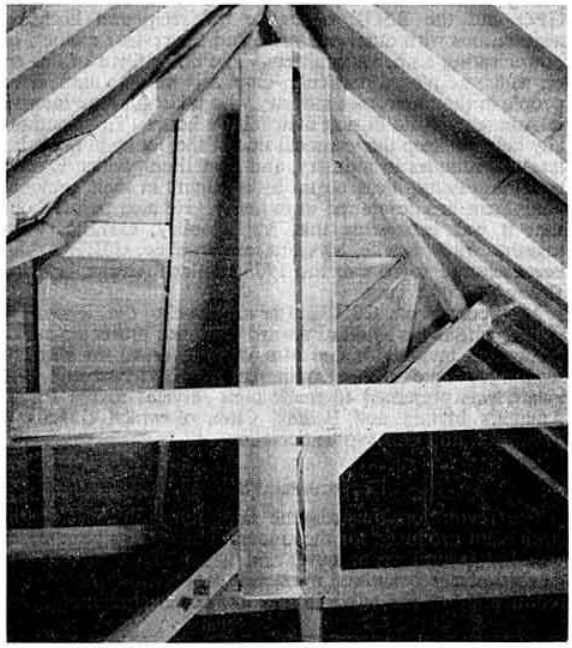
### Construction

The cylinder is made from perforated zinc sheet. Locally available supplies come in 36 in. wide rolls of which two 35 in. lengths are required. These are spot soldered together, side to side, with an 8 in. overlap. The edges of the resulting large sheet are reinforced by folding to a width of 2 in. and spot soldering. The final size of the sheet is 60 in. by 31 in. This is then bent to cylindrical shape, leaving a 1 in. slot in the periphery which is bridged, top and bottom, with 1 in. wide strips of sheet copper (or tinplate) soldered into place. Each end of the cylinder is braced with a length of ½ in diameter aluminium tube, flattened at the ends, bent at right angles for ½ in. at each end and bolted to the cylinder walls across the diameter. A small 5 pF ceramic trimmer is soldered across the exact centre of the slot. The finished product is not robust, but this is not important as it is for indoor use.

### Tuning

The aerial is most conveniently tuned with the aid of a standing wave indicator (e.g., *RSGB Handbook*, page 482).

*(Continued on page 800)*



**The pylon aerial mounted in the attic at G8DV.**

* " Brenyett," New Road, Southam, Cheltenham, Glous.

# RSGB International Radio Communications Exhibition 1965

AT 12 noon on Wednesday, October 27, Mr D. A. Barron, C.B.E., M.Sc., M.I.E.E., Engineer-in-Chief of the Post Office, made it clear that he was glad to have the opportunity of opening the 1965 Exhibition, particularly as during the past year there had been rather a close link between the GPO and the RSGB owing to the reciprocal licensing negotiations with other countries and the revised method of power rating s.s.b. transmitters. The other form of liaison on which he placed particular emphasis was the number of people in the electronics industry who take an active interest in Amateur Radio during their leisure hours. This continually helps to keep the technical side of the hobby in line with latest techniques in industry, and sometimes, which is even more gratifying, ideas begun by amateurs in their personal equipment are developed in industry. He also pointed out that it was interesting that Mr Woolley, G3ESR, who, together with his wife, Mrs Frances Woolley, G3LWY, had been selected to receive the 1965 Mullard Award, is Head Postmaster of Wigan.

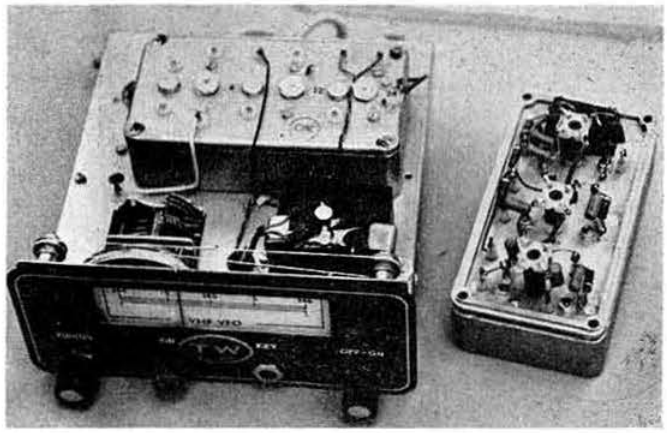
Mr Yeomanson, G3IIR, after announcing that it was the first time that the Mullard Award had been presented at the exhibition, invited Mr and Mrs Woolley on to the stage to receive a plaque and the equipment from Mr Barron.* The award was presented to mark their services to the Radio Amateur Invalid and Bedfast Club, of which G3ESR is Treasurer, and G3LWY is Secretary.

### Commercial Stands

The revolution towards the adoption of transistors in equipment produced for the amateur market has been under way for several years now, and is no longer news; this exhibition merely showed the steady progression towards the redundancy of the valve in new low power equipment. An important change which is beginning to show itself properly, however, which will foreseeably influence current constructional customs, was found on a couple of stands: Alfred Imhof Ltd. and Electroniques (Felixstowe) Ltd. Modular construction, i.e., chassis in kit form, possesses a valuable advantage of requiring relatively few basic parts to assemble tailor-made equipment housings which should,


**Mr D. A. Barron, C.B.E., M.Sc., M.I.E.E., Engineer-in-Chief of the Post Office, opening the Exhibition on October 27, 1965. Seated, Mr W. J. Bray, M.Sc.(Eng.), M.I.E.E., Deputy Director of the Post Office Research Station, and the President, Mr E. W. Yeomanson, G3IIR, who is also chairman of Exhibition Committee. On the table are the Horace Freeman Trophy, the Organizer's Silver Plaque and the Mullard Award Plaque.**
*(Photo by Tella Photography Ltd.)*

*A full report appears on page 798.



**The Organizer's Silver Plaque for the most interesting piece of new manufactured equipment was won by T. Withers, G3HGE, left, receiving the plaque from the President Mr E. W. Yeomanson, G3IIR.** *(Photo by Tella Photography Ltd.)* **Above, the equipment for which the trophy was won, the new Withers Electronics transistorized v.h.f. v.f.o.**

*(Photo by G2LW)*

when manufactured in economic quantities, be little or no more expensive than present " standard lines."

The Electroniques system, based on Datum products, permits the fabrication of several sizes of case using standard 19 in. rack panels of various heights. The chassis is built up within a frame by screwing metal plates to special slotted sub-rails, which can be positioned on the plain side plates wherever the constructor desires.

Imhof's Imkit is built up in a similar manner, using predrilled side plates to fix one, or several chassis plates horizontally or vertically.

These ideas must certainly ease the problem of fitting complex equipment into smaller and smaller cases, particularly with the swing towards three-dimensional assembly. It will not be surprising to find this modular construction in the amateur's workshop, or kitchen table, before very long.

**Left to right, Mr G. D. Wallace, M.P., the President, and Mr D. A. Barron.**

*(Photo by Tella Photography Ltd.)*

For the second year running the plaque for commercial equipment went to T. Withers Electronics for what is believed to be the first British commercial v.f.o. for the 2m band. The v.f.o. may be used with any transmitter using 6, 8, 12 or 24 Mc/s crystals and utilizes three OC170 transistors. The oscillator's fundamental frequency is 6 Mc/s and is doubled twice to 24 Mc/s. Although provision is made on the tuning scale for modification to drive a 4m transmitter, plans are in hand to produce a 4m version in 1966. Also on display were transceivers, Top Band and v.h.f. transmitters, mobile receivers and Nuvistor and transistor converters.

The National Radio Company was represented by **Ad Auriema Ltd,** who displayed receivers, transceivers and the NCL2000 linear amplifier. The receivers were the NC-77X, NC-170, NC-303 and the HRO-500, while transceivers included the NCX3 and NCX5, both of which can be used to drive the NCL2000 Linear. One of the cheapest receivers was the NC-77X, the aerial input of which is tolerant of impedances from 50 to 300 ohms, and will therefore match both single and folded dipoles. A large dial is provided for easy reading and is calibrated in four bands from 540 kc/s to 31 Mc/s. The valve line-up is a 12BE6 converter, 12BA6 c.w. oscillator/i.f. amplifier, 12AU6 second detector, a.v.c. and first audio, 50C5 audio output into an internal 5 in. speaker and a 35W4 rectifier. The NCX-5 is a five band (80 to 10m) single sideband transceiver, capable of an input of 200 watts p.e.p. The v.f.o., for which excellent stability is claimed, is solid state and has a stability of 100 c/s in any given 10 minute period. This allows for a variation of $\pm$ 10 per cent in the mains voltage. Features on the receiving side include a separate detector for a.m. as well as a product detector, tuning rate on all bands of 10 kc/s per 360° rotation of dial, and a sensitivity of 0·5$\mu$V for 10db signal-to-noise ratio on s.s.b. The audio output is two watts into a 3·2 ohm speaker. It has a line up of 15 semiconductors and 20 valves with parallel 6GJ5s in the p.a. Power requirements are 700 volts d.c. at 300 mA, 280 volts d.c. at 160 mA, 80 volts d.c. at 10 mA and 12·6 volts at 5 amps.

**Brian J. Ayres** was among representatives of the British retail trade and had a large selection of commercial equip-

**At the luncheon after the opening of the Exhibition: left to right, Mr D. A. Barron, with the President, Mr E. W. Yeomanson, G3IIR, Council Member E. G. Ingram, GM6IZ, and Mr Tom Clarkson, ZL2AZ, formerly Assistant Chief Engineer of the New Zealand Post Office.**
*(Photo by Tella Photography Ltd.)*

ment on display. This included a selection of Codar, Lafayette, National and Star Communications equipment. Two Lafayette receivers provoked interest, the HA-63 at 24 gns. and the HA-350 at 75 gns. The HA-63 is a general coverage communications type receiver with a slide rule dial calibrated in 4 bands from 550 kc/s to 31 Mc/s. The claimed sensitivity is 1 $\mu$V for 10db signal to noise ratio, and other features include electrical bandspread, a.g.c., m.g.c., b.f.o. and S-meter. The seven valves used are a 6BA6 r.f. amplifier, 6BE6 mixer, 6BE6 h.f. oscillator, 6BA6 i.f. amplifier, 6AV6 detector, a.g.c., a.n.l., and first a.f. amplifier, 6AV6 b.f.o. and a 6AR5 audio output.

The HA-350 is an amateur bands only communications receiver of modern design, featuring a crystal controlled first conversion oscillator and a variable frequency second conversion oscillator giving improved accuracy and stability over the conventional arrangement. Tuned r.f. and first mixer stages give good sensitivity of better than 1 $\mu$V for 10db signal-to-noise ratio. A 455 kc/s mechanical filter plus two i.f. stages provide excellent selectivity. The receiver tunes 3·5 to 29·7 Mc/s in 500 kc/s bands on a vernier dial. The valve line up is 6BZ6 r.f. amplifier, 6BL8 controlled first oscillator and first mixer, 6BE6 second mixer, 6BA6 second oscillator, two 6BA6 i.f. amplifiers, 6AL5 a.g.c. rectifier and noise limiter, 6AQ8 product detector and crystal calibrator, 6AV6 first a.f. amplifier, 6AQ5 audio output, 6BA6 crystal controlled b.f.o. and a 0B2 voltage regulator.

The Star SR-600 amateur bands receiver at 95 gns. is similar to the HA-350. Triple conversion is used with the third i.f. stage providing four switchable band pass filters which, together with a notch filter, reject local interfering signals. Sensitivity on a.m. is claimed to be better than 1 $\mu$V for 10db signal to noise ratio and on s.s.b. and c.w. less than 0·5 $\mu$V for 10db signal-to-noise ratio.

On the **Codar Radio Company's** stand was a prototype nine transistor communications receiver, a companion to the AT5 transmitter, both of which are suitable for mobile operation. The receiver T28 tunes 1·8-2·0 Mc/s and 3·5-4·0 Mc/s using a calibrated slow motion dial and r.f. peak and b.f.o. controls are also brought out to the panel. Use is made of printed circuit modules in the mixer, i.f. and a.f. stages.

Other new products are the CR70A general coverage receiver and CC/40 station control unit. As with other new receivers the CR70A employs a large slide rule dial, calibrated in four bands from 560 kc/s to 30 Mc/s. The specification includes two-speed vernier tuning control, aerial trimmer, separate b.f.o. stage for c.w. and s.s.b. reception, a.g.c. and S meter with a valve line up of an ECH81, EF183, two ECC81 twin triodes and an EZ80. The station control unit CC/40 gives full power supply and aerial change-over control. With the use of 6 ft. flexible lead this unit enables complete armchair operation. Two versions are available, one rated at 750 watts at 250 volts d.c. (£6 10s. 6d.) and a 2 kW version for 7s. 6d. extra.

The new Heathkit line of single sideband equipment was shown by **Daystrom Ltd,** including, for the first time, the Heathkit " Kompact," claimed to be the world's smallest 1 kW linear amplifier. The SB-300E single sideband receiver and the SB-400E single sideband transmitter were joined this year by the SB-200 linear. Designed as a companion to the SB-300E and SB-400E, the SB-200 has an input of 1200 watts p.e.p. on s.s.b. and 1000 watts on c.w. Other features include a built-in s.w.r. bridge and aerial change-over relay. The p.a. consists of two 572B or T160L fan cooled valves and will deliver maximum output from 100 watts p.e.p. input.

Arousing interest by its size (12 $\frac{3}{8}$ in. × 3 $\frac{3}{16}$ in. × 10 in.) was the " Kompact " HA-14 linear. Designed for use in both fixed and mobile stations it requires 100 watts driving power for 1kW input to the p.a. Like the SB-200, the " Kompact " has a built-in s.w.r. bridge and aerial relay, and is available at a little over £55 in kit form. The valve line-up is two 527B or T160L valves. Power requirements are 2000 volts d.c. at 0·5 amps (s.s.b. peak), 110 volts d.c. at 60mA and 12·6 volts d.c. or a.c. at 4 amps. An a.c. power supply is available in kit form.

Also on show for the first time was the " Twoer," a five watt 2m a.m. transceiver available in kit form for £22 10s. Suggested uses were for fixed, mobile, portable and RAEN


**The Heathkit Model OS-2 Oscilloscope.**
*(Photo by courtesy of Daystrom Ltd.)*


**The new Green Electronics and Communications Equipment Ltd. transistor receiver type TMR-5.**
*(Photo by courtesy of Green E.C.E. Ltd.)*

stations. The receiver is a tunable super-regenerative circuit employing one r.f. stage which is included to reduce re-radiation. Provision is made for an external power supply as the built-in a.c. power unit is designed for 110 volts. Power requirements are 260 volts d.c. at 90mA and 12 volts a.c. or d.c. at 1·2 amps. The kit is supplied with a ceramic microphone and all interconnecting cables, but less the crystal which needs to be within the range 8·000 to 8·111 Mc/s. Apart from amateur equipment, test equipment, amplifiers, tuners, speaker systems and an electronic organ were on show.

**Electroniques** displayed the usual selection of coils both for transmitting and receiving, many of which are sold in sets for many of the well known designs. Shown for the first time and provoking much interest were the transistor Qoilpacks, and the Texas Instruments transistor triple conversion receiver. During 1966, Electroniques will put a similar version into production using single conversion but with a 1·6 Mc/s variable selectivity crystal filter. Two models will be manufactured: a general coverage and amateur bands only, the performance of which is expected to equal that of Texas Instruments. The claimed signal level for a 10db signal-to-noise ratio in a 4 kc/s bandwidth for 80m is 0·8 $\mu$V, 40m 1 $\mu$V, 20m 0·7 $\mu$V, 15m 0·8 $\mu$V and for 10m 1 $\mu$V. On a 3 kc/s bandwidth (s.s.b.) sensitivity is claimed at 0·2 $\mu$V for a 10db signal-to-noise ratio. The receiver, which has a drift of not greater than 200 c/s after warm up, delivers two watts of audio from a 12 volt supply.

Electroniques also distribute equipment manufactured by Light Electro Developments Ltd. Among equipment on display was an s.w.r. indicator and a "Monikey" filter. The s.w.r. indicator is claimed to measure power output from a transmitter, carrier suppression of s.s.b. transmitters, modulation depth on a.m. transmitters as well as s.w.r. from 3-30 Mc/s with a minimum input of 20 watts. It is also possible to use it as a field strength indicator and r.f. voltmeter. Models for 50 ohms and 75 ohms are available, both of which are finished in two-tone cabinets measuring 7 in. × 3 in. × 3 in.

The Monikey filter enables any transmitter designed for phone input to be used for c.w., or, in the case of a.m. transmitters, m.c.w. It can also be inserted in the receiver loudspeaker lead to increase selectivity, and when both functions are being employed, provides a keyed monitoring signal from the internal oscillator and speaker. Connection merely entails plugging one lead into the transmitter microphone socket, the other into the receiver loudspeaker socket, and the key into the unit. This device may also be used for aligning s.s.b. transmitters by combining the output of the internal 800 c/s oscillator with an external tone generator. The cabinet measures 7 in. × 3 in. × 3 in., and is finished in two-tone grey.

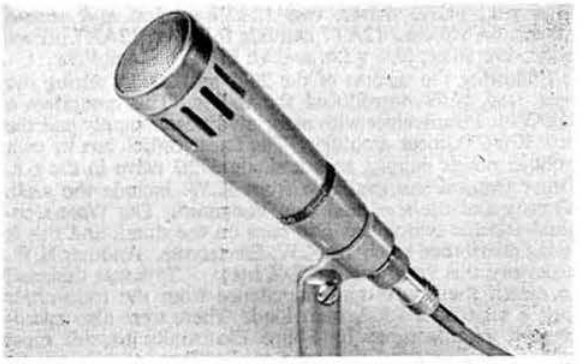
Occupying one of the prominent stands near the entrance of the hall was **Enthoven Solders Ltd.**, with a large selection of soldering irons and accessories, including their soldering fluid and aluminium cored solder. For the home constructor the applications of Veroboard were demonstrated.

On the **Formica** stand, an Eddystone EC-10 demonstrated the use of printed circuit board made from a Formica laminate, an application which proves successful with modern construction techniques.

Together with its matching v.h.f./u.h.f converter the **Green Electronic and Communication Equipment Ltd.** TMR-5 is claimed to operate efficiently on 1·8 Mc/s, 3·5 Mc/s, 70 Mc/s, 144 Mc/s and 430 Mc/s inclusive. The converters plug directly on the rear of the TMR-5 and add little to its dimensions of 6 in. × 6 in. × 2¾ in. The Japanese vernier dial has 100 divisions over 180°; and on 160m there are 2 kc/s per division, on 80m 4 kc/s and on 4m, 2m, 70 cm and 23 cm, 20 kc/s per division. Sensitivity is claimed to be better than 2 $\mu$V on a.m. and better than 1 $\mu$V on s.s.b. Stability is claimed to be better than 100 c/s in any 10 minute period, even with a 30° C change in temperature and a variation of 20 per cent in the d.c. voltage. A total of 20 semiconductors are used; 10 transistors and 10 diodes.

The 2m, 4m and 70cm plug-on converters are available at £12, £10, and £18 each respectively. The input and output impedance of all the converters is between 50 and 100 ohms. The 4m converter uses three transistors: a 2N3478 r.f. amplifier, 2N3478 mixer and a C111 crystal oscillator whereas the 2m versions uses five: a 2N3478 r.f. amplifier, 2N3478 mixer, C444 final multiplier and a C111 crystal oscillator. The 70 cm converter is also suitable for amateur television application, when the i.f. output can be supplied within the range 30 Mc/s and 200 Mc/s. A double conversion converter is supplied when the i.f. is less than 14 Mc/s. The converter uses eight transistors with the addition of two diodes. Other amateur apparatus on display included 70cm tripler amplifiers of both high (70CM1000) and low (CTR70) power, and a single sideband linear amplifier LA600 which would deliver 400 watts p.e.p. output when driven by 30 watts p.e.p.

**Grampian Reproducers Ltd.** offered a wide selection of microphones and accessories designed to meet professional and amateur needs. The latest microphone, the GC1 (a cardioid) is claimed to be ideal for all public address work, stage performances and local activities. For studio and recording work the reduced back sensitivity is of considerable assistance in reducing unwanted background noises and avoiding acoustic feedback, a point which might be of interest to amateur s.s.b. VOX controlled transmitter operators. The reduction in back sensitivity will help damp noises which might otherwise activate the transmitter.



**The Grampian GC-1 cardioid microphone possessing a front-to-back ratio of 15-20db, with a response of 40 c/s to 12 kc/s.**

It is many years since **Alfred Imhof Ltd.** have been seen at the RSGB Exhibition, but this year they filled a stand with a range of high class instrument cabinets. Several receivers and accessories were on the stand, including the Eddystone EA12 amateur bands receiver. The remainder of the stand consisted of instrument cabinets, consoles, Imlok and Imkit. The latter is a fairly new line of sectional chassis which can be built to individual specification from a wide range of basic parts. The finished units are particularly strong, through the use of 10 s.w.g. panels, 13 s.w.g. side plates and 18 s.w.g. chassis, all in hard aluminium.

**J-Beam Aerials Ltd.** claim that over ninety per cent of v.h.f. operators in this country are using their aerials, such is the popularity of the range. During the past year, owing to the interest in moonbounce communication, J-Beams introduced a new cross polarized aerial for 430 Mc/s. This, together with other successful aerials such as the 10 element, 2 metre skybeam and the four element, 4 metre Yagi were part of an impressive display. Other aerials included a 24 element 70cm skybeam, a 2 metre 4-over-4 and an omni-V.


**The President showing G3LOK's transistorized mobile receiver, which won the Organizer's Plaque, to (left to right) Mr G. D. Wallace, M.P., Mr H. Stanesby, C.G.I.A., M.I.E.E., Assistant Engineer-in-Chief of the Post Office, Mr S. E. Allchurch, O.B.E., of the British Radio Equipment Manufacturers' Association, Dr R. L. Smith-Rose, and by W. J. Bray.**
*(Photo by Tella Photography Ltd.)*

**K.W. Electronics** introduced this year a p.e.p. meter capable of giving direct power output readings. The meter is calibrated from 0 to 400 watts p.e.p. and standing wave ratio from 1 : 1 to 1 : 20. Red lines on the meter scale indicate 200 watts and 13 watts for two tone measurement for 10-80m and 160m respectively. The unit, which includes a two tone test oscillator (powered from an internal battery), is finished in a grey case measuring 7½ in. × 5 in. × 5 in.

Among professional equipment displayed by K.W. was the 2000CA, a four channel crystal controlled commercial version of the KW2000A.

Another new product on display was the Vespa s.s.b. transmitter. The transmitter tunes over all the amateur bands between 1·8 and 28·8 Mc/s in 11 200 kc/s bands and has a claimed carrier suppression of better 50db and sideband suppression of 45db. A.m. operation is provided by compatible single sideband, i.e., carrier and one sideband. Power input is 90 watts p.e.p. on s.s.b., 75 watts c.w. and 65 watts a.m. Power requirements are 700V at 120 mA, 200 volts at 150 mA, —90 volts at 20 mA, between —20 and —50 volts at 20 mA and 12 volts at 2·5A. The valves used are 6146 p.a., 6CH6 driver, two 12AT7 as first and second mixers, 6AM6 c.o., 12AT7 cathode follower, 12AX7 microphone amplifier, 6U8 v.f.o. and an EF183 i.f. amplifier.

Following the success of the 2000 and 2000A during the past year, K.W. introduced the G-line. This comprises a KW2000A transceiver with associated power supply and the new KW600 linear amplifier. The linear, which has its own built-in power supply, uses a single 572B valve in the p.a. Other transmitters available from K.W. include the s.s.b. Viceroy and the a.m. and c.w. Vanguard. The Waters coaxial selector switch was also seen on the stand, and this is being distributed solely by K.W. Electronics. Another K.W. accessory this year was the E-Z match. This was designed to match the low output impedance from the transmitter into a resistive 10-500, ohm load. There were also microphones manufactured by Shure Electronics to suit most communications and domestic applications.

Of the instruments on exhibit by the **Kelvin Electronic Company**, perhaps the most useful to the amateur was the Unigor Multirange Test Meters, which are available in three models. The Unigor 1s is rated at 3,333 ohms per volt both on d.c. and a.c. The Unigor 3s is rated at 25,000 ohms per volt for d.c. and 2,000 ohms per volt a.c., while the Unigor 4s gives a figure of 100,000 ohms per volt on d.c. and 20,000 ohms per volt on a.c. All models were finished in two-tone grey with a shadow-free scale. The dimensions are 8¼ in. × 4¼ in. × 3¼ in., with a weight of three pounds. Accessories including a plug-in shunt, current transformer and leather carrying case are produced as optional extras.

**Partridge Electronics,** situated by the stage, displayed the Joystick aerial and associated tuning systems.

Catering for the distribution of surplus equipment were **P. F. Ralfe Radio** and **Samsons Electronics** who between them had a large selection of transformers and surplus components.

**Salford Electrical Instruments** displayed an interesting selection of quartz crystals including samples of all available crystal holders covering a frequency range from 200 c/s to 200 Mc/s. Quartz crystal filters for h.f. and v.h.f. communication systems were also shown for a range of frequencies with channel spacings of 12·5, 25 and 50 kc/s. As in other years the Selectest multi-range meter was on display, but this year in a modified Mark 2 presentation. The pocket size Minitest multirange meter was also displayed together with a selection of small panel mounting instruments.

**Peter Seymour** displayed the Swan 350 transceiver. The v.f.o., which tunes 8673-9173 kc/s, provides full frequency coverage on 3·5, 7, 14, 21 and 28 Mc/s. With the help of a Zener diode and transistor v.f.o., excellent stability is achieved. Use of 6HF5 colour TV sweep valves in the p.a. is one of many unusual features in the Swan 350. It is claimed that on two-tone test it can be shown that these handle 400 watts input, peaking to 500 watts p.e.p. on speech. The valve line-up includes 16 valves and three transistors. A.c. and d.c. power supplies are available, both of which deliver 800 volts d.c. at 500 mA, 275 volts d.c. at 100 mA and —100 volts d.c. at 100 mA. Sensitivity of the receiver is claimed to be better than 0·5 μV for a 10db signal-to-noise ratio.

This year **S.S.B. Products** introduced the "Pyramid"

linear amplifier for use with the " Sphinx " s.s.b. transmitter and similar transmitters. The linear, which uses four 6HF5 valves in class AB1, will deliver 400 watts p.e.p. output with 800 watts input. The linear is sold with built-in power supply for £59. Also introduced this year was the Canonball s.s.b., a.m. and c.w. transmitter designed for operation on either 1·8 or 3·5 Mc/s with a directly calibrated v.f.o. It uses three crystals and three dual valves, housed in a black case measuring 8½ in. × 6 in. × 5⅛ in. Claimed sideband suppression is 35db and carrier suppression 50db. Power requirements are 230 volts stabilised at 100mA and 6·3 volts a.c. or 12 volts d.c. The " Sphinx " s.s.b. transmitter was also on display. This operates on 160m, 80m, and 20m s.s.b., a.m. and c.w., and 40m a.m. and c.w. only. Sideband suppression is claimed at 35db on speech with carrier suppression of 60-70db. Lower sideband is used on 160m and 80m, and upper sideband on 20m. Also displayed were the " Napoleon " standing wave radio bridge, " Delta " control unit, HA350 receiver and numerous accessories.

Sharing S.S.B. Products' stand were **Philpotts Metalworks** Ltd., who displayed cabinets both for professional and amateur use. These ranged from the " S " line wrap-round cabinet, popular in modern designs, to the conventional instrument cabinet with sizes ranging from 9 in. × 9 in. × 9 in. to 19 in. × 10½ in. × 10½ in. Panels and cabinets suitable for such receivers as the G2DAF and G3RKK were also shown.

An instant heat soldering gun and temperature controlled soldering iron were featured on the **Weller** stand. Within four seconds of pressing the trigger the gun's tip heats up to soldering temperature, and is claimed to cool almost as rapidly after use. The temperature controlled soldering iron, together with its magnetic switch, is capable of maintaining constant temperature. The temperature can be altered by the fitting of different size magnets and with different size tips which increase the overall efficiency of the iron.

On the **Short Wave Magazine** stand there were many British and American publications for sale.

**Wireless World** displayed several Iliffe books, including the recently published *Elements of Transistor Pulse Circuits*. Equipment described in *Wireless World* during the past few months interested many visitors; in particular a 10 watts per channel stereo amplifier and a loudspeaker enclosure which eliminates the need for resonance at low frequencies.

### GPO Stand

**General Post Office** engineers gave useful advice to s.s.b. enthusiasts who needed further information on the new method of power rating s.s.b. transmitters. To help elucidate the recent changes in procedure, a complete transmitter and linear amplifier, with all the necessary test equipment, were on hand for demonstration. An eye-catching model of the GPO tower formed the principle exhibit, but there was also an interesting replica of the modified Goonhilly dish aerial beside the stand.

**The Swan 350 s.s.b. transceiver exhibited by Peter Seymour Ltd.** *(Photo by A4663)*

The **Amateur Mobile Radio Society** concentrated on providing plenty of information and advice for visitors, including a display of photographs of several mobile aerial installations which was intended to illustrate " how not to do it." A particularly useful accessory for h.f. band operation was a remote operated aerial tuning unit, capable of providing a continuously variable tap on the loading coil.

To emphasize the success of the Jamboree-on-the-Air, the **Baden Powell House Scout Amateur Radio Group** showed a large selection of QSL cards. Literature on the history of short wave radio in the scout organization was also available.

Closed circuit television, together with live transmissions to and from the exhibition were a highly successful feature of the **British Amateur Television Club's** stand. Four video sources were available: a 3 in. image orthicon camera, built by G6RSG/T, which was mounted on the balcony; a 1 in. vidicon camera built by G6ABA/T; a flying spot scanner, and live pictures from G6NDT/T in Harrow. There was also an excellent example of a 150 watt Amateur television transmitter, built by G6RSA/T. On Friday evening a transmission to the Television Society at ATV House, Kingsway, met with approval of the 800 attending.

On the balcony, and catering for the short wave listener was the **International Short Wave League.** A feature of this stand was a selection of QSL cards and back copies of its magazine *Monitor*. Arrangements had been made for old members to meet in a back room and discuss events during the past year.

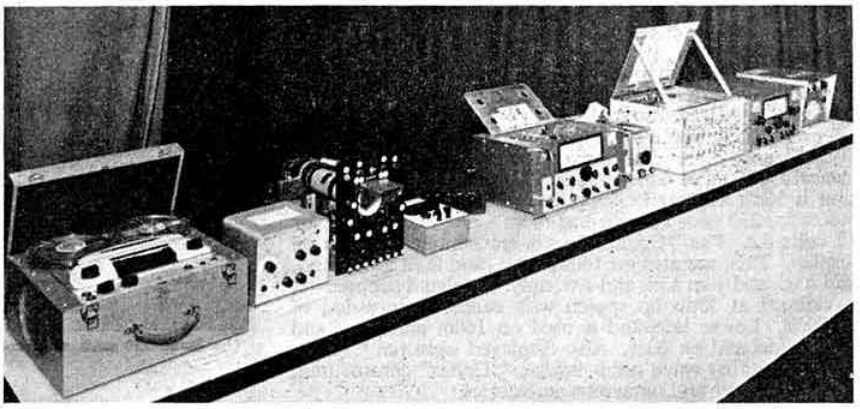
For those intending to sit the Radio Amateurs' Examination, the **Northern Polytechnic** offers a comprehensive course. The stand was almost entirely filled with radio and test equipment specially constructed at the Polytechnic for teaching students, and of interest to s.w.l's was a feature on soldering exercises.

The membership of the **World Association of Methodist Radio Amateurs and Clubs** has grown to the remarkable figure of 700. To keep members in touch with each other, regular skeds and nets are arranged.


**The Society's stand just before the doors of the Exhibition were opened to the public.** *(Photo by Tella Photography Ltd.)*

## The RSGB Stands

Probably because it was in a superior position this year, the RSGB stand and reception were particularly popular. The sale of books also helped to collect a considerable crowd for most of the time the exhibition was open; visitors' attention being mainly drawn by the new RSGB publications *Technical Topics for the Radio Amateur* and by the 1966 *Call Book*. Stocks of the other well-known publications diminished rapidly and G3HSC, who took a corner of the stand, did a brisk trade with his Morse instruction records.



**Home constructed apparatus exhibited on the left hand side of the stage. Displayed left to right were the tape recorder which won the cabinet work award, by E. Sydenham, G3LOK, a 160m and 80m transmitter by K.W. Martin, G3RWM, an oscilloscope by D. Edmonds, a capacitance meter by T. Baker, an audio amplifier by H. Foster, a double conversion receiver by A. Gibbs, G3PHG, two six band communication receivers, one incorporating a v.h.f. converter, by E.W. Elliot, G3BYY, an all band transmitter receiver by J. Bays, G3KFX and an all band linear amplifier also by J. Bays, G3KFX.**
*(Photo by Tella Photography Ltd.)*

The prize-winning exhibits in the various sections of the Home Constructors' Competition were as follows:

The *Freeman Trophy:* J. F. Pink, G3OQB, for his 1296 Mc/s converter, mixer and i.f. amplifier.

The *Organizers' Award:* E. Sydenham, G3LOK, for his mobile transistorized receiver.

The *Best Exhibit Outside Region 7:* R. C. Marshall, G3SBA for his s.s.b. transmitter receiver.

*Class 12, Cabinet Work:* E. Sydenham, G3LOK, for his tape recorder.

*Class 10, Test Gear:* T. Baker for a capacitance meter.

*Class 6, U.H.F. Gear:* J. Gazeley, for his 70cm masthead Amplifier.

*Class 5, V.H.F. Gear:* A. R. Hirst, G3SIC, for a 2m transmitter.

*Class 8, Miniature Gear:* D. Bowman, G3LUB, for his s.s.b. transmitter.

*Class 3, Receiver Attachments:* W. Blanchard, G3JKV, for his panadaptor.

*Class 9, Transistor Gear:* W. Foster for his pocket Top Band transmitter.

## GB3RS and GB2VHF

Once again, the Society operated under the two special call-signs, GB3RS and GB2VHF, from the Seymour Hall.


**The two exhibition stations, GB3RS and GB2VHF, for which equipment was loaned by Crawley Amateur Radio Club.**
*(Photo by Tella Photography Ltd.)*

During the period of the exhibition over 700 contacts were made on c.w., a.m., s.s.b. and RTTY on 160, 80, 4 and 2m.

Unfortunately, Top Band operation was again difficult owing to the S7/8 electrical noise level, and comparatively few contacts were made. Our apologies to the many mobiles who were, no doubt, looking for us on this band; the noise level made it impossible to receive anything less than S9 signals.

The noise level also affected 2m to some degree, and 4m quite considerably. The best DX contacts on 4m were with G3BA in Sutton Coldfield, and on 2m with G6ZP near Worcester; although the two metre station was heard at 5 and 6 in Amsterdam, a subsequent schedule with the PA0 was unsuccessful. Without doubt, the increasing numbers of high steel-framed buildings around the Seymour Hall are having their effect for some stations could be "peaked" in two or three directions.

The 80m band provided the lion's share of contacts; well over 400 QSOs were made with stations all over this country and Europe, and GB3RS was apparently heard in Malta. Operation was mainly on c.w. and s.s.b. although two or three a.m. sessions were included. The impression left with the exhibition operators was that 80m is now 75 per cent s.s.b. operation in this country!

For a few periods, GB3RS and GB2VHF were operated, by licensed amateurs from many parts of the world, with special permission from the GPO.

In view of the "pressure of business" on 80m, RTTY schedules and operation were confined to GB2VHF on 2m, but some very fine demonstration contacts were had with G3BPT (Culverstone, Kent) and G3SZN (Rickmansworth). Equipment for the RTTY demonstrations was provided by G3FRV and G3IIR.

The organization and installation of the exhibition station exhibit was undertaken by the Honorary Secretary of the RSGB Exhibition Committee, R. G. B. Vaughan, G3FRV, assisted by G2DP, G3ODO, G3PHG, G3SGA, G3TIR and BRS23016. Once again thanks must go to the Crystal Palace group for their assistance in erecting and dismantling aerials, and also to station operators G3LHZ, G3NKS, G3SGN, G3UNF, GW3LFM and GW3PSM/DL2CT, who put in so much hard work under difficult conditions.

As a result of the visit of BBC Interviewer Cliff Luton and a film unit to the exhibition, the exhibition station was featured in the "Town and Around" programme on Wednesday, November 3. Viewers saw Mike Underhill,

G3LHZ, in QSO with G3TCB at the Brighton Technical College. YL operator Miss Ceri Taylor, G3SGN, and the Society's President, Mr E. W. Yeomanson, G3IIR, were also interviewed. In the same feature, Cliff Luton interviewed this year's winners of the Mullard Award, Mr and Mrs Woolley, G3ESR and G3LWY.

**Free Draw**

The results of the free draw and the building fund appeal are as follows:

*Building Fund*

1. £25 Voucher: J. C. Ayling, G3PNA, Redhill, Surrey.
2. £10 Voucher: D. Hume, *Amateur Tape Recording Magazine*.
3. £5 Voucher: A. E. W. Sheppard, G3JBS, Loughton, Essex.
4. Grampian Microphone: E. O'Rierchneen, Gt. Shelford, Cambs.
5. Enthoven Soldering Iron: A. D. Patterson, GI3KYP, Belfast 5, N.I.
6. Enthoven Soldering Iron: R. V. Moore, G3LWB, Sheffield 7, Yorks.
7. RSGB *Amateur Radio Handbook:* R. Barker, Balderton, Notts.
8. RSGB Radio Amateur's Examination Manual: M. S. Batt, G3SJI, Westbury-on-Trym, Bristol.

*Draw*

1. EA12 Eddystone Receiver: P. G. Morratt, Grimsby.
2. T. Withers 2m Transistor Converter: R. C. Best, Co. Armagh, N.I.
3. Weller Soldering Kit: F. J. Young, G3NGY, London, S.W.16.
4. Codar Qoils: G. A. Geapes, G2XV, Great Shelford, Cambridge.
5. 4-over-4 2m J-Beam Aerial: B. Randell, G3ALE, Nantwich, Cheshire.
6. Short Wave Magazine Zone Map: F. J. P. Connor, London, S.E.13.

## BATC Demonstration to the Television Society

A " live " television relay from the RSGB Radio Communications Exhibition over a 432 Mc/s link, and recordings played on a helical scan video tape recorder were features of a survey of recent British Amateur Television Club activities presented by Mike Cox to the Television Society at the ITA Conference Suite in Knightsbridge on October 29.

The recordings, played back on professional studio monitors, included interviews and station shots, and featured Peter Lambert, G6ABT/T, Manchester; Grant Dixon at Ross-on-Wye, long prominent in amateur colour television and slow-scan experiments; and J. E. T. Lawrence GW6JGA/T, at Prestatyn. All the recordings had been made using camera channels built by BATC members.

**K6ZA watching the BATC TV camera on the balcony panning the exhibition.**

*(Photo by G3NMR)*


**Some of the equipment on the British Amateur Television Club's stand.**

*(Photo by A4663)*

Some details of net working by amateur TV stations were given by Jeremy Royle who has recently transmitted pictures over 230 miles to Newcastle.

Mike Cox pointed out that while most amateur cameras were based on vidicon pick-up tubes, some five or six cameras using image orthicons had been built recently. The availability of low-cost transistors was also making it possible for space-limited amateurs to build complete television equipment, and they had kept pace with the professionals in developing solidstate circuits.

During the impressive relay from Seymour Hall, John Ware, G6RSA/T, conducted interviews with the RSGB president (G3IIR), with G4KD and with overseas visitors. A vidicon and an image orthicon camera were used with a video mixer. Owing to a valve failure in the 150-watt G6RSA transmitter this had to be replaced at the last moment by a lower power 40 watt rig, but picture quality was excellent.

It was emphasized that BATC is keen to recruit and encourage young members since " there is no finer way to find out how television really works." Many BATC members have entered the industry. G5IJ passed on a message of greeting from Mike Barlow (ex-G3CVO), one of the founders of BATC, and now a professional television engineer in Canada.

Chairman of the meeting was S. N. Watson, head of BBC designs department and the new president of BATC. The audience included a number of well-known television engineers. G3VA

### RSGB Recorded Lecture Library

Mr. G. S Milne, G3UMI, 10 Raleigh Hall, Eccleshall, Staffordshire, has taken over responsibility for the RSGB Recorded Lecture Library from Mr N. B. Ta'Bois. G3HWG, who has been Honorary Curator for several years.

Mr and Mrs J. Woolley, G3ESR and G3LWY, receiving the Mullard Award Plaque from Mr D. A. Barron.
*(Photo by courtesy of Mullard Ltd.)*

# Mullard Award Presented at RSGB Communications Exhibition

NO more fitting setting could have been found for the presentation of a Mullard Award than that chosen this year. In a crowded hall, in the presence of a most distinguished gathering of eminent radio engineers and scientists and with many representatives of industry, the technical and national press present the Award for 1965 was made to Mr Joseph Woolley, G3ESR and his wife Frances, G3LWY, by Mr D. A. Barron C.B.E., Engineer-in-Chief of the General Post Office, immediately after he had declared open the RSGB International Radio Communications Exhibition on Wednesday, October 27, 1965, at the Seymour Hall, London.

The Mullard Award goes annually to the Society member who, in the opinion of a special Committee, has, through the medium of Amateur Radio, rendered outstanding service to the community during the preceding year by his own endeavours or by his example of fortitude and courage. The Award takes the form of equipment or books to the value of £25 and a commemorative plaque donated by Mullard Ltd.

Mr and Mrs Woolley are Honorary Treasurer and Honorary Secretary respectively of the Radio Amateur Invalid and Bedfast Club and it is for their work in this connection that they jointly received the Award. Founded 11 years ago, the Club has blind and disabled members all over the world. It publishes a monthly news-letter and there are twice weekly over-the-air hook-ups on various amateur bands for the exchange of news and views. The Club also helps members, studying for their transmitting licences, with text-books, recorded lessons and information in Braille. Although the Club has a large number of active voluntary supporters, members are encouraged to help themselves as much as possible.

Before inviting Mr Barron to make the presentation the President (Mr Eric Yeomanson, G3IIR) spoke briefly about the origins of the Mullard Award and of the standards by which it is judged each year. He suggested that no one more appropriate than the Engineer-in-Chief of the GPO could have been invited to make the presentation, "as both he and Mr Woolley work for the same firm." Mr Woolley is, in fact, Head Postmaster at Wigan, Lancashire.

Several members of the RAIBC were present when the award was made.

Former signals officers with the RAF and WRAF, G3ESR and G3LWY have long been keen radio amateurs. They first became interested in the RAIBC whilst living at Saxilby, Lincolnshire, when G3ESR was assistant Postmaster at Lincoln.

The equipment they chose for their Award comprised a Codar AT5 12 watt miniature transmitter with its Associated Mains Supply Unit, Type 250/S In addition, through the generosity of Codar Radio Company, they also now possess a Type 12 M/S 12 volt Solid State Relay Controlled Power Supply Unit and a Type 12 R/C Remote Control Switching Unit.

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### International Amateur Radio Convention

Following a very successful IARC International Radio Convention this year, plans are being made for a similar event in 1966. It will be held during the International Amateur Radio Week, August 21-28, at Geneva.

## International Gathering

During the evening of Friday, October 29, 1965, and for the second year in succession, the President and Council of the Society held a reception for overseas visitors to the International Radio Communications Exhibition. Among those from abroad were Tom Clarkson, ZL2AZ, a Past President of NZART, René Vanmuysen, ON4VY, Immediate Past President and now General Counsellor of UBA, Arthur de Smet, ON4CC, who played a prominent part in entertaining the first organized party of RSGB members to visit Antwerp and Brussels in 1935, and PA0DX, whose association with Amateur Radio dates back to the early days of NVIR (the original IARU Member Society for the Netherlands). Others present included CE3VU, DL3DJ, ON4MN, ON4UM, ON5LV, ONL1322, PA0BEA, PA0DAX, W3MDI, W6ULG and K6ZA (OD5CT).

Eric Yeomanson, G3IIR, President of the Society, extended a welcome to the visitors and replies came from ZL2AZ and ON4VY.

During the course of the Exhibition visiting licensed amateurs were authorized by the GPO to operate the RSGB stations GB3RS and GB2VHF.

J. C.

On the Friday evening of the Exhibition, the Council and Exhibition Committee held a reception for overseas visitors. In this picture, left to right, R. F. Stevens, G2BVN, Rene Vanmuyssen, ON4VY, G. M. C. Stone, G3FZL, E. G. Ingram, GM6IZ, and J. C. Foster, G2JF.
*(Photo by G3NMR)*

# NEWS . . .

**Christopher Columbus Social Service Prize** for 1965 has been awarded to the Yugoslav National Amateur Radio Society (SRJ) for outstanding work by YU radio amateurs during the Skoptje earthquake disaster and later during serious floods in Croatia and other parts of Yugoslavia. The Christopher Columbus Scientific Prize for 1965 has been awarded to the Project OSCAR Association, California, USA. The awards are made annually by the International Communications Institute, Genoa, Italy.

**Royal Charter** has been granted to the Engineering Institutions Joint Council, now known as the Council of Engineering Institutions and the Duke of Edinburgh has accepted the office of Founder-President for a period of five years. The Council was set up three years ago with the co-operation of 13 chartered engineering institutions having a total of 130,000 Corporate Members. The Institution of Electrical Engineers and the Institution of Electronic and Radio Engineers are represented on the Council. Formation of the CEI entitles Corporate Members of the constituent institutions to describe themselves as chartered engineers—C.Eng. —instead of, for example, chartered electrical or chartered electronic and radio engineers.

**VU-YL's.** SIRAN, the South India Radio Amateur Newsletter, records there are four ladies among India's 400 licensed radio amateurs. There are, according to the same source, 26 YL's in Australia and more than 200 in Germany. The UK total is still well short of the 100 mark.

**Quasars** are remote objects millions of light-years away which give off powerful radio signals and are 100 times as bright as all the stars of the Milky Way put together. The Mullard Radio Telescope at Cambridge has already established the existence of new objects in the sky, virtually on the edge of the observable universe, 8,000 million light-years away from our planet.

**In Orbit.** More than 40 satellites are now transmitting on frequencies between 136 and 137 Mc/s. Of this number 14 transmit only upon ground command. Satellites launched by the Soviet Union generally use tracking and telemetry frequencies in the band between 19·99 and 20·01 Mc/s.

**Greenland Amateurs** can be now be identified by calls in the series OX4AA-OX5ZZ and by the call-signs XP1AA and XP1AB. Third party communication, when authorized, is permitted only with the last two stations. The use of KG1 calls in Greenland has been discontinued.

**German Taxis** operating in towns with populations exceeding 50,000 are now required by law to be fitted with a radio system which will allow the driver to give an alarm. The law has been introduced as the result of a big increase in crimes of violence against German taxi-drivers in recent years.

**Cortlandt Street**—centre of New York's once famous Mecca for radio amateurs—is probably in its last year of existence for plans are afoot to establish a World Trade Centre in two very tall identical skyscrapers on the land that is now occupied by Radio Row. When that time comes the exodus of dealers to mid-Manhattan, New Jersey, Nassau County and other divergent points will be complete and Cortlandt Street will then become no more than a memory in the minds of thousands of old timers.

**Aid for the Blind.** A single sideband equipment donated by the Single Sideband Amateur Radio Association to the Braille Institute of America in Los Angeles is now in use at the Institute's club station, WA6GLN. Special Braille markings are on all dials and controls. The Los Angeles City Council commended the SSBARA for its generous gesture.

**Korean Amateur Radio League** recently opened a new Headquarters station, HM0HQ, with equipment donated by Lt. General T. J. Conway, HL9KA and Franklin Holmes, HL9KC.

**Nod of the Head.** An electrical control system mounted in a hat enables people whose limbs are paralysed or amputated to operate wheel-chairs and other equipment by head movements. The system propels the wheel-chair in any direction towards which the operator nods. To stop the chair the patient nods backwards. Parking and navigation can be effected by head movements. The same system can be used by normal persons who perform tasks that would otherwise require an extra set of hands. Inventor is Donald Selwyn of the International Telephone and Telegraph Corporation.

**Traffic Warnings by Car Radio.** Magnetic tape cartridges stored in the boot of a car can be activated by roadside transmitters to issue warnings of impending traffic conditions to the driver over the car radio. The system, developed in the United States, can store up to 40 recorded messages, such as " School crossing—reduce speed." A code, broadcast by the roadside transmitter, causes the appropriate message to be selected and called-out to the driver long before he reaches a visual warning.

**Fibreglass Mast.** Leo Hemmingsen, Norregarde 51, Hundestad, Denmark, described in the September, 1965 issue of *OZ* how he constructed and erected a pair of fibreglass masts just over 50 ft. high at the QTH of OZ8AC. The masts support a G5RV aerial.

**Mr W. A. Wolverson, C.B.,** Deputy Director of the General Post Office, was Leader of the United Kingdom delegation and Chairman of the Staff Committee at the recent ITU Plenipotentiary Conference in Montreaux. Miss J. M. Turner and Miss J. M. Bleach, both members of the UK Delegation, acted as rapporteurs—the former to the Staff Committee and the latter to the ITU Finance Committee.

**Mullard Meetings** will be held at St. George's Hall, Liverpool, on December 2 and at the North Stafford Hotel, Stoke-on-Trent, on December 8. Both meetings are timed to commence at 7.45 p.m. and the films to be screened on each occasion are Thin-Film Microcircuits and Electromagnetic Waves, Part II. Transistor Topics is the title of the lecture which will follow the films. RSGB members will be welcomed.

**TV in VK.** Expansion of the national television service in Australia is now proceeding at the average rate of one station per month. The twelve new stations which are due to come into service between now and August, 1966, will provide a v.h.f. service in 20 new country areas.

**PAL Winning?** Recent colour TV demonstrations in London, led BREMA Director, Sydney Allchurch, O.B.E., to suggest that the PAL system has the best chance of being accepted in Europe. NTSC seems to have gone into eclipse in Europe since the Vienna meeting last May.

## Energetics

### IEE Christmas Holiday Lecture for Schoolchildren

The Annual Christmas Holiday Lecture arranged by the Institution of Electrical Engineers will be delivered this year by Mr K. E. V. Willis, of the National Research Development Corporation. The lecture, which is intended for boys and girls of the fifth and sixth forms, will be given in the lecture theatre of the Institution on Thursday, December 30, 1965 at 2.30 p.m., and will be repeated at the same time the following afternoon.

Mr. Willis will talk on " Energetics " and will illustrate his lecture with slides, films and demonstrations. The nature and meaning of energy will be discussed and he will outline the principal energy release mechanisms. He will then deal with the techniques of energy conversion and the problems associated with energy storage. The effect of man's exploration of space will be considered and some areas of promising research and development for the future defined.

Admission to the lecture is free, and application for tickets, stating for which afternoon they are required, should be made to the Secretary, the Institution of Electrical Engineers, Savoy Place, London, W.C.2.

# PROJECT OSCAR

By W. H. ALLEN, M.B.E., G2UJ*

SINCE preliminary details of *OSCAR IV* were published under the heading " Amateur Radio Space Communication " in the November issue of the BULLETIN, it has become known that, if all goes as planned, the new *OSCAR* will be carried aloft by a *Titan IIIc* research and development vehicle to be launched from Pad 41, at Cape Kennedy during the first week of December, 1965.

## Oscar IV

The satellite will be put into a near-synchronous orbit at a height of 18,200 nautical miles—just under 21,000 statute miles—to circle the earth immediately over the equator. There will be an eastward drift of 30° per day and stations situated up to 81° north or south latitude should be within range. At this rate of drift *OSCAR IV* will take 12 days to circle the earth and should be within range of any given station for approximately one-third of that time.

It has not yet been decided which of four sets of radio equipment at present being developed by groups of amateurs in the United States will have the honour of being incorporated into the 19 in. cube which will be *OSCAR IV*. The possibilities are:

(i) A linear translator with an input centre frequency of 144·1 Mc/s and output centred on 431·935 Mc/s and a passband of 10 kc/s. Power will be about 3 watts p.e.p. and a beacon will be provided on 431·920 Mc/s. The translator will be gated by the beacon signal once every 10 minutes for a period of about 32 seconds during which time a 12 second c.w. " dash " followed by one HI will be repeated twice.

(ii) A multiband beacon consisting of a transmission on 144·050 Mc/s together with two other beacons on 432·15 Mc/s and 1296·45 Mc/s, each having a power output of one watt. Telemetry undecided.

(iii) A beacon on 144·050 Mc/s keyed by a separate telemetry system comprising a seven-channel binary pulse-code.

iv) A further multiband beacon system radiating on 144·050, 432 and 1296 Mc/s. Telemetry undecided.

## Oscar III

A preliminary report on the results from *OSCAR III* reveals that a total of 176 two-way contacts were claimed during the satellite's 247 orbits of active translator operation. Contacts were made by 98 stations, 31 of which were in Europe. Transatlantic QSO's were reported between DL3YBA and W1BU during orbit 61 and between EA4AO and W2AZL on orbit 157. The DX record is held by KL7CUH in Alaska and K2IEJ in New York. Only five contacts were reported on s.s.b., the remainder being by c.w. DL3YBA and K2MWA made the greatest number of contacts—21 in each case—followed by WA2WEB with 18, W4MNT (14) and WB6JZY and K9AAJ with 13 apiece. WA2WEB logged no less than 401 calls through *OSCAR III*, well ahead of his nearest rival W4WNH with 311.

HB9RG, whose call was frequently heard through the translator, made 10 contacts as did SM7OSC. The leader of the British contingent was G3LTF with two contacts followed by G3BA and G6AG with one each.

G3LTF is credited with hearing 33 stations, G6TS with 27 and GW3MFY with 24, but the record is undoubtedly held by ex-W2ABP, Bill Bradey, of Selsey, with 136.

* Project Oscar Co-ordinator, 24 Arundel Road, Tunbridge Wells, Kent.

## Pylon Slot Aerial

(Continued from page 789)

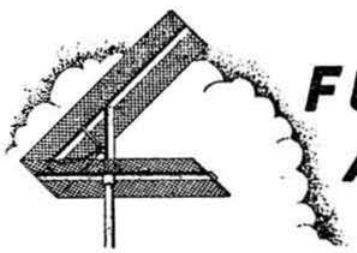
The aerial is temporarily suspended in the operating room, or stood on a chair or table. (The ends of the cylinder are at zero r.f. potential so that no high grade insulation is necessary.) The balun is attached to the slot in temporary fashion at the approximate position given above. Power at a level suitable to the s.w.r. bridge is fed to the aerial and the trimming capacitor adjusted for minimum s.w.r. The tapping point is then slightly adjusted and the capacitor retuned for minimum s.w.r. The process is repeated until minimum s.w.r. has been achieved. An s.w.r. of 1·2 : 1 is adequate. The balun may then be permanently connected and the aerial transferred to the attic; the change of environment should have little effect on s.w.r.

### Performance

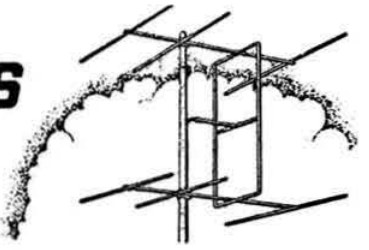
In the limited time available to try out this aerial, its performance exceeded expectations. It radiates with horizontal polarization and the pattern appears to be substantially omni-directional with some gain due to vertical directivity. Although no direct comparisons have been possible, the performance appeared to be better than that of a four-element indoor Yagi formerly in use although in all fairness it must be admitted that the Yagi was much affected by nearby objects. From an average location in the loft of a typical suburban London house contacts were made with F (Brittany), ON, PA, GC, GW, during an opening and a number of more local stations in various directions using n.b.f.m. or c.w.

The cost of the perforated zinc was about 22s. 6d.; construction and alignment occupied a single wet Saturday afternoon and evening. While its performance cannot compare with that of a good outdoor beam, this aerial may be of interest to those v.h.f. aspirants suffering under a " no outside aerials " restriction or to " handraulic " beam owners who like to enjoy net working without manual labour.

**It is a tradition for the Amateur Radio Mobile Society to donate a part of the proceeds of its annual Barford Rally to a charity. This year's charity was to be the Cheshire Homes and it was thought appropriate to make the gift in the form of equipment, rather than cash. With the extremely generous co-operation of KW Electronics Ltd., it was possible to give an HE-40 receiver to the Ampthill Park House Cheshire Home. The presentation was made on October 3, which was the date arranged for Group Captain Cheshire, VC, the Founder of the Homes, to open a new wing of the building, and he is seen above, holding a receiver, with G3KVF, committee member of the Amateur Radio Mobile Society (left), and the Chairman and Matron of Ampthill Park House.**



# FOUR METRES AND DOWN



By F. G. LAMBETH, G2AIW*

THE very well sustained high pressure systems covering Western and Northern Europe during the month of October produced a succession of openings culminating in that of October 22, which again brought QSOs between Scandinavian, German, Netherlands, Belgian and French stations and the British Isles. This event appeared mainly confined to the Friday evening, but some of the better sited stations probably had QSOs outside this period. On the previous weekend (October 17) the emphasis appeared to be mainly on Czechoslovakian stations which came in very strongly, and this opening also included Hungarian, German and nearer European stations. During the weekend of October 8/10 there was yet another opening, this time mainly north/south over the British Isles and extending to the continent, when GB3LER was heard strongly in the south of England and probably in the continent beyond. French stations were being heard off the backs of beams, and of course Scottish stations were coming through very well. GM3EGW/A, GM3FYB, GM3NZI, GM3HLH and GI5AJ were outstanding in the Home Counties and PAs and ONs were well represented, with PA0CML at one time coming in strongly on a beam pointed to Scotland! For additional interest there was DJ3ENA (near the Swiss Border). This opening also had a marked east-west aspect; for example, EI2W worked 41 PAs, 11 DJ/DL/DMs, four ONs and F9NJ (Lille). On the evening of October 8 an OK station was heard. OK1DE writes apropos the September opening that OK stations worked into F, G, LX, ON, OZ, PA and SM. Strangely enough, F3LP was a very strong signal whilst working Scandinavia on phone! A welcome letter from EA4AO (Madrid) informs us that during the September opening EA1AB worked 104 DX QSOs of which 67 were with Gs, two GCs and two GWs. Some of the 67 were repeat QSOs. Altogether, this was a very fine effort and has really put Spain in the picture.

HB9MY heard 25 G stations on September 21/3 and worked seven of them, whilst HB9WB worked nine Gs during the nights of September 22/23.

An increasing amount of criticism is reaching the writer about activities of certain operators, who, by v.f.o. and crystals, are nullifying the effect of the 2m band plan, especially during openings. The growing practice of deserting one's zone and working at the bottom edge of the band is not only manifestly unco-operative, but it also causes chaos when the band is wide open. The nett result will inevitably be the kind of dog fights which have appeared on the h.f. bands, and this practice obviously should cease before it gets worse. Apart from this, an even uglier practice has been introduced by a certain operator who, by means of a v.f.o., deliberately sits on the frequency of a station in QSO and calls the DX station to try and ensure a contact when the local station signs off. We can now only appeal to the good sense of operators.

* 21 Bridge Way, Whitton, Twickenham, Middlesex. Please send all reports for the **January** issue to arrive by **December 3**, and for the **February** issue by **January 7**.

### Two Metre German Balloon

The balloon translator which was launched from Germany on Sunday, October 24, was heard by G3LTF (Galleywood) for over an hour, between 17.15 and 18.20 GMT. During that period, many DJ/DL stations were heard on c.w. and s.s.b., the best signal being from DJ8VZ (c.w.) and DJ3NG (s.s.b.). OK1VHF, SM7BAE, HB9RG (s.s.b.), and several PAs were also heard, but G3LTF was unable to raise anyone. They were, however, very busily working each other! No G call-signs were noted, nor were any being called. The session ended with signals gradually getting weaker as the equipment presumably descended on its parachute.

From **VERON** *V.H.F. Newsletter* we learn that SM6CSO heard many DJ/DL and PA stations, and also HB9RG but regrettably could not make any QSOs having no suitable crystal.

SM7ZN heard PA0LB and OK1VHF. PA0FAS worked SM6CYX/7, DM2AQE, and DJ2BE, whilst PA0IF worked OK1VHF, DJ/DL, and DM stations. Other PA stations had similar results, with PA0IJ working DL1SN on s.s.b. Most of the other QSOs and hearings were on c.w.

**G3DIV** (Polegate) also heard the translator, noting many DJ/DL stations and also OK1VHF. None were worked, however. G3DIV thinks that different times of hearing various stations are probably due to their respective heights a.s.l. On this occasion. G3DIV found the translator passband a mass of s.s.b. and c.w. signals, mostly S9, by 17.55 GMT. Outstanding signals were DJ8YZ (c.w.), DJ4NG (s.s.b.), and OK1VHF was 569. Although no QSOs were made here the device was obviously working very satisfactorily.

### Two Metre News and Views

**G3PBV** (Northampton) worked OK1KAM/P, SP1WY, and EA1AB during the great September opening bringing the country score up to 13 at the new QTH.

**G3TDR** (Laleham, Middx) worked LX, HB, DJ/DL, ON, PA, DM, F, and the outstanding QSO was with DM2BGB (Rostock, on the Baltic), with ON4UM, using only 3 watts, as the strongest signal.

**A4641** (Woolhampton), reporting on the activities during the opening of G3BGL and G3UDD/A, says that they worked all the usual West European prefixes with an exceptional one in F1IX who was using only one watt!

Then **G3LAS** (Berkhampstead) experienced " the best opening for years " on October 8/10, with GM audible all day on the 9th, and for much of the 10th. Stations worked were GI5AJ, GI3RXV, GD3FOC, G3IOE, GM3EGW, GM3GUI, and GM3NZI. Northumberland, and Westmorland stations and other Scottish stations were heard. During the evening of the 17th, OK1DE/P, OK1EH/P, DL9HN, and GW3MFY were worked, with OK1KCU/P, OK2TU, SP1DF, HG5KDQ, a PA and an ON station heard. G3LAS notes that since July 1 this makes the incredible total of 20 countries heard of which 17 were worked! As regards the band plan, G3LAS thinks it would probably be better during contests and openings if there were more QML and QMH

as well as QLH, QHL, QHM, and QLM. But for heavens sake, says he, don't introduce zones as a contest rule!

**G3LTF** (Galleywood) worked DL/DJs on October 9 including DJ8IF/P (Lake Constance). On the 10th he raised SM6CYZ/7. The 17th brought QSOs with OK1EH/P, OK1DE/P, and DJAW/P, while heard on this occasion were OK1KCU/P, OK2TU, and OK1AJU. LA1MB and LA5SF were worked on the 21st, with LA5UG, OZ8PM, SM6PU, OZ7BR, LA3MB, SM5DIC, SM5CJF on the 22nd. On this day LA9OD was heard.

**G5MA** (Gr. Bookham) worked LA2VC, SM7BAE, and also SM5 stations on October 22.

During the period September 17/19 (at the time of the Knokke Convention), G2DHV worked as **ON8IR** from the convention station, and had QSOs with many ON and PA stations. More recently (back home) he has heard OK1EH/P, OK2TF/P, and OK2KWS/P, with DJ/DLs, LX1PQ, OZ9OR, and GC2FZC.

**G2JF** (Wye), being sure that there would be plenty of news this time, contents himself with reporting the impressive number of ten QSOs with OK stations by A1 on October 17. On Thursday, October 21, also on A1, he had QSOs with LA1MB and LA5SF. The following day brought eight OZ QSOs, seven LAs, and six SMs, nearly all of which were worked on A1. The two Norwegian Beacon stations LA1VHF and LA4VHF were also logged. The recent openings, says G2JF, has brought out the c.w. operators in force, which is a very good thing, but has also brought out of zone operation mentioned elsewhere.

**G2PL** (Wallington) had GM, GD, GW, and EI QSOs on October 9/10 with LA9OD, LA5UF, LA1MB, LA5SF, SM5DOD, SM6ANR, and many OZs during the big Scandinavian opening on October 22. This opening was again notable for the presence of SM5 stations which are usually outside the scope of such events.

G2PL is looking for Wiltshire and Hereford to complete the English counties score.

The first report from Scotland for quite a while comes from **GM3EGW** (Dunfermline) who worked G, F, ON, PA and DL on October 8. On the 9th from the /A QTH in Kinross, 1,000 ft. a.s.l., G3HRH was worked, and although operation was concentrated on England (to give some of the Sassenachs a new county) there were some more continental QSOs (ON, F, PA, and DJ). However, HB9RG, who heard GM3EGW, was missed. Altogether there were nearly 70 QSOs from the /A cottage. On October 19, DL8KV/P, OK1VHF and OK1AJD/P were worked. An OE5 was heard on phone and DM2BEL on c.w. from Dunfermline. The 20th brought many more PA and DL QSOs, followed by OZ and SM, with DL0AR at S9+. The opening on the 22nd was a fine one to LA, OZ, SM and DL with the best DX SM7BLQ (on Oland Island). On the 23rd from Kinross again there was a fine opening to the Hamburg/Cuxhaven area. The /A QTH is unsuitable for Scandinavia owing to the shape of the hill, although SM6ANR could be heard. These breaks gave several GM stations a start on v.h.f.-DX; stations known to have had DX QSOs include GM3NZI, GM3TFY, GM3FGJ, GM3CIG, GM3FYB, GM6XW, GM5VG, and GM3GUI. Probable firsts include GM3FYB/LX and GM3NZI/PA on RTTY.

**G6RH** (Bexley) found October very interesting between the 9th and the 25th. GM3EGW/A (Kinross) gave 589 on the 9th and GB3LER was very strong, but strangely no other GM was heard. On the 10th GM3EGW/A was there again, this time on phone, with GM3NZI and GM3GUI heard on c.w., but not raised after repeated calls. On the 17th, OK1EH/P was worked at 559, the only European station heard at that time, apart from an odd PA or DL. The Lerwick beacon was very strong on the 22nd and LA1MB, LA5UG, SM6ANR, SM6CYZ/7 were worked, with LA8MC and other SMs heard. Finally, on the 25th, there were QSOs with SM6CSO and SM6PU. It was observed during the whole of the month that there were long spells of reception of GB3LER at S5/8, yet at many of the same times there were no carriers from GM, apart from October 9/10. It would be interesting to know whether there was any activity, with perhaps some peculiar conditions about!

**G3OCB** (Truro) found conditions good on October 5/6 for G-DX and worked the Home Counties and GC2FZC. On the 9th a few weak Europeans, and DL8AW/P was worked, but the opening only lasted a mere 30 minutes. There were QSOs with G3NNG and G3BOC on the 10th but on the 11th F3XY at about 400 miles was the only QSO, with a few weak Gs heard. Variable G-DX was experienced from the 12th to the 18th with QSOs as far as the Midlands and Home Counties. The continent came back into the picture on the 19th with a few weak PA signals. PA0HVA was worked, and OZ9OR was worked again for the second time in three weeks. He was peaking S3/8 on s.s.b. but no other OZs or SMs were heard, although other Gs were calling them. A sked with G3BA on 145·1 Mc/s s.s.b. has been very successful so far (in above average conditions); it will be interesting to find out what it will be like under normal conditions. The distance is about 220 miles.

**G3DIV** (Polegate) made good use of the openings of the past two months. OK was worked for the first time in September, and on October 8 (GM/south) many stations were called, but unfortunately there were no GM QSOs on that occasion. GB3LER was 569, but the most northerly QSO that time was with G3BRA (Berwick-on-Tweed). The Scandinavian opening of October 22 brought a QSO with LA1MB (n.b.f.m.) to G3DIV (s.s.b.). Another similar QSO followed with LA5SF (Haugesund) and SM6YH worked. Stations heard included LA9OD (c.w. 599) and LA5UG (phone. about S7). Operation at G3DIV is now s.s.b. or A3 according to the conditions and wishes of operators.

**V.H.F./U.H.F. BEACON STATIONS**

| Call-sign | Location | Nominal Frequency | Emission | Aerial Direction |
|---|---|---|---|---|
| GB3CTC | Redruth, Cornwall | 144·10 Mc/s | A1 | North-East |
| GB3VHF | Wrotham, Kent | 144·50 Mc/s | A1 | North-West |
| GB3LER | Lerwick | 145·996 Mc/s | A1 | S |
| GB3LER | Lerwick | 70·305 Mc/s | A1 | N/S |
| GB3LER | Lerwick | 29·005 Mc/s | A1 | N/S |

**RSGB V.H.F. BEACON STATION GB3VHF**

The frequency of the Society's v.h.f. beacon transmitter at Wrotham, Kent, when measured by the BBC Frequency Checking Station, was as follows (nominal frequency 144·50 Mc/s):

| Date | Time | Error |
|---|---|---|
| October 26 ... ... ... ... | 11.25 GMT | 60 c/s high |
| November 2 ... ... ... ... | 14.00 GMT | 220 c/s high |
| November 9 ... ... ... ... | 14.30 GMT | 154 c/s high |

## Seventy Centimetres

On tropo, **G3LTF** has done it again! On October 17, he worked OK1EH/P at 20.22 GMT (559 each way, peaking S7) for the first OK/G on 70cm. On the 22nd, OZ6OV and OZ7SP were worked. Earlier (October 8), GM3FYB (59), GW8ACG and GW3RMB were worked. The pre-eminent position achieved by G3LTF is deserving of the greatest praise.

A late report from **G3NBQ** (Coventry) mentions QSOs with F8MX/A, ON4ZK, ON4HN, ON4ZK and G3LQR during the September opening. Others worked were G6NOX/T, G8AHV, G8ACE, G8ADC, G3LTF, G3FP, G2RD, G8ACQ and G8AL, all at S9. Another opening which appeared to favour 70cm rather than 2m was that of October 4/5, when some of the above were worked again, with new ones such as G8AIF, G2FMJ, G5UM, G8AKM,

G8ACP, G8AEP, G8AJD, G8AEK, G3HRH, G8ADS and G8ABV. The most outstanding signal heard was G3ILD at S9+.

On October 4/5 many G calls were worked; on October 10, ON4HN, G2RD, G8AL and G8ACJ; on October 17, again many Gs up to 100 miles, and on October 25 several Gs and PA0GER were contacted. The latter night was one of the most remarkable openings G3NBQ has heard. All stations were S9, no matter how far away and the direction seemed to be predominantly NW/SE, with the band full from one end to the other all night.

**G3MCS** has now worked 50 G8 - - - stations.

**G8ACK** (Hampstead) says that 70cm working is being encouraged locally and that G8AEP and G8ABV are active, with G8AHS building equipment. G8ACK himself has worked 10 counties already from /A and fixed QTHs. The operating frequency is 433·8 Mc/s.

**G3RMB** (Coventry) worked G3ILD and G3AHB on October 8, with G2HDJ on the 9th, followed by a first class three way QSO with G3ILD and G3BNL. On the 11th, G3OBD and G8AAY were worked over a difficult path, with G8AL, G8AEX, G3LTF, G8AHR and G3BKQ.

On October 15, G3MCS was worked and on the 17th G3RMB was delighted to have a successful test with G3OCB (Truro) who was 539 and gave a report of 559! GB3SHS of the Scout organization was worked. Nearly all the above signals were S9 except as specially stated. G3RMB would like to hear views on the question of f.m. on 70cm and higher. A varactor multiplier is almost ready to be put into operation, and this efficient device lends itself readily only to c.w. and f.m. G3RMB believes that the only reason f.m. is not as successful as a.m., is that a simple suitable f.m. detector is not usually included in the average receiving set-up.

**G8ABP** (Birmingham 26) had a busy evening on October 22, working PA0JMS, ON4HN, PA0DBQ, OZ6OV, OZ6AF, PA0OS, OZ7SP, OZ9SW and OZ9CR. On the 25th he worked PA0GER, ON4HN and many stations around London at S9+. G3FNQ/M was heard at 56 but was not raised.

**G8ABP** points out (apropos G3HWR's remarks last time) that stations other than the G8 - - - break the band plan. We know that—they should know better and have been told about it before. A little house cleaning would not be amiss, in the interests of all.

**G3OCB** (Truro) found good conditions occasionally and tests were successful with G8AAY, G3EGV, G8ADP and G8AGU. G3MCS (Aylesbury) was worked S9+ on phone both ways on October 5, but GC2FZC and G3LTF could not hear G3OCB although they were themselves audible. GC2FZC was in fact better on 70cm than on 2m. Other 70cm QSOs were made with G3RMB (Coventry) and G6GB (Bristol) on October 17 both on c.w.

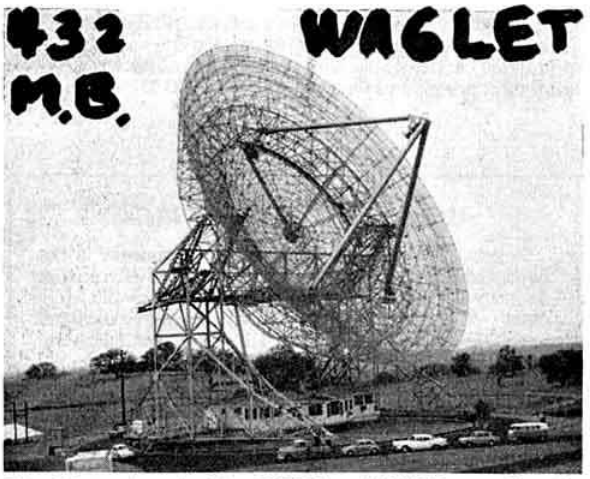
**GM3EGW** (Dunfermline) had QSOs on October 10 or 11 with G3MCS and G3LQR. He was also delighted to be called by ON4HN and later reached G3KEQ, G3BNL, G3LTF and GI5AJ. All this was sparked off by the activity of GM3FYB, who has been notching up an impressive list of 70cm firsts from GM.

**G8AEV** (Bridgnorth) has submitted an activity list of 70cm stations, all of whom have been worked during the last three months or so. The frequencies are said to be accurate to ± 20 kc/s. A little research has shown that of the 26 G6 - - -/T and G8 - - -, only nine operate in the correct zone. Of the rest, 22 operate in the correct zone. We are asked, by the way, to exhort all " part timers " to operate on the band more regularly, irrespective of conditions, as this is the only way to keep abreast of the ever changing techniques at u.h.f. The activity list is as follows:

G2BDQ, 433·82, Newcastle-on-Tyne; G2CIW, 433·17, Birmingham; G2FNW, 433·35, Melton Mowbray; G2HCG, 432·4, Northampton; G2OI, 433·59, Eccles (Lancs); G2RD, 432·60, Wallington (Sy); G2XV, 432·70, Cambridge; G2AHB, 433·38, Slough; G3BKQ, 432·31, Leicester; G3BKQ, 433·39 or 434·17; G3BNL, 433·39, Nottingham; G3EDD, 433·20, Cambridge; G3EEZ, 432·96, Wolverhampton; G3ENY, 433·51, Bridgnorth; G3FP, 432·44, Thornton Heath; G3GTN, 433·3 (approx), Sedgley (Staffs); G3GWL, 432·94, Bletchley; G3GZM, 433·16, Tensbury (Salop); G3HRH, 433·15, Welwyn; G3ILD, 433·80, Darlington; G3IOO, 433·50, Oswestry; G3IRA, 432·00 or 432·34, Swindon; G3JZG, 433·53, Willenhall (Staffs); G3JZN, 433·96, Whitefield (Lancs); G3KEQ, 432·55, Sanderstead (Sy); G3KFD, 433·3 (approx), Kingswinford (Staffs); G3KQF, 433·28, Derby; G3KZU, 433·11, Oxford; G3LHA, 433·33, Coventry; G3LLJ, 432·14, Newcastle-on-Tyne; G3LQR, 432·78, Framlingham (Suffolk); G3LTF, 432·97, Chelmsford; G3LZN, 433·31, Rowington (Warks); G3MCS, 432·70 or 432·90, Aylesbury; G3NAQ, 433·82 or 433·67, West Bromwich; G3NNG, 432·26; G3PTM, 433·23, Solihull (Warks); GW3RBM, 433·39, Wrexham; G3RME, 432·72, Oswestry; G3RMB, 432·0, Coventry; G3RND, 433·99, Pontefract, G3SOA, 432·45, Bewdley; G6FK, 433·13, Wolverhampton; G6GN, 433·00, Bristol; G8AL, 432·74, N. London; G8DV, 432·31, Cheltenham; G6ABH/T, 433·42, Solihull; G6ABL/T, 433·66, Selly Oak; G6NOX/T, 433·40, Saffron Walden; G6OUO/T, 432·73, G6RKU/T, 433·38, W. Brom; G8AAI, 433·34, Epsom; G8AAZ, 432·05, Wimbledon; G8ABD, 433·32, Leicester; G8ABE, 433·48, W. Brom; G8ABP, 433·41, Yardley; G8ACB, 433·27, Wolverhampton; GW8ACG, 433·27, Rhyl; G8ACI, 432·32, Fareham (Hants); G8ACQ, 433·20, Scunthorpe; G8ADC, 433·05, Luton; G8ADD, 432·99, Erdington (B. Ham); G8ADE, 433·51, Ely; G8AEN, 434·00, Bury; G8AEO, 433·48, Bridgnorth; G8AEV, 432·42, Bridgnorth; G8AEU, 433·46 or 433·56; G8AEX, 432·43, Stony Stratford; G8AFY, 433·1, Hinchley (Leics); G8AGS, 433·86, Halesowen (Worcs); G8AHV, 432·59, Surbiton; G8AJI (and /P), 432·53, Causeway Green (B'ham); G8AKN, 432·42, Basingstoke; G8AKX, 433·32, Kidderminster.

### Moonbounce on 70 cm

**G3LTF** heard **K2MWA/2** (New Jersey) on October 17. Using the 60 ft. dish, K2MWA/2 was calling W3SDZ and giving an S2 report, while his signals at G3LTF were peaking 16/17db above the noise in a 100 c/s filter. These signals were heard for about 45 minutes, but nothing was heard from




**The QSL card received by G3LTF from WA6LET to confirm the moonbounce contact reported last month.**

W3SDZ or W1BU, who were also on at the time. The equipment at G3LTF was the same as has been used in the past.

There is some further news of WA6LET: he made 11 QSOs with seven different stations, and except for G3LTF they were all W/Ks. They had difficulty in tracking the moon, which accounts for the variations in signal levels that were noticed. This report comes from W3SDZ.

### Twenty-three Centimetres

**G3NBQ** (Coventry) worked the following four during the September opening: G3LTF, G3FP, G3GWL and G2RD. ON4ZK, G3LQR and G8AL, however, heard his signals.

He also reports having worked G8AL (569) and G2RD (59) on October 4/5 with G8AL (559) again and G3GWL (57) on October 10. G2RD was heard at 449. On October 22, G3GWL (56) was worked again, and G3LQR (569) and G2RD (559) were heard. QSOs were made on October 25 with G8AL (59), G3GWL (59), G2RD (59), G8ABB (5-4/7) and G8ACE (4-3/7). At this time it was possible to tune the band and hear three or four stations on at once at S9+!. The most remarkable QSO to date was that with G8ACE (Hatfield), who was running 3 watts input to a PC88 tripler and peaking S7. G3GWL was a " blocking signal " all night and could be heard at S7 off the back of the dish.

### V.H.F. News

The V.H.F. Contests Committee reminds readers that a **70 Mc/s C.W. Contest** will be held on Sunday, December 5. The rules were published in the October BULLETIN.

OK1DE writes us that **UA6AJ** is seeking skeds for m.s. His address is Yuri V. Osipendo ST111, Armavir City, Krasnodarski Kraj, USSR. The usual frequency is 144·238 Mc/s ± 3 kc/s.

**OE5KE** (V.H.F. Manager, Austria) says that there are about 200 stations on 2m in his country, but only a few (6 or 7) on 70cm. However, OE6AP made two firsts; one by m.s. during the August Perseids, working UB5KDO, and the other by tropo-scatter during September with YO7VS. OE5KE after working OE5XXL on September 23, contacted, among much other DX, G2JF, G3LTF and G6NB, all on c.w. and heard G3LQR (339) and G6OX (a.m.56). Stations as far as PA, ON and F were worked.

LA4YG informs us that there will shortly be a new beacon, located in Bergen. The call-sign will be **LA4VHF**, and it is hoped to give continuous 24 hour service. The power will be about 50 watts input and the transmission will be by unmodulated carrier keyed with the call-sign. The aerial will be omni-directional, and the frequency 145·300 Mc/s.

### Withdrawal of 420-427 Mc/s

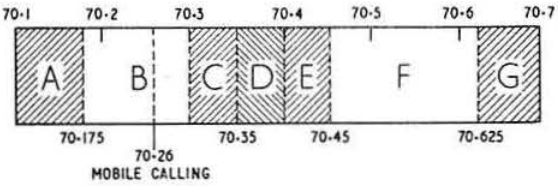
**A new authorized service is due to commence in the band 420-425 Mc/s early in 1966 and with effect from January 1, 1966, amateur operation in the 420-450 Mc/s band (which is on a secondary basis) will be restricted to 427-450 Mc/s in the case of telegraphy and telephony and 427-445 Mc/s in the case of television.**

**When the new service is no longer required and there is no danger of interference by amateurs to authorised radio services, the Post Office will alter the licence provisions in order to restore the present limits of the band. This may not, however, be for some years.**

### Four Metre Band Plan

The trial period for a 4m band plan " à la mode," suggested in the April 1965 issue of the BULLETIN has now come to its end, and it is clear to the V.H.F. Committee that the plan has not been accepted by workers on the band.

A number of letters have been received on this subject, and the majority view seems to favour a basically geographical DX-type plan, with certain free zones. A plan of this nature




has been suggested by a group of regular users, and seems to be viewed with favour by operators up and down the country, with whom the Committee members have discussed the plan at Society meetings during the summer.

The V.H.F. Committee have therefore decided to put forward this plan for general consideration, and will be pleased to have any views from users of the 4m band before making a decision on its adoption. Letters should be sent to Society Headquarters for the attention of the V.H.F. Committee.

| Zone | Limits | Operation |
|---|---|---|
| A | 70·1-70·175 Mc/s | Northern England, North Wales |
| B | 70·175-70·3 Mc/s | *Free* (mobile calling on 70·26 Mc/s) |
| C | 70·3-70·35 Mc/s | I.O.M., Eire, Northern Ireland, Scotland |
| D | 70·35-70·4 Mc/s | *Free* (RAEN Priority) |
| E | 70·4-70·45 Mc/s | South West England, South Wales Cnannel Islands |
| F | 70·45-70·625 Mc/s | *Free* |
| G | 70·625-70·7 Mc/s | South and South East England |

**The President Eric Yeomanson, G3IIR, extreme right, and Bill Orr, W6SAI, left, with African delegates to the International Amateur Radio Club's Convention in September 1965.**

# THE MONTH ON THE AIR

## A CHRONICLE OF EVENTS ON THE HF AMATEUR BANDS

**By M. E. BAZLEY, G3HDA***

THIS is the last *MOTA* to be written by G3HDA who through business reasons will no longer be able to spare the necessary time. From next month *MOTA* will be written by John Allaway, **G3FKM**, who has agreed to assume responsibility for the task. *MOTA* will obviously benefit from the interest given by John who needs no introduction as a front-rank DX'er. The writer wishes to thank all those readers most sincerely who have made compiling *MOTA* easier and knows that similar help will be forthcoming for G3FKM in the future.

Five weeks have passed since the last *MOTA* and there seems to be a large number of news items this month, so the writer has decided to omit the usual opening monthly topic. Before proceeding to the various headings apologies are due for the errors in last month's issue when the gremlins really had a field day.

### Top Band News

First of all a reminder that the **1965/66 Transatlantic and World Wide DX Tests** will be held on the following Sunday mornings between 05.00 and 07.30: **December 5 and 19; January 2 and 16; February 6 and 20.** USA and Canadian stations should call CQ DX test during the first five minutes of the hour, and then the third, fifth etc., periods. DX stations will call during the second, fourth, sixth, etc., five minute periods. The operating frequencies are: East Coast W/VE, 1800/1825 kc/s; West Coast W, 1957/2000 kc/s; Europe 1825/1830 kc/s; VK 1800/1860 kc/s; JAs on the spot frequency of 1880 kc/s and Africa mostly on 1800/1825 kc/s. Also don't forget the first " **First Timers** " test for Europeans takes place on **December 19.**

**ZB2AM** writes with notes on current Top Band activity from Gibraltar. Mike started his activities on Top Band on October 20 and to date has worked 27 counties and eight countries. Firsts for ZB2AM were DL1FF, G3SED, GI3SKH, GM3FXM, GW3PMR, OK1AMK and PA0DC. Knowing that ZB2A and ZB2AE were on the band last season Mike wonders whether any of the above were all time firsts. ZB2AM will be active on Top Band every Friday and Saturday evening and asks those who have QSO'd him already on this band not to cause QRM to those still trying. ZB2AJ and ZB2AO both hope to be active on 160m soon and it is intended that between them they will put one station on the air for the *CO* 160m Contest next year.

It is reported that **G3SED** had a Top Band QSO with **9M6BM** at 22.30 on September 25 on 1·825 kc/s. DX on any band.

From the *W1BB 160m Bulletin*, news that G3JKU was operating from VS1EU in 1952 on Top Band and had several two-way phone contacts with VS9AW in Masirah Island.

For those still needing a QSO with Huntingdonshire on this band, **G3TMA/P** will be active on c.w. on January 1 and 2, 1966. A4089 will be pleased to arrange skeds and will also handle the QSL's for this trip and may be contacted at 25 Station Road, Over, Nr. Cambridge.

### News from Overseas

Chuck, the new operator from that rare DX spot, Marcus Island, writes to say that he will be signing **KG6IF** on 20 s.s.b. until April, 1966. The gear comprises a B & W 61C0 driving a LPA1 linear into a home-brew two element quad at 26 ft. The beam is put on Europe nearly every day from around 10.00Z on about 14280 kc/s (plus or minus 10 kc/s). When conditions are open Chuck tries to give as many stations as possible the opportunity to work Marcus Island.

QSL's via W6ANB at the address given in *QTH Corner*.

From Top Band to 10m Mike Mathews, **ZB2AM** has been providing the local news on the ZB2 situation. Active stations on from Gibraltar at the moment are ZB2AJ, 2AL, 2AM, 2AO and 2AP. Mike has been very active on all bands including 10m on which band several DX contacts have been made in the past month. Up to now all ZB2 calls have been held by UK personnel but it now looks as if one Gibraltarian will soon have a licence as he has passed the RAE.

Once again **VK4SS** kindly takes the trouble to send a further round up of Pacific activity for the benefit of *MOTA* readers. **VR6TC** is still active on 21070 kc/s, Monday evenings and skeds can be arranged via W5OLG. **KX6DQ** is active on 7 Mc/s s.s.b. around 06.40Z (below 7100 kc/s). Active stations on from New Guinea are **VK9CJ, VK9GC, VK9GN, VK9MJ** and **VK9NT. JT1FM,** a new station, is active from Mongolia on 14 Mc/s c.w. **BV1USF** is often heard on 14 Mc/s c.w. around 06.00/07.00Z. From Mariana Islands, **WA0BDM/KG6** is active on 14 Mc/s s.s.b.

**G3TER,** who is ex-MP4DAK, MP4QBP writes from Ward 3, Stoke Manderville Hospital in Aylesbury to let readers know that though he has sent all QSL's for his overseas trips via the Bureau, he has his logs with him and if anyone is

**The following amateurs were seen at a recent Hamfest in the Faroe Islands. Distant row, left to right, OY2J, an s.w.l., OY7X, OY2H, OY2GHK (Gus Browning, W4BPD). Nearest row, left to right, OY1J, OY1X and OY2A.**

*Please send all reports and new items to RSGB Headquarters to arrive not later than December 6 for the January issue, and January 12 for the February issue.

KG6IF, Marcus Island, see page 805.

short of a QSL they may obtain it by writing to him at the above address.

**G3AAE** sends a clipping from a national newspaper which states that tours into Albania will be available next year from the UK. (Anyone prepared to volunteer for this tour? Must be someone who is prepared to post his logs back before departure!).

Quoted from October *Auto Call* " A UA6 was heard to claim that the Russians have a photograph of the moon's backside " ! !

W6AM is quoted in the *DX'er* as saying " That certain classes of W licencees should be allowed to run up to 10 kW " (Amateur Radio is supposed to be a hobby?).

## DXCC News

The following DXCC news has been received from the ARRL: (i) An announcement of an addition to the ARRL Countries list of **St. Peter and St. Paul Rocks.** Confirmations with this country may only be submitted for DXCC credit starting January 1, 1966. (These rocks are located 600 miles North East of Natal, Brazil and they belong to Brazil).

(ii) An announcement to an addition of the ARRL countries list of **Spratly Island.** Confirmations with the country may only be submitted for DXCC credit starting March 1, 1966. (This island is located in the South China Sea, 08° North, 112° East and was recently DXpedited by Don Miller, 1S9WNV).

QSL's for the recent **4X1DK** DXpedition during August were to be issued by Hammarlund on November 15 and the ARRL will accept them as credit for Palestine.

The latest DXCC Honor Roll (October *QST*) contains the following UK stations: **G2PL** 313/336, **G3FKM** 312/329, **G4CP** 311/335, **G3AAM** 311/335, **G8KS** 309/327, **G3FXB** 307/325, **G3AAE** 305/325, whilst in the radiotelephone Honor Roll are: **G3FKM** 306/320, **G2PL** 306/326, **G8KS** 304/318. The first number represents the total countries less any credits given for deleted countries, whilst the second number represents the total DXCC countries confirmed including deletions.

## Awards

The Taiwan American Radio Club offers a certificate to any non-Asian station for contacting two BV stations. Only contacts after January 1, 1961 are valid and QSL's need not be submitted. Applicants must indicate that they are applying for the basic award because stickers are available for different types of emission. A GCR list together with three IRC's should be sent to: Secretary, Taiwan American Radio Club, Box 8, USARCAT, APO San Francisco, Calif. 96263.

It appears that last month's notes on the **OH award** apply to amateurs outside Europe. Stations in the UK have to contact 20 differnt OH stations from seven call areas on two bands. All other details and the requirements for the OH 100 and OH 300 are as given in the November BULLETIN.

The Radio Club of Venezuela offer two new certificates called the *DX*200 and *DX*300 Awards. Applicants have to submit satisfactory evidence of having contacted at least 300 countries for the DX300 or 200 countries for the DX200 award. The ARRL countries list and rules will apply and there are three classes, mixed, all 'phone and two-way s.s.b. To claim these certificates applicants can either send the QSL's (with sufficient return postage) together with a list in alphabetical order or proof from *QST* or *CQ Magazine* that you have the necessary confirmed countries (list page and issue of magazine that gives your DXCC totals or two-way s.s.b. totals). The cost of this award is 10 IRC's and application should be sent to Radio Club Venezolano, Comision de DX, P.O. Box 2285, Caracas, Venezuela. (It seems to the writer that all the hard work for this award will have already been done by others!).

The *Diploma* " *Mozambique* " may be obtained by any amateur who has contacted 10 CR7 stations in at least six districts since October 7, 1965. Each CR7 station may be worked more than once provided it is on a different band. The different districts together with their abbreviations are as follows:

| | | | |
|---|---|---|---|
| Cabo Delgado | (CD) | Mocambique | (MQ) |
| Gaza | (GZ) | Niassa | (NS) |
| Inhambane | (IB) | Tete | (TT) |
| Lourenco Marques | (LM) | Zambezia | (ZB) |
| Manica d Sofala | (MS) | | |

There are three classes of this award: Class 1, nine districts; Class 2, seven districts; and Class 3, six districts. Applicants should send a list of stations worked showing, band, mode, date, time, report received and report sent, together with 10 IRC's to LREM, Box 812, Lourenco Marques, Mozambique.

## DXpedition News

Gus Browning, **W4BPD** aftr having over 4000 QSO's from OY2GHK, which incidentally was the 100th country that he had operated from, moved next to Luxembourg for a few days activity before spending 10 days holiday in Germany. Currently Gus is signing 5VZ8CM from Togo and expects to move to TZ and 5T5 before returning to the States by December 15. All QSL's for this DXpedition go via Hammarlund except for s.s.b. QSO's with 5VZ8CM.

The following points of interest have been received from Hammarlund:

(i) The **6Y5LK/VP5** Cayman Island QSL cards are still being held pending clarification of status. 6Y5BL, recently in New York, has some documents that may clear this problem.

(ii) All **JY74** cards, except for September 12 (17.30-23.00Z are in the mails. The log page for this time was lost and we are awaiting arrival of a duplicate log from Gus.

(iii) We are still awaiting receipt of lost **VK9DR** and **VK9XI** logs. Duplicates were requested and are believed to be on their way to Box 7388, New York.

(iv) Effective from October 1, 1965, all **OY7ML** QSL cards will be handled by Hammarlund through the DXpedition of the Month QSL Bureau.

(v) Harold Lund, ZD8HL was due to return to the Caribbean area late November—early December. Is is not certain yet whether further trips to various VP2 Islands will be undertaken but Hammarlund will handle Harold's **VP7CX** QSL cards in the future.

The rumour corner has it that EA7JQ will be going to EA9, Rio de Oro, in early December with possibility also of activity from EA9, Ifni, and EA0, Spanish Guinea.

The YASME DXpedition at the time of writing had recently finished operating from KG6SZ/KC6 (Eastern

Carolines) and KX6SZ. They were due to show up from Ebon Island (**KX6SZ/P**) for a minimum of one week and a maximum of two, after which it is believed that the next stop would be **YJ8YY.** Frequencies to watch are: **7002, 7011, 14051 and 21051 kc/s c.w. and 7100, 14235 and 21400 kc/s s.s.b.**

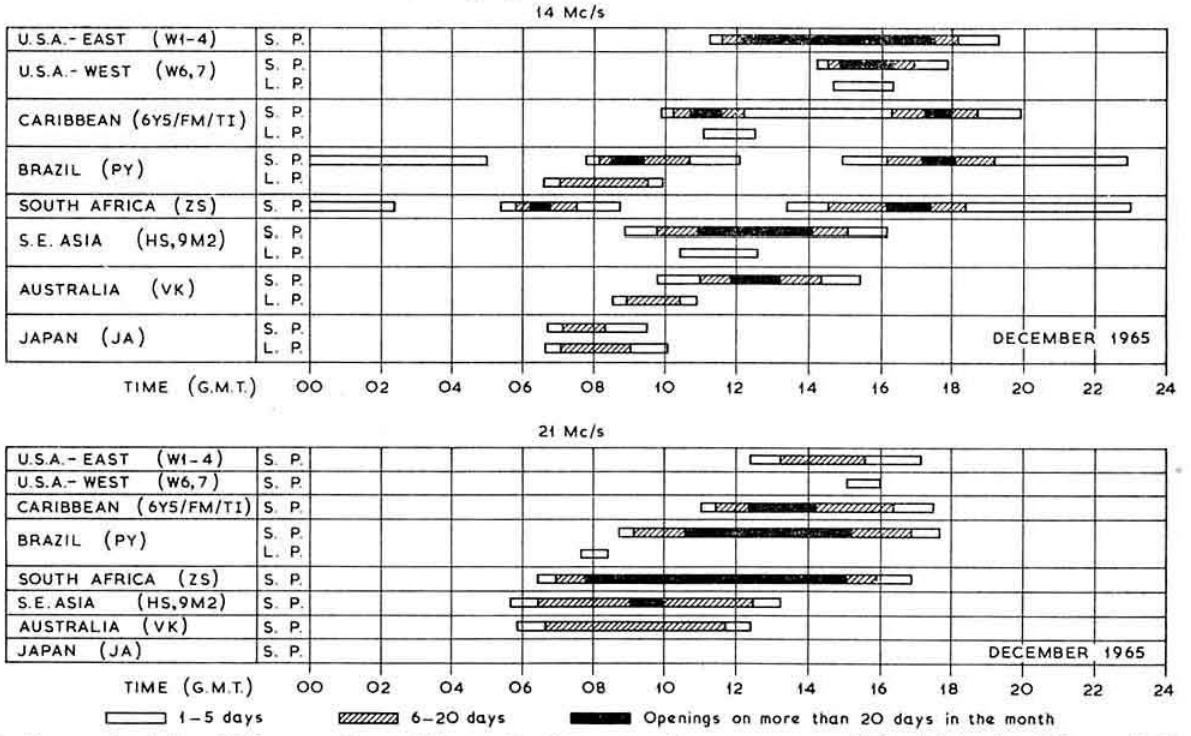
Since last month's notes on the K7LMU/W9WNV DXpedition, Don and Chuck put the second phase of their DXpedition on the air from: 1S9WNV (Spratly Island), K7LMU/HC8E (Ebon Island) and K7LMU/TI9C (Comoran Island). It is believed that Ebon Island and Comoran Island will count as new ones for DXCC in due course, and it is known that Bob White, W1WPO, has thought that these could count (page 745 " DXCC News," November BULLETIN). One feature of the second phase was the efforts made by this DXpedition to make contact with Europe at times which were favourable to the majority of European amateurs. Whilst this was being written the DXpedition was on its way to ZM7AJ, Maria Theresa Reef (152° West, 32° South) and Marina Reef (178° West, 24° South) and the latter two could also count as new DXCC countries. This DXpedition is at the moment exploring the possibilities of operating from Clipperton Island and St. Peter and St. Paul Rocks before proceeding to Heard Island and the conclusion of the DXpedition. As the cost of chartering a boat to Heard Island will be in excess of $2,500 all contributions will be welcomed. All QSL's should go to W4ECI; frequencies to watch are: **C.W. 7005/010, 14045/55, 21045/55 kc/s; s.s.b.: 7070/100, 14100/110, 21400/410 kc/s.**

## DX Briefs

**FL8RA** is often active on 21065 c.w. around 17.00Z and requests QSL's via REF.

**VK0TO,** Macquarie Island reported active on 14010 kc/s around 08.00Z.

## Propagation Predictions




**In the annual variation of DX propagation conditions on the h.f. bands there is usually a worsening during December and January compared with October and November, owing to the fact that the all-important F2 m.u.f's are lower. The shorter days also bring about a marked reduction in the length of time available for contacts with the various DX zones. Since December 1964, solar activity has indeed increased, but this increase has been insufficient to produce any significant improvement in propagation conditions compared with last year. 28 Mc/s therefore will still be of little practical use for DX traffic. Under favourable conditions on this band South America may come through between 10.30 and 15.30 GMT and Africa between 08.00 and 15.00 GMT. In comparison with the summer months short skip contacts with European stations via sporadic E will seldom be possible on 28 Mc/s. On 21 Mc/s only South and Central America, Africa and South and South East Asia will be workable with any certainty. The early sunset, however, means that this band will close for DX traffic shortly after 17.00 GMT at the latest. In contrast to 21 Mc/s all continents will still be workable on 14 Mc/s, but usually this band will close for DX shortly after 19.00 GMT. At the present time the most favourable period for WAC on 14 Mc/s is from 07.00 to 12.00. The midwinter season favours contacts on this band with various DX zones via the long path, especially with South America and East Asia in the morning. Between about 16.00 and 17.00 on favourable days, Hawaii should be workable on 14 Mc/s via the long path. As a result of the early closing of the 14 Mc/s band, 7 Mc/s will become of increasing importance for DX traffic. DX contacts are basically possible on 7 and 3·5 Mc/s when the greater part of the transmission path lies in darkness. This requirement is more important on 3·5 Mc/s than on 7 Mc/s. On the latter band, QRM permitting, Eastern North America should be heard from about 19.30 GMT, South America from about 21.00 GMT and Japan from 13.30 GMT. In the latter half of the night on this band the m.u.f. may fall and occasionally interrupt contacts with North America and from 19.00 GMT with Japan also. During the day local traffic on 7 Mc/s beyond the ground wave zone may be frequently interrupted by the dead zone. In the latter half of the night on 3·5 Mc/s local traffic beyond the ground wave zone will mostly disappear owing to the dead zone.**

**The provisional sunspot number for October was 21 with the period of greatest activity lying between the 1st and the 7th. The predicted smoothed sunspot numbers for February, March and April are 27, 29 and 31 respectively.**

**9N1MM** is once again active on 14 Mc/s s.s.b. around 13.00Z and requests QSL's via W3KVQ/2.

Crozet Island, **FB8WW** has been very active on 15 a.m. and c.w. (10.00-12.00Z) and 20 a.m. and c.w. (15.00-17.30Z). QSL's via 5R8BC.

South Georgia. It is reported that the s.s.b. gear for use by **VP8HO** is now on its way to him and he should receive it by the end of November.

The **PY7ACQ/0**, Fernando de Noronha DXpedition has been postponed and should now start around November 25, for one week.

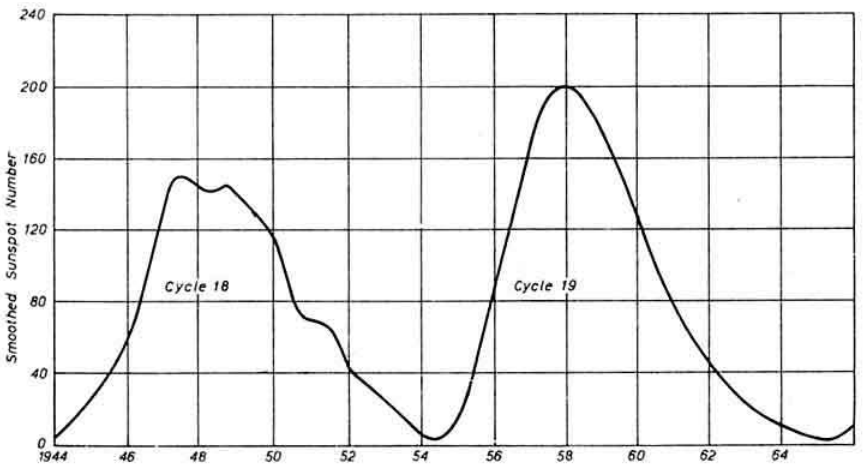
San Marino. W6JFJ and G3IRK are due to use the call-sign **M1N** for one week beginning November 26.

It is reported that **FB8XX** should receive s.s.b. gear before the end of November. After spending two or three months with FB8XX it is expected that the transmitter will be forwarded to FB8WW.

VS9AWR is hoping to make a trip for one week in early January to **FL8**-land.

## Band Activities

With the sun spot number rising the h.f. bands have been crowded with DX during the past month and the l.f. bands seemed to have suffered. On 10m all continents have been heard and worked whilst 15m has been open to all parts of the globe except the West Pacific. For the regulars on 20m, life has been hectic with the arrival on the band of **1S9WNV**, **K7LMU/HC8E** and **K7LMU/TI9C** in the shape of three all time new ones. With regard to the HC8E trip there are rumours circulating that this station was not on Ebon Island but elsewhere in the Pacific and that certain stations in the Marshall Islands could not receive good signals when their beams were pointing toward Ebon Island. The writer cannot believe that any one would go to the trouble to get valid licences and to the expense of chartering a boat with a view to operate 100 odd miles from the genuine location. As everyone who is fortunate to possess a beam knows that over distances of 1000 miles or less on 20m signals are usually better when both stations point their beams in the same direction. It is a pity that the efforts of a well organized and operated DXpedition can be marred by the attitude of a few.




**This shows the yearly progress of sun spot cycles 18 and 19. The minimum of the latter is now accepted as being during September 1965. As can be seen from the graph the rate of increase of activity at the beginning of a cycle is approximately twice the rate at which solar activity declines during the second half of a cycle.**

The only report this month on *QRP News* comes from **G3SGH** who lists a good selection of contacts which were made on 7 Mc/s using 7 watts of crystal control c.w. Perhaps we may have more reports next month so that they can go under a separate heading.

Finally, the writer has put more emphasis this month on the 10 and 15m band reports just to show what has been heard and worked from the UK. Very many thanks to the following for their help: G2BOZ, G2LB, G2RO, G3AAE, G3APZ, G3FKM, G3GGS, G3HCT, G3KSK, G3NMH, G3OAD, G3SGH, G3SML, G3UML, G3UOL, G4MJ, G8JM, G8KG, GM3ITN, GW3AX, BRS20317, BRS26444, BRS26928, A33942, A4489, A4552 and A4641.

**1·8 Mc/s C.W.:** VO1FB (05.30), W1BB/1 (22.25), ZB2AM (23.10), 9M6BM (22.25).

**3·5 Mc/s C.W.:** UA9BG (22.50), UW9FF (18.15), ZL3QX (06.40), ZL4IE (06.40), 5VZ8CM (01.15).

**3·5 Mc/s S.S.B.:** CN8AW (22.30), F9RY/FC (22.22), HB0UZ (20.30), OX3WX (00.20), OX3JV (21.30), VS9AFR (22.15), YN4JG (06.53), ZB2AO (23.45), ZL2BCG (06.30), ZL3GS (07.27), ZL4LM (06.40), 4U1ITU (22.25), 4X4AS (22.30), 5J3LR (15.50), 7X2AH (23.50), 9M4LP (23.05).

**7 Mc/s C.W.:** CN8BU (23.22), CO2BM (22.13), CO3RX (21.45), CR6AI (17.45), JA4BYK (16.49), JA6AK (21.25), JA9XS (19.47), KP4CKC (23.40), KZ5TW (00.30), TI2PZ (22.50), UA0AB (22.15), UA0EV (20.25), UA0KKC (21.45), VK2GW (14.20), VK2JH (07.30), VK5KO (20.40), VK7GK (20.25), VP5AR (07.20), VP6AK (00.20), VR2EC (00.40), XE1OE (06.20), ZD7IP (21.36), ZD8BC (21.08), ZL2BAU (15.00), ZL4BO (14.45), ZS1JA (20.40), ZS5QU (20.26), 3A2BV (18.03), 3W8AB (20.27), 4S7PG (21.05), 5VZ8CM (00.15), 5Z4JD (20.20), 6W8AC (15.48), 9M4LP (19.52-23.21).

**7 Mc/s S.S.B.:** The following were active between 19.00 to 23.00 unless otherwise stated: CX2CO (07.06), EP2BU, ET3USA, F9UC/FC, FG7XL (07.05), HV1CN, JA4JBO, OD5DZ, OD5EE, OD5EG, OX3JV, PJ2AA, VK2AVA, VK3BM (07.57), VP9AK (07.48), XE1AB (07.15), VY9AA, ZC4MO (22.38), ZL2BCG (17.35), ZL4BO (07.25), ZS1JA, ZS1YX, 4U6ITU (17.10), 5A2TR.

**14 Mc/s C.W.:** CE3QP (23.20), CO3AG (21.31), CR3AD (09.55), CR3GF (19.25), CP5AQ (22.25), FB8XX (15.15), FB8WW (16.45), FG7XX (23.20), FL8RA (13.02), FL8MC (19.00), FR7ZG (14.50), FU8AG (07.45), HM3OG (08.02), HP7KAP (13.10), JT1AJ (13.20), KG6AOX (11.20), KX6BQ (09.20), KX6SZ (12.23), LA4FG/P (Spitzbergen) (17.32), OR5RK (17.02), K7LMU/TI9C (07.15-07.45), VP2AX (21.02), VP2GLE (21.20), VP2KJ (11.03), VP3YG (23.10), VP8IB (23.07), VR2DK (13.10), VR2EK (07.24), VR4CR (10.35-11.25), VQ8AI (19.00), VS6LN (08.05), VS90SC (14.20), XW8BD (14.00), 1S9WNV (08.25, 14.00-17.00), 5VZ8CN (07.00), 9M4JY (13.55).

**14 Mc/s A.M.:** EA8DS (17.20), EA9EP (09.45), FB8WW (17.10), YS1GM (13.00).

**14 Mc/s S.S.B.:** BV1USA (07.50), CO8HB (22.25), FK8AT (08.00), FR7ZB (16.32), K7LMU/HC8E (08.20-14.00), KC6AA (08.12), KC6BY (09.15), KC6FM (19.00), KC6SZ (14.45), KJ6DA (19.00), KW6EJ (07.24), K7LMU/TI9C (08.00-14.00), VK9AG (13.30), VK9RH (07.30), VK9GN (09.50), VK9JO (13.50), VK9NT (11.04), VK9XI (16.40),

VP1LB (21.43), VP1HB (21.55), VP1TV (12.10), VP2AA (11.05), VP2AC (10.50), VP2KD (18.40), VP2KJ (11.30, VP2SK (20.26), VP5AR (21.40), VP6KL (19.50), VQ8AR (16.15), VQ8BFA (Agelega, 14.30), VQ9HB (18.00), 1S9WNV (13.00-17.00), 5VZ8CN (08.00), 7G1A (20.00), 9X5CE (16.25).

**21 Mc/s A.M.:** CR4AO (12.00), CR4DC (19.10), CR6JA (12.04), CR7CH (16.30), CR7FH (15.37), HC1DX (20.30), JA2DSU (09.30), JA5BDZ (07.50), PJ2AZ (12.50), TN8BK (16.00), VK6QL (08.24), VS9PCZ (12.00), ZL3RB (08.50), 5R8CB (13.00), 6W8CZ (10.45).

**21 Mc/s C.W.:** CR6JJ (09.10), CR7IZ (16.08), CM2BL (13.25), FL8MC (14.57), HM5BZ (08.10), JA's (07.35-09.58), KG6AAY (08.25), KR6BQ (08.21), KR6DB (07.41), KV4CI (10.55), KZ5SN (20.48), PJ3AT (20.38), VK4EL (08.04), VK5GB (10.45), VP7NS (14.20), VQ8AW (13.50), VQ8BFA (10.00), VS6FO (09.37), ZD8BC (09.08), ZS8C (16.20), ZS8E (10.00), ZS9P (16.10), 5VZ8CN (16.20), 7G1A (11.35), 9M4MY (10.05).

**21 Mc/s S.S.B.:** CR3GF (17.55), CP1CY (18.30), CR5SP (21.15), CR6DA (09.46), CR9AK (10.25), EA9EZ (16.00), ET3USA (12.17), EL2U (18.10), HC1GB (13.55), HM5CO (08.20), JA's (07.40-12.00), KR6IQ (08.50), KV4CX (12.30-16.00), KX6BQ (10.00), KZ5TD (13.55), MP4PTO (11.21), OA4C (12.25), OX3JV (16.00), TG9CB (12.55), VK's (08.00-11.35), VK9PL (09.20), VP2AD (12.30), VP2VD (15.35), VS9PCZ (17.20), VS6AJ (08.00), XE1CCW (15.43), XE3MF (13.21), XW8AZ (10.45), YA3TNC (14.25), YS1HUKE (20.15), ZD8's (09.00-19.00), ZL3KA (09.13), ZL2BCG (08.30), 4U1ITU (12.55), 4U1SU (12.12), 4W2AA (14.36), 5H3JJ (11.42), 5X5IU (09.00), 6O6PW (13.30), 7Z3AB (13.54), 7G1A (18.00), 9M2OV (09.30), 9M4LP (09.30).

**28 Mc/s C.W.:** CR7IZ (13.20), EL2D (14.40), KV4CI (14.20), LU2DED, SV0WAA (14.30), ZC4KF (13.20), 9J2GF (11.50).

**28 Mc/s S.S.B.:** CR6DA (15.04), CX2CO (18.03), EL2AK (18.15), EL8AF (09.35), ET3USA (11.20), LU1DAB (13.06), LU8DSF (19.30), KP4BDL (18.15), KV4CX (18.50), M1B (16.17), MP4TBO (10.25), OD5BZ (11.25), OH0NI (10.02), PJ2CR (17.00), PY2PA (15.35), PY5AM (18.40), OA4KY (17.00), VK2AVA (08.50), VK2MN (09.00), VO1FB (15.30), VP6JC (16.13), W1's, 2's and 3's (15.00-17.45), VY9AA (17.00), ZC4CN (14.22), ZD8AR (17.00), ZD8HL (16.48), ZE1JE (11.28), ZE4PU (14.49), ZS's (09.30-15.55), 4X4AW (14.52), 5A2TR (09.41), 5A4TI (15.07), 5H3JJ (15.25), 5N2JRM (14.56), 7X2AH (09.32), 9J2DT (10.00), 9J2FK (09.55).

**28 Mc/s A.M.:** CE3DM (18.00), CE3OX (18.00), CR6AT (16.15), CR7FR (13.42), CR7IZ (14.00), CX2CN (17.25), CX4DE (18.11), EA8AE (18.06), LU1DAB (15.10), LU7FAG (17.58), LU8DSF (18.24), PY1AMS (18.53), PY2DCK (17.22), SV1LC (15.15), UA6's and UB5's galore, UA9SHZ (09.29), UL7APG (09.27), VK6QL (10.24), ZC4MO (10.45), ZE2JA (12.15), ZS1BV (12.41), ZS6AMO (12.14), 4X4ON (09.01), 7Q7LC (09.49), 7X2BB (12.00), 9G1FF (15.37), 9H1AF (09.12), 9J2DT (14.15), 9J2VX (12.00).

## QTH Corner

| | |
|---|---|
| CN8FS | Via Hammarlund |
| CN8FV | Via Hammarlund |
| CR3GF | Via Radio Club Peruano, Box 538, Lima, Peru. |
| CR9AH | Via W7ZAS, 2230 92nd Avenue, North East Bellevue, Washington. |
| CR9AI | Jose Maria, Dr. Rodgrido Rodriques 7, Macao. |
| FL8AA | Vai Hammarlund. |
| FM7WP | Via W2CTN. |
| K7LMU/HC8E | Via W4ECI. |
| HP1AC | Via W2CTN. |
| I0FGM | Via I1BER, via Ferravilla 7, Bologna, Italy. |
| JY1AU | Via VE4OX. |
| KA2LD | Via W2CTN. |
| KG6SZ/KC6 | Via YASME |
| KG6IF | Via W6ANB, 344 Calle Miramar, Redondo Beach, Calif. |
| KR6JZ | Via W2CTN. |
| KX6SZ | Via YASME. |
| OY2GHK | Via Hammarlund. |
| OY7ML (After October 1, 1965) | Via Hammarlund. |
| PZ1CM | Via W2CTN. |
| K7LMU/TI9C | Via W4ECI. |
| TU2AU | Via VE4OX. |
| VP1LB | Via VE3ACD, 305 Rosemary Road, Toronto 10. |
| VP2AC | Box 114, Antigua, British West Indies. |
| VP2VD | Via W4PJG, Box 1647, Fort Myers, Florida 33903. |
| VS9MP | Via W2CTN. |
| ZC4 Bureau | P.O. Box 216, Famagusta. |
| ZD5M | Via W2CTN. |
| ZD8AR | Via Hammarlund |
| 1S9WNV | Via W4ECI. |
| 4W2AA | Via Hammarlund: |
| TU2AU/5U7 | Via VE4OX. |
| 5U7AU | Via VE4OX. |
| 5VZ8CM (c.w. only) | Via Hammarlund. |
| 5VZ8CM (s.s.b. only) | Via W1YDO, 98 Jacqueline Drive, Bristol, Conn. |
| 6O1AU | Via VE4OX. |
| 7X3CT | Via W2CTN. |
| 9Q5YL | Box 1573, Elizabethville, Congo. |

QSL MANAGERS

| | |
|---|---|
| Hammarlund | Box 7388, G.P.O., New York, NY 10001, USA. |
| VE4OX | 647 Academy Road, Winnipeg 9, Canada. |
| W2CTN | 156 Ketcham Avenue, Amityville, New York, 11701. |
| W4ECI | 3101 Fourth Avenue South, Birmingham, Ala. 35233, USA. |
| YASME | YASME Foundation, Box 2025, Castro Valley, Calif, USA. |

* * *

RSGB QSL Bureau, G2MI, Bromley, Kent.

## Commonwealth Call Areas Table

| | 1·8 | 3·5 | 7 | 14 | 21 | 28 Mc/s | Total |
|---|---|---|---|---|---|---|---|
| **G3KSH** | — | 26 | 33 | 92 | 37 | — | 188 |
| 5N2AAF | — | 6 | 14 | 65 | 43 | 16 | 144 |
| G8JM | 4 | — | 3 | 85 | 35 | 4 | 131 |
| VO1FB | 12 | 18 | 16 | 55 | 20 | 6 | 127 |
| G3DYY | — | 9 | 31 | 55 | 19 | 7 | 121 |
| G3LHJ | 4 | 5 | 9 | 32 | 34 | 7 | 92 |
| G3AAE | — | — | 7 | 57 | 26 | 1 | 91 |
| G3UKI | 7 | 7 | 9 | 11 | 13 | 1 | 48 |
| **A3633** | 9 | 9 | 18 | 78 | 29 | 8 | 148 |
| A4038 | 3 | 8 | 8 | 69 | 34 | 16 | 138 |
| A4452 | — | 2 | — | 58 | 64 | 12 | 136 |
| A2498 | 2 | 8 | 10 | 76 | 29 | 7 | 132 |
| A4048 | 5 | 13 | 6 | 63 | 30 | 3 | 120 |
| A4431 | 3 | 8 | 6 | 53 | 38 | 5 | 113 |
| A4311 | 1 | 10 | 2 | 72 | 20 | 6 | 111 |
| A2340 | 6 | 13 | 22 | 51 | 18 | 1 | 111 |
| A3942 | 5 | 16 | 34 | 45 | 8 | — | 108 |
| A3699 | 5 | 11 | 14 | 42 | 26 | 5 | 103 |
| A3902 | 4 | 15 | 5 | 45 | 23 | 11 | 103 |
| A4431 | 3 | 8 | 4 | 41 | 34 | 1 | 91 |
| A4391 | 4 | 6 | 2 | 32 | 20 | 4 | 68 |

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Though it is a little premature the writer would like to wish all readers a very happy Christmas and good DX hunting in 1966.

Correspondents are thanked for their co-operation and acknowledgement is made to the *West Gulf DX Club Bulletin* (W5IEJ), the *LIDXA Bulletin* (W2FGD/W2MES), *DX'press* (PA0FX) and *The DX'er* (Northern Californian DX Club). Please send all items to RSGB Headquarters to arrive not later than **December 6** for the **January** issue and **January 12** for the **February** issue.

# I.T.U. Plenipotentiary Conference

THE President of the Swiss PTT Enterprise (Mr Gustav Wettstein) was Chairman of the ITU Centenary Year Plenipotentiary Conference held in Montreux from September 15 to November 12, 1965.

### "Balance of Power"

Although the Conference did not discuss matters of direct concern to radio amateurs the voting line-up on many important issues gave a clear indication of how the "balance of power" has changed since the Administrative Radio Conference took place six years ago in Geneva. At that time 85 Member Nations were represented at the Conference out of a total of just over 90. At Montreux 120 Member Nations were represented out of a total of 128. Almost all of the new Member Nations have achieved independence since the Geneva Conference.

The first trial of strength came immediately after the Chairman had delivered his opening speech, when a proposal made by the United Arab Republic to exclude South Africa from the work of the Conference (presumably because of its apartheid policy) was adopted by 59 voles to 27 with seven abstentions. Many Member Nations did not vote. Immediately afterwards a proposal by the Republic of Senegal (admitted to membership within the past six years) condemning the colonial policy of Portugal was adopted by 61 votes to 35 with 14 abstentions.

### ITU Council

The governing body of the ITU between Conferences is the Administrative Council—the most powerful body in the world of telecommunications today. A proposal to increase the size of the Council from 25 to 29 was adopted after much debate. This decision resulted in three more seats being allocated to the African Group (D) and one more to the Asian-Australasian Group (E). In the subsequent ballots the following Member Nations were elected to serve on the new Council:

*Group A* (Americas): Argentina (90), USA (88), Canada (86) Mexico (85), Venezuela (59), Brazil (57). Six seats.

*Group B* (Western Europe): France (103), Italy (105), Switzerland (105), Federal German Republic (93), United Kingdom (88), Ireland (78). Six seats.

*Group C* (Eastern Europe/Northern Asia): USSR (94), Yugoslavia (90), Poland (79). Three seats.

*Group D* (Africa): Morocco (87), Dahomey (74), Nigeria (74), Algiers (71), Ethiopia (70), Malagasey (65), Uganda (64), Seven seats.

*Group E* (Asia-Australasia): Japan (102), Australia (90), India (71), Pakistan (65), Lebanon (63), Saudi-Arabia (55), China (52). Seven seats.

[The numbers in brackets indicate the number of votes cast.]

### IFRB

By 64 votes to 39 the Conference decided to retain the International Frequency Registration Board in its present and independent form but to reduce the membership of the Board to five—one from each Group.

A proposal by the United Kingdom, supported by the United States, France, Western Germany and many other "senior" Member Nations to replace the Board by a Frequency Registration Department was rejected. The United Kingdom argued that as the processes of frequency registration were now well established and simpler than previously a less expensive organisation would be adequate for this task. Isolated cases that required further examination could be considered by the Administrative Council.

The new members of the International Frequency Radio Board (whose number has been reduced to five) are:

Region A—Mr F. Dellamula (Argentine Republic)
Region B—Mr R. Petit (France)
Region C—Mr I. Petrov (USSR)
Region D—Mr A. Berrada (Morocco)
Region E—Mr T. Nishizaki (Japan)

### Title Unchanged

A proposal by the USSR to change the title of the Union from International to World Telecommunication Union received a good deal of support but was eventually rejected after a lengthy debate.

### Maritime Mobile Conference

An Administrative Radio Conference will be held in Geneva during the second quarter of 1967 to deal with matters relating to the Maritime Mobile Service.

### Secretary-General

The retirement of Mr Gerald Gross from the office of Secretary-General was accepted and many tributes paid to him for his work on behalf of the ITU.

In the first ballot for his successor the Deputy Secretary-General, Dr Sarwate, headed the poll with 38 votes followed by Mr Jean Rouviere with 36 votes. Four of the remaining seven candidates, including Mr John Gayer of the IFRB, withdrew their names. In the second ballot Dr Sarwate polled 41 votes, Mr Rouviere 32 votes and Mr Mohamed Mili 25 votes. In the third ballot, Dr Sarwate obtained 50 votes, Mr Rouviere 37 votes and Mr Mili 28 votes. Mr Mili then withdrew. In the fourth and final ballot Dr Sarwate obtained 61 votes against the 54 cast in favour of Mr Rouviere.

The new Secretary-General, born in 1910, is a Bachelor of Science of the University of Bombay and received his Degree of Philosophy in Radio Engineering from Liverpool University. He is a member of the Institution of Electrical Engineers, London, and a founder member and Fellow of the Institution of Telecommunications Engineers of India.

During the war he served in the Signals Radio Branch of the Indian Air Force and from 1946 until 1959 he held various Government appointments in the field of communications.

At the 1959 ITU Plenipotentiary Conference, in which he was Alternate Leader of the Indian Delegation, he was elected Deputy Secretary-General of the Union. Since 1960, when he took up his new duties, he has participated in a large number of Union Conferences and represented the Organization at many other international conferences and meetings. He will take up his new duties on January 1, 1966.

### New Deputy Secretary-General

Mr Mohamed Ezzeddine Mili of Tunisia was elected Deputy Secretary-General after a fourth ballot when he polled 81 votes against 34 cast for Mr E. M. de Silva of Brazil.

Mr Mili was born in Tunis 48 years ago and received his technical training in France. In 1957 he became Chief Engineer and was made Acting Director-General of Telecommunications at the Tunisia P.T. & T. He has had wide experience of ITU Conferences.

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### RSGB Intruder Watch

Correspondence for the Intruder Watch should be addressed to the Honorary Organizer, RSGB Intruder Watch, Radio Society of Great Britain, 28 Little Russell Street, London, W.C.1.

# The Council's Annual Report on the Society's Activities

THE Council has pleasure in reporting to members on the more important activities and happenings during the year ended June 30, 1965. The year was one of continued progress in every sphere.

### *Installation of the President*

Mr E. W. Yeomanson, G3IIR, was installed as the Society's thirty-first President at a General Meeting and Social Evening held at the Kingsley Hotel, London, on January 15, 1965. The event was attended by a large number of members drawn from most parts of the United Kingdom.

Although some members regret the passing of the old form of Presidential address, there seems no doubt that the present type of formal installation allied to informal social occasion is now firmly established.

### *Licensing Matters*

The most important change in the official attitude to Amateur Radio took place on March 16, 1965, when, in answer to a question put down by Mr George Wallace, M.P., the Postmaster General, Mr Anthony Wedgwood Benn, M.P., stated that he would in future grant licences to " nationals of countries which are prepared to grant reciprocal facilities to United Kingdom licensed radio amateurs."

The announcement was the culmination of many years' spade work by the Society followed by the timely intervention of Mr Wallace to whom the Society records its deep debt of gratitude. On June 15, members of the Council entertained Mr Wallace at a small dinner party.

The Council again places on record its regret that the Post Office has not yet been able to extend the Amateur (Maritime Mobile) Licence to permit operation on the h.f. amateur bands and to liberalize its conditions. The Council is, however, hopeful that this matter will not be much further delayed.

The Amateur (Sound) Licence B, which permits phone-only operation on 420 Mc/s and above met, with immediate success and activity in the 70cm amateur band particularly has increased most satisfactorily. At June 30, 1965, 234 such licences were in force.

The number of amateur licences again increased during the year to a total of 11,636 (11,237 A licences, 234 B licences and 165 television licences) compared with 10,913 twelve months earlier. In addition, there were 1,895 mobile licences.

Throughout the year, the most cordial relations continued to exist between the Society and the Post Office, and your Council wishes to place on record its appreciation of the help and assistance rendered by the officials concerned.

Two Radio Amateurs' Examinations, conducted by the City and Guilds of London Institute, were held during the year. The Society was again represented on the Institute's Advisory Committee.

### *Headquarters*

The search for a new Headquarters building continues but the ban on office building in the London area has made the task even harder.

The building in which the present offices are located has been taken over by the Ministry of Public Building and Works and a new lease is being negotiated.

During the year, the change-over to a new system of punch-card subscription records was completed and while there have been a number of " teething " troubles the system is already proving to be more satisfactory than the somewhat cumbersome arrangements previously used. The new system combines subscription record card and address stencil in one unit. It is of very great assistance to the staff when as much advance warning is given of changes of address as possible.

The increased volume of correspondence noted last year has continued and is a major item of work for our Headquarters staff.

### *Membership*

A total of 2,134 new members was elected during the year.

The upward trend in membership, noted last year, continued, the increase in membership exceeding 1,000 as the following table shows.

| Grade | June 30, 1963 | June 30, 1964 | June 30, 1965 | Gain during the year |
|---|---|---|---|---|
| Corporate Members | | | | |
| Licensed | 7155 | 7748 | 7781 | 33 |
| Not licensed | 3241 | 3274 | 4180 | 906 |
| Associates | 1325 | 1382 | 1453 | 71 |
| Totals | 11721 | 12404 | 13414 | 1010 |

The net increase of just over 1,000 members during the year must be regarded as satisfactory compared with the increase of 683 during the previous year but the Council considers there should be a substantial increase, particularly amongst licensed amateurs.

### *Affiliated Societies and Clubs*

The Council is pleased to report that the number of local societies and clubs affiliated to RSGB is steadily increasing. Affiliation is advantageous to both the national society and the local society but is even more important from the point of view of the Amateur Radio movement as a whole.

### *RSGB Bulletin*

During the period July, 1964, to June, 1965, the RSGB BULLETIN contained a total of 840 pages compared with 800 the previous year.

The Council records its thanks for the continuing work of the regular contributors: Mr F. G. Lambeth, G2AIW (*Four Metres and Down*), Mr R. F. Stevens, G2BVN, and Mr M. E. Bazley, G3HDA (*The Month on the Air*), Mr G. R. B. Thornley, G2DAF (*Single Sideband*), Mr E. Arnold Matthews, G3FZW (*Mobile Column*), Dr A. C. Gee, G2UK, and Mr J. A. McElvenney, G3LLV (*RTTY*), Mr J. Pat Hawker, G3VA, and Mr K. E. Smith, G3JIX (*QUA Associates*). The Editorial staff again had the valuable advice and assistance of the Society's Technical Committee.

An important factor in the production of any magazine is the support given by advertisers and the Council records its gratitude to all advertisers in the RSGB BULLETIN. The Council again urges all members to mention the BULLETIN when writing to advertisers. It is a matter of considerable regret that more members do not use their own journal when advertising equipment for sale or wanted. Checks have shown that the results that can be expected are considerably better than those obtainable through similar publications catering for the amateur.

### RSGB Publications

The Society's *Amateur Radio Circuits Book*, published on the opening day of the 1964 Radio Communications Exhibition, was an immediate success and has proved most popular. The 1965 edition of the *RSGB Amateur Radio Call Book*, published at the same time, was again in great demand.

During the year, new editions of *The Guide to Amateur Radio* and the *Radio Amateurs' Examination Manual* were produced to meet a growing demand for authoritative information for the newcomer and prospective licensed amateur. The preparation of another new Society publication, *Technical Topics for the Radio Amateur*, was also commenced during the year.

The Society's *Handbook* and the *Radio Data Reference Book* continued to be in demand and the Council is pleased to record that *73 Magazine* and Canadian firms have commenced distributing a significant number of copies of both publications in North America.

Headquarters handled an increasing number of publications from abroad on behalf of members, a service which is of advantage both to the Society and to the individual member.

### RSGB Intruder Watch

Throughout the period members of the RSGB Intruder Watch continued their work of reporting unauthorized stations in the exclusive amateur bands. Regular reports were submitted to the Post Office. Without the devoted work of the small band of watchkeepers the number of intruders would be much greater and on behalf of all amateurs the Council expresses its great appreciation of their efforts.

The Council was very sorry during the year to receive the resignation of Mr R. H. Farr, G8IJ, from the office of Honorary Organizer of the Watch. Mr Farr has made a great contribution to the effectiveness of the Watch and continues to work as an observer.

Mr E. G. Ingram, GM6IZ, has taken over responsibility for the organization for the time being.

### Certificates Manager

The Society's Honorary Certificates Manager, Mr K. A. V. Hurrell, G3NBC, again dealt with a very large number of applications for certificates including those of several foreign societies.

The Council records its gratitude to Mr Hurrell for his hard work in connection with claims.

### RSGB QSL Bureau

The Society's QSL Bureau, for the twenty-sixth year under the direction of Mr Arthur O. Milne, G2MI, again provided one of the most important privileges of membership, dealing with well over two million cards. Mr Milne was ably supported by an excellent team of sub-managers, all of whom are thanked for their many hours of work on behalf of members.

### RSGB Recorded Lecture Library

Considerable use was again made of the Society's recorded lectures by affiliated societies and groups. The Council expresses its thanks to the Honorary Curator, Mr N. C. Ta'Bois, G3HWG, for his organization of the service.

### RSGB Slow Morse Practice Transmissions

Slow Morse Practice Transmissions were transmitted every night of the week for the benefit of those learning the code. To the Honorary Organizer, Mr M. A. C. McBrayne, G3KGU, and those responsible for the transmissions, the Council expresses its thanks for their important service to members.

### RSGB News Bulletin Service

Throughout the year news bulletins were transmitted under the call-sign GB2RS on 3600 kc/s and on frequencies in the 144 Mc/s band each Sunday morning.

The Council records its thanks to the newsreaders and to all who contributed to the success of the Service.

### Committees of the Council

During the year the following Committees were set up:

| | *Chairman* |
|---|---|
| H.F. Contests | Mr D. A. Findlay, D.F.C., G3BZG |
| V.H.F. Contests | Mr J. C. Foster, G2JF |
| Education | Mr G. M. C. Stone, G3FZL |
| Exhibition | Mr E. W. Yeomanson, G3IIR |
| Finance & Staff | Mr R. F. Stevens, G2BVN |
| GPO Liaison and TVI | Mr E. W. Yeomanson, G3IIR |
| Membership and Representation | Mr J. C. Graham, G3TR |
| Mobile | Mr F. K. Parker, G3FUR |
| RAEN | Mr G. A. Allcock, G3ION |
| Scientific Studies | Mr G. M. C. Stone, G3FZL |
| Technical | Mr R. F. Stevens, G2BVN |
| V.H.F. | Mr R. C. Hills, G3HRH |

In addition, the Council set up an IARU Preparatory Group, under the chairmanship of Mr R. F. Stevens, G2BVN, to prepare for the important conference of Region I IARU societies to be held in Opatija, Yugoslavia, in May, 1966.

There are now two Contests Committees, one to deal with contests on the h.f. bands, the other to organize v.h.f. events. The amount of work undertaken by these two committees increased yet again during the year and every member of the Society interested in contests owes them a debt of gratitude for the hundreds of man-hours spent on organizing contests and checking entries.

The Exhibition Committee was responsible for the Society's participation in the RSGB International Radio Communication Exhibition while Mr Fred Ruth, G2BRH, again acted most ably as Stand Manager. The Education Committee had a small stand at the Exhibition and was encouraged by the response. During the year, preparations were made for a Weekend Course at the Ollerton Residential Centre (see page 658 of the October 1965 issue of the RSGB BULLETIN.—EDITOR) and for the Society's participation in the *Daily Mail* Schoolboys' and Girls' Exhibition at Christmas, 1965.

The Finance and Staff Committee devoted much time to the Society's financial problems and eventually found it necessary, in the light of increasing costs over a wide range of supplies and services used by the Society, to recommend to the Council that increases in subscription rates should take effect from July 1, 1965. The Committee nevertheless continued to exercise the most careful watch over expenditure without reducing services to members.

In January, 1965, the GPO Liaison and TVI/BCI Committees were combined, as their work had become increasingly connected. In addition to efforts to obtain reciprocal licensing facilities, the Committee dealt with a number of members' individual TVI problems and was fortunate enough to obtain the services of a suitably qualified member to advise on problems resulting from refusal of planning permission for aerial masts. In the interference field, the

Committee is seriously alarmed by the increasing interference from high voltage distribution systems and from r.f. heating devices. It also appears that the advent of switchable 405/625 line TV receivers with broad-band front-ends is likely to cause further difficulty.

The Membership and Representation Committee reviewed the Society's Scheme of Representation and introduced a new *RRs Newsletter* to keep Regional Representatives informed of Society matters which cannot readily be dealt with in the RSGB BULLETIN. A drive for members amongst new licensees brought encouraging results. The Committee also dealt with such matters as ties, subscriptions for members on pensions and family subscriptions.

The Mobile Committee organized several mobile rallies and was closely connected with the arrangements for the special rally, organized by the Oxford and District Amateur Radio Society, to celebrate the tenth anniversary of the first mobile rally ever held in England.

The Radio Amateur Emergency Network was again supervised by the RAEN Committee. Members were kept informed of development through the regular *Network News*.

The activities of the Scientific Studies Committee were devoted principally to the organization of the Society's IQSY Programme, of which Project Lerwick is an important feature. In addition to a monthly *IQSY Newsletter*, a daily IQSY Net was held on 3783 kc/s. The preparation of articles arising from the results of the IGY programme continued.

The Technical Committee dealt with a wide variety of technical subjects which arose during the year and advised the Editorial staff on matters relating to the RSGB BULLETIN and other Society publications.

The V.H.F. Committee organized yet another highly successful International V.H.F./U.H.F. Convention in London—the eleventh in the series—in April, 1965, and was also responsible for v.h.f. matters generally, including the operation of beacon stations, the administration of the "Four Metres and Down" awards and band planning.

### *Lectures and Meetings*

On August 7, a party of Belgian radio amateurs visiting London was entertained informally by the Council and members living in the Home Counties.

Official Regional Meetings were held in John O'Groats on August 28, and at Blackpool on May 16. Both were very well attended.

National Mobile Rallies organized by the Society were held at Woburn Abbey (September 13), Texas Instruments Ltd., Bedford (April 4), Belfast (May 30) and Wethersfield (June 6).

A Regional Lecture was held at Cardiff on September 19 when Professor Emrys Williams, B.Eng., Ph.D., M.I.E.E., M.I.E.R.E., gave a lecture entitled "A Philosophy of Oscillators."

Only one London Lecture meeting was held during the year. On November 27, Mr P. K. Blair, G3LTF, lectured on "Moonbounce." It is regretted that there was an audience of only 40.

### *The Future*

The future of Amateur Radio depends on the world-wide retention of amateur frequencies, particularly in the h.f. part of the spectrum. For this reason, the Society recognizes the need for a strong and united international Amateur Radio movement.

In this connection, the Council has noted the formation in recent years of various organizations which their promoters believe can more dynamically represent our interests on the international field. The Council is confident that the Amateur Radio movement must speak with one international voice and that voice must be the IARU. Recent developments, including the formation of the Region II division of the Union, have already produced encouraging results while other measures now in train will result in a further improvement in the working of IARU.

In association with other IARU societies, the RSGB is preparing now for the next Ordinary Administrative Conference which promises to be the most difficult so far. At that Conference, the need is not only to defend our present allocations but also to press for an expansion of these assignments to accommodate the growing number of amateur radio stations.

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### RSGB QSL Bureau Sub-Managers

The following is a list of the RSGB QSL Bureau Sub-Managers showing the call-sign groups for which they are responsible:

| | |
|---|---|
| G2: | J. W. Russell, G2ZR, 45 Shakespeare Avenue, Bath. |
| G3, 4 and 5 two-letter calls & GC: | E. G. Allen, G3DRN, 65A Melbury Gardens, London, S.W.20. |
| G6 and G8: | A. J. Mathews, G6QM, 62 Ashlands Road, Hesters Way Estate, Cheltenham. |
| G3AAA-BZZ: | C. C. Olley, G3AIZ, 157 Wanstead Park Road, Ilford, Essex. |
| G3CAA-DZZ: | C. A. Bradbury, BRS1066, 13 Salisbury Avenue, Cheltenham. |
| G3EAA-HZZ: | W. J. Green, G3FBA, "Meadway," Links Avenue, Brundall, Norfolk, NOR86Z. |
| G3IAA-KZZ, BRS and A numbers: | G. L. V. Butler, G2BUL, 995 London Road, Thornton Heath, Surrey. |
| G3LAA-MZZ: | C. Harrington, BRS2292, 91 Brabazon Road, Hounslow, Middlesex. |
| G3NAA-NZZ: | C. R. Emary, G5GH. Westbury End, Finmere, Buckingham. |
| G3OAA-PZZ: | J. H. Brazzill, G3WP, 43 Forest Drive, Chelmsford, Essex. |
| G3RAA-RZZ: | K. Walden, G3OLN, 250 Gloucester Road, Cheltenham, Gloucestershire. |
| G3SAA-TZZ: | E. G. Allen, G3DRN, 65A Melbury Gardens, London, S.W.20. |
| G3UAA-WZZ: | P. R. Cox, G3RYV, 38 Ridgway Crescent, Tonbridge, Kent. |
| GD: | T. R. Moore, GD3ENK, "Glyn Moar," St. John's, Isle of Man. |
| GI: | R. R. Parsons, GI3HXV, 45 Erinvale Avenue, Finaghy, Belfast. |
| GM: | D. Macadie, GM6MD, 154 Kingsacre Road, Glasgow, S.4. |
| GW: | J. L. Reid, GW3ANU, 28 Waterston Road, Gabalfa, Cardiff. |
| DL2: | Cpl. C. Thomas, DL2CT, Box 125A, RAF Butzweilerhof, BFPO 19. |

**Cards must be sent to G2MI but envelopes may be sent to the appropriate Sub-Manager or to G2MI. Printed, gummed labels are obtainable from G2MI by sending an s.a.e.**

Postage, letter rate: 2 oz. 4d., and 2d. for each additional 2 oz.

The address of the QSL Bureau Manager (Mr. A. O. Milne, G2MI) is 29 Kechill Gardens, Bromley, Kent.

# News from Headquarters

### Representation 1966-68

The voting in the election of Regional Representatives for Regions 8, 12 and 15 announced on page 717 of the November, 1965 issue of the RSGB BULLETIN was as follows.

**Region 8**

Mr N. D. Mattock, G2DFG .. .. .. 4 votes
Mr D. N. T. Williams, G3MDO .. .. 10 votes
Mr Williams is therefore declared elected.

**Region 12**

Mr A. W. Smith, GM3AEL .. .. .. 4 votes
Mr J. McIntosh, GM3IAA .. .. .. 17 votes
Mr McIntosh is therefore declared elected.

**Region 15**

Mr J. W. Douglas, GI3IWD .. .. .. 15 votes
Mr L. M. Lyske, GI3CDF .. .. .. 18 votes
Mr Lyske is therefore declared elected.

### RSGB Amateur Radio Call Book

The following are corrections to the 1966 Edition of the RSGB *Amateur Radio Call Book*.

G2JF, J. C. Foster, Wye College (University of London), Ashford, Kent.

G2PU, S. R. Kharbanda, "Ivett Lodge," 39 London Road, Harston, Cambs.

G3SDJ, H. A. H. Jefferies, 24 Holcombe Road, Tottenham, London N.17.

G3SAV, T. E. P. Taylor, Flat 2, 11 Harcourt Road, Bitterne Park, Southampton.

G3TLF, T. F. Adey, 97 Westfield, Harlow, Essex.

G8GG, H. Fenton, 24 Cavendish Road, St. Annes, Lytham St. Annes, Lancs.

### Unlicensed Operation

The Society has been informed by the Radio Services Department of the GPO that the Engineering Department is sometimes hampered in its investigations into unlicensed transmissions by amateurs who challenge and sometimes even deliberately jam the "pirate" stations involved. On several occasions action of this kind has taken place just as Post Office enquiry officers were about to obtain D/F bearings on suspect stations. This not only prevented the location of the stations but necessitated the continuation of lengthy and expensive monitoring pending further operation by the "pirates." Delay thus caused to enquiries is apt to be attributed to inertia in the Post Office.

Members are, therefore, requested to refrain from any action which could embarrass Post Office enquiries into unlicensed transmissions. Don't tell a "pirate" of your suspicions, tell the Post Office and give them details of the suspected illicit transmissions.

The President, Council and Headquarters Staff send Christmas Greetings to all Members of the Society

### First Region 4 Lecture

An audience of 80 were assembled on Friday evening, September 24 last in the Main Lecture Theatre at The Derby & District College of Technology, Kedleston Road, Derby when Mr L. Walton of the General Post Office, Central Training School, spoke on Microwave Radio Links and Terminal Equipment. The lecture was illustrated with slides and dealt with the various problems involved in communication on these very high frequencies. A microwave link operating at 35 Gc/s was demonstrated by Mr L. Atkins of the Post Office Exhibition Group and how a passive satellite could be used as a reflector. Members travelled from the various counties in Region 4 including Worksop, Loughborough, Sutton in Ashfield and Nottingham.

On behalf of the visitors, Mr H. Ferry, head of the Electrical Engineering Department, proposed a vote of thanks to the lecturer commenting upon the very fluent ability of the lecturer and the excellent continuity. Mr B. J. Speakman, G3UBS, the Derby & District Amateur Radio Society ASR also proposed a vote of thanks mentioning the very high standard of the first Region 4 Lecture and thanking the College Authorities for the use of such a first class theatre.

### Miss Mary Crutchley

Miss Mary Crutchley, who was a founder member of the University of Keele Radio Society, and had just completed her fourth year at the University, was killed on October 27 while riding her motor cycle on the M6. We offer sincere condolences to her family and fellow club members.

### Front Cover

The photograph of the GPO Tower in London on the front cover of the November issue of the RSGB BULLETIN is Crown Copyright and was reproduced by courtesy of H.M. Post Master General.

### Receipts

**Receipts for subscriptions paid by cheque, bankers' order or postal order are not now issued unless specially requested.**

### The Barnet Party

On Saturday, December 11, the Southgate, Finchley and District Group will be holding the annual Christmas Party initiated by the former Barnet Club. This has proved to be an important social event for North London in the past, and is a good opportunity for amateurs to meet. It will be held at Oakmere House, High Street, Potters Bar, Herts. There will be dancing for most of the evening with plenty of food and a licensed bar available. Tickets, price 6s. each, may be obtained from B. Boothby, G3RPN, 34 Ecclesbourne Gardens, Palmers Green, London, N.13.

### RSGB National Mobile Rallies

Provisional dates for the 1966 RSGB rallies are March 20, April 24, June 12 and September 11. Additional information will be announced as soon as it is available.

### Pirate Operation

The following have been convicted for using wireless telegraphy apparatus without a licence, contrary to Section 1 of the Wireless Telegraphy Act, 1949:

Terry Robin Bailes of 120 Hornsey Road, London, N.7, on August 24 at North London Magistrates' Court. He was fined £6, ordered to pay £10 10s. costs and to forfeit the equipment to the Postmaster-General.

Peter Murtha of 40 Torridge Road, Thornton Heath, Surrey, on August 25 at Croydon Magistrates' Court. He was given an absolute discharge, ordered to pay £3 3s. costs and to forfeit the equipment to the Postmaster-General.

Barrie Rispin of 37 Newfield Cottages, Ferry Road, South Cave, Brough, Yorkshire, and David Sharpe of 17 The Meadows, Howden, Goole, Yorkshire, on August 25 at South Hunsby Magistrates' Court. They were each fined £5.

Philip John Sanders and Barry Leslie Hugh Sanders, both of 279 New Road, Whittlesey, Peterborough, Northants., on September 6 at Whittlesey Magistrates' Court. They were each fined £5, ordered to pay £2 2s. costs and to forfeit the equipment to the Postmaster-General.

John Richard Sellers of The Bungalow, Sandholme Road, Eastrington, Goole, Yorkshire, on September 9 at Howden Magistrates' Court. He was fined £4.

Roger Albert Hersey of 176 Richmond Road, Croydon, Surrey, on September 16 at Wallington Magistrates' Court. He was fined £8 on each charge of installing and of using wireless telegraphy apparatus without a licence, and ordered to forfeit the apparatus to the Postmaster-General.

Leonard Horton of 28 Willmer Road, Liverpool 4, on September 29 at Liverpool City Police Court. He was fined £5, ordered to pay £10 10s. Advocate's fees and to forfeit the apparatus to the Postmaster-General.

### Can You Help?

- D. H. Roe, G8AFG, 39 Station Road, Drayton, Portsmouth, Hants, who requires details on operating the R.F. Wattmeter type TS 87/AP?
- R. A. Phillips, A.4580 at Gordoustoun School, Elgin, Moray, who wishes to obtain the circuit diagrams, manual, etc. for the US Signal Corps. BC-455-B Receiver?
- Len Mathison, W7ONV, 2177 Wellington Street, Salt Lake City, Utah, USA who requires information on the V-V beam?
- C. P. Wooltan, A3241, 2 Brookside Avenue, Piggot Street, Farnworth, Bolton, Lancashire who requires information on the c.r.t. indicator type 103 which is part of monitor type 101?

LONDON MEMBERS' LUNCHEON CLUB

## CHRISTMAS DINNER

FRIDAY, DECEMBER 10

6 p.m. for 7 p.m.

KINGSLEY HOTEL

Tickets, price 30s., available from G. A. Leicester, G3IKC, 153 Park Road, Chiswick, London, W.4.

## Installation of President

Mr R. F. Stevens, G2BVN, will be installed as the 32nd President of the Society during the course of a General Meeting and Social Evening to be held at

**Kingsley Hotel,**

**Bloomsbury Way, London, W.C.1**

on

**Friday, January 7, 1966**

Commencing at 7 p.m.

Admission will be by ticket, available on request (with s.a.e.) from Headquarters. (Tickets restricted to two per member.)

### "Worked All London Town" Award

This award is sponsored by the Grafton Radio Society, and is available to any amateur in the world who can furnish proof of contact with amateur stations in 65 of the 118 London Postal Districts. Full particulars of "WALT," together with a list of London Postal Districts, may be obtained by sending a s.a.e. to the Awards Manager, Grafton Radio Society, G3AFT, Montem School, Hornsey Road, Holloway, London, N.7.

### Area Representatives Badges

Badges for Area Representatives are now available from RSGB Headquarters, price 10s. each including postage.

## 1966 EDITION

# RSGB AMATEUR RADIO CALL BOOK


*Ninety-six pages, completely reset*

**Price 6s. (by post 6s. 6d.)** from leading booksellers, or direct from

**RSGB Publications Dept B,**
**28 Little Russell Street, London, W.C.1**

# Representation 1966-68

## REGIONAL REPRESENTATIVES

The following have been elected to serve as Regional Representatives for the period 1966-68.

**Region 1**
B. O'Brien, G2AMV, 1 Waterpark Road, Prenton, Birkenhead, Cheshire.

**Region 2**
Office vacant.

**Region 3**
Office vacant.

**Region 4**
F. C. Ward, G2CVV, 5 Uplands Avenue, Littleover, Derby.

**Region 5**
Office vacant.

**Region 6**
Office vacant.

**Region 7**
P. A. Thorogood, G4KD, 35 Gibbs Green, Edgware, Middlesex.

**Region 8**
D. N. T. Williams, G3MDO, Seletar, New House Lane, Thanington, Canterbury, Kent.

**Region 9**
R. E. Griffin, G5UH, 13 Alexandra Road, Uplands, Bristol 3.

**Region 10**
C. H. Parsons, GW8NP, 90 Maesycoed Road, Heath, Cardiff, Glam.

**Region 11**
Office Vacant.

**Region 12**
J. McIntosh, GM3IAA, Broompark, Cradlehall, Inverness.

**Region 13**
G. P. Millar, GM3UM, 8 Plewlands Gardens, Edinburgh 10.

**Region 14**
Office Vacant.

**Region 15**
L. M. Lyske, GI3CDF, 63 Church Street, Portadown, Co Armagh.

**Region 16**
P. J. Naish, G3EIX, 6 Mildmays, Danbury, Chelmsford, Essex.

**Region 17**
L. Southwell, G3JLS, 15 Hollybank Road, Hythe, Southampton, Hants.

## AREA REPRESENTATIVES

The following have been elected to serve as Area Representatives for the period 1966-1968:

**Region 1**
*Blackpool:* H. G. Newland, G5ND, 161 Penrose Avenue, Marton, Blackpool, Lancs.
*Cumberland & Westmorland:* C. N. Ramsden, G3RHE, 53 Gosforth Road, Seascale, Cumberland.
*Manchester North:* A. B. Langfield, G3IOA, 2 Rowland Street, Moston, Manchester 10.
*Wirral:* A. Seed, G3FOO, 31 Withert Avenue, Bebington, Wirral, Cheshire.

**Region 2**
*Scarborough:* P. B. Briscombe, G8KU, " Roseacre," Irton, Scarborough, Yorkshire.

**Region 3**
*Leamington Spa, Kenilworth & Warwick:* C. R. S. Smith, BRS18612, 19 Hyde Road, Kenilworth, Warwickshire.
*Newcastle, Staffs & District:* A. Frost, G3OGD, 20 Bevan Avenue, Talke, Staffs.
*Stoke-on-Trent Area:* V. J. Reynolds, G3COY, 90 Princes Road, Hartshill, Stoke-on-Trent, Staffs.

**Region 4**
*Derby & District:* B. Speakman, G3UBS, Merrydown, Burley Lane, Quarndon, Derby.
*Peterborough Area:* D. Byrne, G3KPO, Jersey House, Eye, Peterborough, Northants.

**Region 6**
*Cheltenham:* J. J. Yeend, G3CGD, 30 St Lukes Road, Cheltenham, Glos.

**Region 7**
*Acton, Brentford & Chiswick:* W. G. Dyer, G3GEH, 188 Gunnersbury Avenue, Acton, London W.3.
*Bexleyheath & District:* R. G. Holland, G3BPE, 35 Bladindon Drive, Blendon, Bexleyheath, Kent.
*Brentwood, Essex:* R. A. E. Fronius, G3MCW, 30 Rowan Green East, Brentwood, Essex.
*Chingford Area:* F. Ingleby, G3EHD, 14 Pretoria Crescent, Chingford, London E.4.
*East Ham:* R. E. Wheeler, G3THY, 141 Sheringham Avenue, Manor Park, London, E.12.
*Edgware & District:* R. H. Newland, G3VW, 10 Holmstall Avenue, Edgware, Middlesex.
*Slough & District:* V. E. W. Whitaker, G3HRG, 50 Alderbury Road, Langley, Slough, Bucks.
*Welwyn Garden City:* J. Hum, G5UM, " Wyldes," Burnham Green Lane, Bulls Green, Knebworth, Herts.

**Region 8**
*Folkestone, Hythe & District:* F. C. Richardson, G3MXW, 7 West View, Canterbury Road, Folkestone, Kent.

**Region 9**
*Bath:* J. W. Russell, G2ZR, 45 Shakespeare Avenue, Bath, Somerset.
*Bristol:* J. Thorn, G3PQE, 6 Plumtree Close, Sandford Road, Winscombe, Somerset.
*Exeter:* J. D. Forward, G3HTA, 12 Clevedon Close, Pennsylvania, Exeter, Devon.

**Region 10**
*Cardiff Area:* T. J. Brooke, GW3GHC, 32 Elgar Crescent, Llanrumney, Cardiff, Glamorgan.
*Pontypool:* J. Hammond, GW3JBH, 23 Park End, Langstone, nr Newport, Mon.
*Port Talbot:* C. T. Jay, GW3KSQ, 40 Abbots Close, Port Talbot, Glam.

**Region 13**
*Dunfermline:* A. Lawrence, GM3IQL, 40 Blake Street, Brucefield, Dunfermline, Fife.

**Region 14**
*Mid-Lanarkshire:* D. Menteith, GM3IWU, 20 Linksview Road, Motherwell, Lanarkshire.

**Region 15**
*Belfast & District:* S. Laverty, GI3RQU, 21 Silverstream Park, Belfast 14.
*Mid-Ulster:* W. G. Snodgrass, GI3CVH, County Primary School, Newtownhamilton, Co. Armagh, N. Ireland.

**Region 16**
*East Anglia:* D. L. Buddery, G3SEP, 72 Albany Road, Great Yarmouth, Norfolk.
*Basildon Area:* C. Roberson, G8AAO, 81 Brook House, Town Centre, Basildon, Essex.

**Region 17**
*N. Berkshire:* C. Sharpe, G2HIF, 20 Harcourt Road, Wantage, Berkshire.
*Southampton:* A. R. Partner, G3HKT, 104 Bursledon Road, Southampton, Hants.

# Society Affairs

*A Brief Report on the September, 1965 meeting of the Council*

THE meeting was held on September 6, 1965, and was attended by Messrs E. W. Yeomanson (President), N. Caws, J. C. Foster, J. C. Graham, R. C. Hills, E. G. Ingram, R. H. James, A. O. Milne, L. E. Newnham, F. K. Parker, A. D. Patterson, J. F. Shepherd, R. F. Stevens, G. M. C. Stone, J. W. Swinnerton (Members of the Council), John A. Rouse (General Manager and Secretary) and P. C. M. Smee (Minuting Secretary).

Apologies for Absence were submitted on behalf of Mr H. A. Bartlett, Mr L. N. Goldsbrough and Mr Louis Varney.

**Recorded Lecture Library**

It was reported that Mr G. S. Milne, G3UMI, had offered to take over responsibility for the Library in succession to Mr N. C. Ta'Bois, G3HWG. Mr Milne's offer was accepted.

**Visit of Mr Tom Clarkson, ZL2AZ**

It was reported that Mr Tom Clarkson, ZL2AZ, formerly Assistant Chief Engineer of the New Zealand Post Office, was visiting Europe on behalf of the New Zealand Association of Radio Transmitters and had accepted an invitation to meet the members of the Society's IARU Working Group. (Mr Clarkson also attended the RSGB International Radio Communications Exhibition and met many Society members.—EDITOR.)

**Recommendations of Committees**

The Council accepted recommendations put forward by Committees relating to awards for the Low Power Contest, 1965 (*H.F. Contests*), Third 144 Mc/s Contest (Portable) 1965, Second 70 Mc/s Contest (Open) 1965, and the First 420 Mc/s Contest, 1965 (*V.H.F. Contests*).

A proposal from the Membership and Representation Committee that a reduced subscription should be available for members of old age pension age who make application was accepted in principle and referred to the Finance and Staff Committee for detailed examination. Recommendations from the same committee relating to the geographical limits of Region 7 (to remain approximately 25 miles radius of Central London) and the appointment of four deputy Regional Representatives were also accepted.

A proposal was approved to hold a Regional Representatives' Conference in 1966—probably in Manchester in the autumn.

Recommendations relating to the introduction of a 23 cm class into the "Four Metres and Down" (*V.H.F. Committee*) and the provision of aerial equipment for use at exhibitions (*Exhibition Committee*) were also accepted.

**Membership**

The Council accepted 134 applications for membership (106 Corporate and 28 Associate) and 15 applications for transfer from Associate to Corporate grade. The subscriptions of three members were waived on the grounds of disability.

Life Membership was granted to Mr A. MacDonald, G3NPM, subject to payment of the appropriate fee.

**Affiliation**

The Council granted affiliation to:
Batley Grammar School Radio Society
Otley Radio Society
Loughborough Amateur Radio Club (change of name)

**Channel Islands QSL Bureau**

Careful consideration was given to a suggestion from a member that there should be a QSL Bureau Sub-Manager for the Channel Islands. It was agreed that the QSL Bureau Manager should write to explain why this was not considered necessary.

**Award to Members of the Contests Committees**

The Council considered whether members of the Contests Committees should be banned from participating in RSGB contests.

During the discussion it was pointed out that it is essential for members of the Contests Committees to be interested in contests and a rule of the type suggested might make members reluctant to serve on these Committees. It is the practice on all Committees that interested parties withdraw from meetings during discussions on matters with which they are concerned. The Council decided therefore to take no action on the suggestion.

**RSGB Bulletin**

The Council gave long and detailed consideration to a complaint from a member regarding errors in certain technical articles published in the RSGB BULLETIN. It was agreed that the President should speak to the member concerned and advise him that the Council had noted his criticisms.

**Reports of Committees**

The Council adopted as reports the minutes of the following Committee meetings: Mobile (30.6.65), H.F. Contests (17.6.65 and 27.7.65), Exhibition (2.7.65, 30.7.65 and 20.8.65), V.H.F. Contests (28.7.65), Membership and Representation (2.8.65), GPO Liaison and TVI (4.8.65), Finance and Staff (9.8.65) and Education (14.8.65).

**Log Books**

The production of a new RSGB log book of similar pattern to the former Webbs' Radio log book was authorized.

* * *

*The Council was in session for almost four hours*

*A Brief Report on the October, 1965 meeting of the Council*

The meeting was held on October 2, 1965, and was attended by Messrs E. W. Yeomanson (President), N. Caws, J. C. Graham, L. N. Goldsbrough, E. G. Ingram, A. O. Milne, L. E. Newnham, A. D. Patterson, R. F. Stevens, G. M. C. Stone, J. W. Swinnerton, Louis Varney (Members of the Council), John A. Rouse (General Manager and Secretary) and P. C. M. Smee (Assistant Secretary).

Apologies for absence were submitted on behalf of Messrs H. A. Bartlett, J. C. Foster, R. C. Hills, R. H. James, F. K. Parker and J. F. Shepherd.

**US Citizens Band Equipment**

The alleged use of 27 Mc/s Japanese walkie-talkie transceivers in several parts of the UK was discussed.

It was agreed to keep the matter under review in view of the possibility of interference for which amateurs might be blamed.

**" Society Affairs "**

The format and content of " Society Affairs " was discussed at length, some members expressing dissatisfaction with the presentation. During the discussion it was pointed out that it is not possible to report on some discussions because they relate to matters which involve negotiations, for example, with Government departments or are otherwise confidential for the time being. In such cases, it is the policy to report on these matters when the need for security had ended.

**Annual Accounts**

The Honorary Treasurer tabled the audited accounts for the year ended June 30, 1965. After discussion, it was *RESOLVED* to approve and adopt the Accounts to June 30, 1965, as submitted, for publication and circulation to members with the November issue of the RSGB BULLETIN.

**Recommendations of Committees**

A proposal from the Mobile Committee that equipment for use as talk-in stations at Mobile Rallies should be purchased by the Society was referred back for more detailed specifications and estimates of the cost.

Recommendations accepted related to the co-option of an additional member to the H.F. Contests Committee and the results of the 1296 Mc/s Contest (V.H.F. Contests Committee).

**Membership and Affiliation**

The Council elected 104 new members (84 Corporate, 20 Associate) and approved 10 applications for transfer from Associate to Corporate grade.

The subscriptions of two members were waived, one on the grounds of blindness, the other on the grounds of disability.

The Council granted affiliation to the E.I.L. Amateur Radio Society.

**Delegation to the Region I IARU Conference 1966**

After a lengthy discussion, it was agreed that the Society should be represented at the Region I IARU Conference in Opatija, Yugoslavia, in May, 1966, by Messrs N. Caws, L. E. Newnham, R. F. Stevens, and the Society's serving V.H.F. Manager.

**Presidential Installation, 1966**

It was agreed that the Presidential Installation should take a form similar to that for 1965. (An announcement appears in this issue.—EDITOR.)

**VERON Banquet**

It was agreed that the President should accept an invitation to attend the Dutch national society's banquet at Utrecht on October 30, 1965.

**International Amateur Radio Club**

The President reported on his visit to the very successful IARC Convention held in Geneva in September.

**International Meeting at Knokke, Belgium**

Mr Newnham reported that this had been a most successful event, which appeared likely to be held annually in future.

**Council Election**

Mr A. O. Milne, G2MI, stated that he had decided to withdraw from the election for personal reasons.

On behalf of the Council, the President expressed deep regret at Mr Milne's decision.

**Irish Radio Transmitters' Society Dinner**

It was reported that the Society's V.H.F. Manager, Mr R. C. Hills, G3HRH, had been invited to attend the IRTS Annual Dinner in Dublin as Guest of Honour.

**Reports of Committees**

The Council adopted as reports minutes of the following meetings of Committees: Mobile (11.8.65), V.H.F. (16.8.65), H.F. Contests (26.8.65), V.H.F. Contests (1.9.65) and the IARU Working Group (7.9.65).

* * *

*The Council was in session for six hours*

## Silent Keys

We record with much sorrow the passing of the following amateurs:

W. L. Watts, EI3P, of Dun Laoghaire, Eire.
E. A. Lever, G2CVD, of Twickenham, Middlesex.
A. Parsons, GW4FW, of Cardiff.
Wing Cmdr. W. Jennings, G6AW, of Herne Bay, Kent.
C. Reynolds, G6GX, of Oldham, Lancs.
J. T. Baker, BRS22046, of Birmingham.

## Obituaries

### Archie Parsons, GW4FW

On October 21, 1965, the death occurred of Archie Parsons, GW4FW, at the age of 72. With his death, the Welsh radio scene lost one of its outstanding characters, a man who, in his time, had been active on all bands up to 2m. Licensed in 1937, he took a lively interest in any and every aspect of Amateur Radio, and his voice will be missed on the bands by many old and sincere friends.

His funeral on October 25, 1965 was attended by eighteen amateurs, including the Zonal and Regional Representatives.

C. H. P.

### John P. Ryrie, G3GGZ

The deep sorrow with which we report the sudden death of John P. Ryrie will be shared by many, amateur and professional alike, throughout the world of radio.

John's connection with radio began before the war as a seagoing Radio Officer, in which capacity he served with distinction throughout the period of hostilities. He came ashore soon after the end of the war and was first licensed with the GM prefix of his native land, working from a QTH in Glasgow where the erection of aerials called for much ingenuity and a good head for heights. In 1955 he moved to England where he held a senior position with a large electronics and telecommunications company.

Professionally he concerned himself at various times with the entire spectrum from v.l.f. to millimetric, but as an amateur he preferred the h.f. bands, to which he brought a high standard of operating skill inherited from the marine wireless service. By his friends and fellow hams he will be remembered as one ever ready to lend generous assistance and possessed of an infectious sense of humour, which could be relied upon to produce an appropriately witty comment upon even the most adverse situation.

He is survived by his widow and four children, to whom we offer our heartfelt sympathy.

G3HZO

# Letters to the Editor

*Neither the Editor nor the Council of the Radio Society of Great Britain can accept responsibility for views expressed by correspondents. Letters for inclusion in this feature should be concise and preferably not more than 200 words in length.*

### 10 Watt Transistor Transmitters for 1·8 to 2 Mc/s

The article entitled " 10 Watt Transistor Transmitters for 1·8 to 2 Mc/s " appearing in the October issue of the BULLETIN is interesting and is worthy of credit for stimulating progress in the use of semiconductors at power levels applicable to transmitters. It is however not worthy of much else and indeed is most depressing in its gross inaccuracies and mis-statements.

The authors seem to have got terribly confused over the operation of a transistor as a p.a. and talk of it as some strange device or " switch " that turns power on or off in a manner which a valve does not. This is of course rubbish and a valve p.a. allows pulses of current to flow into the load in just the same way as a transistor does. A little fundamental consideration of operating angles, of class A, B, and C amplifiers will help here and its all in the text books.

Still more confusion exists about " voltage " on the collector. It is no good saying that pulses of voltage exist on the collector and a sine wave appears across the tuned circuit. It is the current through the generator (transistor or valve or switch or what have you) that flows in pulses and the current through the elements of the tuned circuit (if of adequate *Q*) is sustained by the energy stored and continues even when the pulse from the generator has ceased and results in a sinusoidal voltage across the tuned circuit and hence from collector to ground or across the output terminals.

As for d.c. meters and power input, there is no doubt at all that the d.c. input power is the product of the current in amps and the potential in volts as read on d.c. (moving coil) meters and that's that. Of course the meters do not respond to peak amplitudes of an irregular wave—they respond to the mean value and for that matter the decoupling capacitor smooths the pulses out that occur at two million times a second. There is also no doubt that you do not get more r.f. out than you put d.c. in. I think a basic understanding of these fundamentals will serve to smooth out the other irregularities (excuse the pun) that litter this unfortunate article.

In conclusion the circuit at Fig. 7 could never work; let us assume that a draughtsman's error is responsible for the lack of feed-back.

B. HACKNEY, G6YP

Orpington, Kent.

### Why Mobile on Grandad's Band?

The author of the October " Current Comment," " Why Mobile on Grandad's Band?" has missed the point. Top Band activity in the mobile world has grown in popularity from year to year for the very good reason that people enjoy working a mobile radio station and getting a QSO. The underlying principle is that 160m is worked for pleasure and this comes from population of the band, the fact that the equipment is simple to build and gives results for local working which are unlikely to be bettered by any other h.f. band. Tests conducted on 28 Mc/s some years ago indicate that by far the most satisfactory h.f. band for mobile use was indeed 160m; signal strengths were better and polarization problems did not arise.

Perhaps it has not occurred to G.R.J. that the mobile radio amateur is not too interested in the rubber stamp type QSO's so often handed out on the DX bands today. In my view he prefers to operate in the less competitive spirit of Grandad's Band.

F. K. PARKER, G3FUR
*Chairman, RSGB Mobile Committee.*

I do not know who G.R.J. is and why he should have been asked to write " Current Comment," because he is obviously misinformed about mobile working. One of the basic rules before rushing into print is know your facts and until you are prepared to observe this the " BULL " will continue to receive severe criticism.

I don't know what such experienced mobileers as G5CP will say after reading it, but from personal experience, since mobile permission was granted, I can say without fear of contradiction that 160m is the best *mobile* band.

It is obvious that G.R.J. has not been through heavy traffic, or even much lighter traffic and tried to work 10m mobile or he would know the answer to why 10m is no good for mobile compared with 160. You can hear car engine ignition from half a mile away, and various QRN from hundreds of unknown sources make listening a great trial.

If G.R.J. is talking about mobile/portable then any band is better than 160. I have worked five continents and many DX stations from the car, on all bands, but in most cases I have stopped the car to complete DX contacts.

It is possible to be within a couple of miles of a station when working h.f. or v.h.f. mobile and not get a contact simply because the other chap has his beam end on to you. This would not happen on 160, and in spite of various comments about the inefficiency of a loaded whip it is still far better than a random length of untuned wire dangling from the shack.

I could go on and on about the benefits of 160 mobile compared with other bands but when one reads such expressions as " Grandads Band " it is obviously a waste of time.

JOHN SPIVEY, G2HFV

Dewsbury, Yorks.

### Contest Operating

As G5YN pointed out in the September issue of this journal " a study of the correspondence columns would tend to suggest that there was a growing discontent at the way in which the increasing number of contests are cluttering up the h.f. bands." I do not think, however, that this evidence alone is sufficient to support a view that the number of amateurs interested in contests is in the minority, taking a world wide view of Amateur Radio. As far as this country is concerned I might be persuaded that this is so, though the oft quoted comment I have heard for not taking part in contests is that of causing TVI, which, today, is surely a detrimental admission on the part of any amateur, " ham " though he may be called! Since nobody recently has supported the contest view I thought it time somebody put forward the view of the " minority."

Whilst not being an avid contest operator by any standards, I take part in one contest a year, the ARRL DX contest, which takes up two weekends of 48 hours for the phone section and another two weekends of 48 hours for the c.w. section. As a British station it is an easy contest in which to participate, since one has to work N. American stations only and therefore there is no kudos or prize to be obtained, so, I think, dismissing any suggestion that to take part is a form of one-upmanship.

I usually share my station with two other operators for the contest, one operator commonly interested in DX, the other a complete novice, and myself, a fellow normally interested in construction and nattering to those interested in like matters. The ARRL contest is then our only common ground and we use this to enjoy ourselves socially with other amateurs for two weekends in the year. To do this requires considerable effort in preparation, and in case any of your readers should think that one just switches on and talks non-stop for 96 hours let me enlighten them.

The prime requirement is, of course, efficient aerial systems for the part of the world one requires to work. This involves many hours of preparation, comparing new aerials with a sympathetic local station used as a reference level when testing with DX stations.

The transmitter/receiver set-up is definitely quite unsuitable and so one must develop a suitable transceiver as one cannot buy such a device. This must be something considerably better than a bread-board affair to stick 96 hours of continuous operation. The peculiar facilities required for contest operation are the ability to operate over a very wide frequency differential, to be able to monitor the transmitter channel and to be able to scan the other bands without having to reset the frequency in the band which is in current use, minimum tune-up requirements and rapid aerial changes.

Regular schedules on all bands with other stations must be arranged prior to the contest so as to draw up a schedule and to familiarise oneself with the operating habits of the different bands. An operating time-table for the operators must be arranged to fit in with the domestic routine and band conditions. It is almost essential to operate non-stop. To do this requires, for example, two microphones so that the succeeding operator may take over from the retiring operator without breaking the

continuity of operation. The working and procedures must be carefully worked out if the maximum number of QSOs are to be obtained during peak periods, e.g., 1 a.m. to 6 p.m., normally one QSO per 25 secs. During the contest there must be an almost continual watch on the other bands for signs of activity and occasional checks on 10m with known DX stations to check the path. Decisions have to be made as to whether to continue working on one band or to take the plunge and change bands in the hope of working multipliers. The most difficult and frustrating time is on 40m in the late evenings, early mornings, trying to sort out perhaps a dozen stations all calling at the same time in the space of 5 kc/s between two S9 + + + commercial stations, who are just audible but give one reports of S9 +40. After 30 minutes of this one's imagination plays tricks in that one hears somebody calling down in the noise wherever one tunes (one operator confessed to hearing stations calling him while driving home late one evening, later realising it must have been the noise of the wet road and rain on the windscreen producing a similar effect to that experienced on the l.f. band).

After the contest the real work begins and this is where the XYL really shows her endurance of our hobby by helping in the interminable job of cross checking and compiling the log of over 1600 contacts, which usually takes two weeks of evenings to complete. If this were not enough, and just when one has plucked up the courage to enter the shack again, the QSL cards start to come in, literally in their hundreds with the inevitable stations hoping that a check on the log won't be made, claiming a contact that in fact never was.

The excitement and interest inherent in preparing for and participating in such a weekend must surely deepen the amateur's enthusiasm and knowledge of his hobby and such occasions must necessarily add greatly to the hobby. Let it not be overlooked that, as in so many other fields, it is usually the competitive spirit of the few who bring to the masses the advantages and advances so developed with more than the usual speed.

I hope this letter may help keep the balance to remind your readers that the correspondence column does not necessarily reflect any trend, particularly with respect to contests, since contest operators are basically men of action, not of the written word.

I do not consider G5YN's proposal workable. I can see at least one obvious snag, which is that unless it can be made to work on a world wide scale (which, of course, it cannot) it could produce greater band occupancy than there is at the present time, by encouraging split frequency operation, particularly on 14 Mc/s. I personally do not find contests any embarrassment at all. One does not have to join in if not inclined and if one cannot obtain contacts of the kind normally enjoyed then it is either because the people with whom one has these contacts are taking part in the contest or one or other of these stations has a comparatively inefficient station as compared with those operating in the contest. It would appear from listening to the h.f. bands that the more efficient stations operate for a much shorter period of time than do most, except during contest times. I think, therefore, the amount of time spent on the bands is probably equally divided between those of all feelings.

J. BAYS, G3KFX

Bentley, Ipswich,
Suffolk.

## His Other Love

On returning from our honeymoon several years ago I discovered that I had married a sort of Bluebeard. Hidden in the attic and kept secret until then was a secret love (" hobby " he calls it) which takes up all his spare time and money and with which, for better or worse, I am stuck for life!

Since I first learned of her existence I have tried to come to terms with this voluble siren. I made friendly overtures, but she could not be touched without showering sparks at me and if I tried to talk a pair of earphones were produced excluding me from all secrets. When, in mild protest, I flicked the mains switch at the fusebox I suffered such a storm of protest I decided upon peaceful co-existence.

We lived for a while in two worlds, my rival in the attic whilst I had the rest of the house, but soon, aware of her favoured position, she began to wander into my domain. Little boxes of mysterious shapes were left about to catch the male eye just as I was about to serve a meal, and when I wanted to make brilliant conversation a book of magical signs would spring into my husband's hands. Soon wires were trailed all over the house to trip me up and even the privacy of my bedroom was invaded. Now it was war!

In an effort to attract some of the stolen attention back to myself I started to produce junior ops, but this was only a short-term victory as not to be outdone the ever-attractive chassis started producing miniature replicas of herself which required far more father-care than my four children. The house could not contain us, it was full to overflowing and as neither love would withdraw we had to move!

We had to choose a house with a " reasonable " location for our calculating fiend and though my nameless home needs all sorts of repairs, etc., her special room has been fitted out with great care and proudly called " The Radio Room! " Still she is not content. Her belongings race over my tidy house, she flashes her wicked green eyes just as we are about to go out to dinner and even my most glamorous gown is no match for her sultry dulcet tones. She is my husband's magnificent obsession and even my car is her devoted slave proudly carrying her fantastic banner on the bumper and displaying her winking dials on the dashboard.

Now, dear sir, in desperation I cry for help, for I have just discovered that my son, too, has a secret love in the attic. I realise that now I must admit defeat for in signing my own protest I must use my rival's own language.

RENE JOLLEY,
XYL of G3HLC

Leek, Staffs.

## C.W. and the Two Metre Band Plan

May I most heartily endorse the suggestion by Mr I. Paul, G3CYY, that a section of the 2m band be set aside for c.w. operation.

I have spent hours sending slow CQ calls on c.w. with almost no success except when the band has been well open, and then, of course, one often yields to the temptation to use phone.

During the life of *Oscar III*, regardless of normal tropospheric conditions, many c.w. signals at distances over 200 miles could be heard in the transmit section near the l.f. edge of the band.

I would suggest that we remain consistent with the other bands and use the *bottom* 100 kc/s for c.w. activity. Many stations do in fact have crystals at the l.f. end used in connection with the *Oscar* satellite referred to.

In order that this suggestion does not lie dormant I would like to request that 2m stations interested in doing something positive to create more c.w. operation drop me a postcard giving their call-sign. I will then be pleased to inform the BULLETIN of what support this move is obtaining.

I feel sure that many G-DX stations would be as anxious to have the chance to work Yorkshire as we here would wish to work them.

MIKE WHITAKER, G3IGW

Rose-Dene, Wood Lane,
Hipperholme, Halifax.

(The V.H.F. Committee is currently considering the British Isles Two Metre Band Plan in the light of the replies to the questionnaire available at the RSGB International Communications Exhibition.—EDITOR.)

## GB2RS SCHEDULE

RSGB News Bulletins are transmitted on Sundays in accordance with the following schedule:

| Frequency | Time | Location of Station |
|---|---|---|
| 3600 kc/s | 9.30 a.m. | South East England |
| | 10 a.m. | Severn Area |
| | 10.15 a.m. | Belfast |
| | 10.30 a.m. | North Midlands |
| | 11 a.m. | North West England |
| | 11.30 a.m. | South West Scotland |
| | 12 noon | North East Scotland |
| 145·10 Mc/s | 9.30 a.m. | Beaming north from London |
| | 10.00 a.m. | Beaming west from London |
| 145·8 Mc/s | 10.15 a.m. | Beaming south from Belfast |
| 145·30 Mc/s | 10.30 a.m. | Beaming north west from Sutton Coldfield |
| | 11.00 a.m. | Beaming south west from Sutton Coldfield |
| 145·50 Mc/s | 11.30 a.m. | Beaming north from Leeds |
| | 12 noon | Beaming east from Leeds |

News items for inclusion in the bulletins should reach Headquarters not later than first post on the Thursday preceding transmission. Reports from affiliated societies and from non-affiliated societies in process of formation will be welcome.

# NFD '65

| | | |
|---|---|---|
| NFD Shield | Cardiff Group (GW5BI/P and GW4FW/P) | 2156 points |
| Gravesend Trophy | Oxford & District Amateur Radio Society (G2DU/P and G8PX/P) | 2094 points |
| Scottish NFD Trophy | Ayrshire Group (GM5KF/P and GM4QK/P) | 1643 points |
| Bristol Trophy | Maidstone YMCA (G3TRF/P) | 1167 points |
| Leading 1·8 Mc/s Station | Blackwood Amateur Radio Society (GW8GW/P) | 503 points |
| Leading 3·5 Mc/s Station | Chelmsford Group (G4VF/P) | 542 points |
| Leading 7 Mc/s Station | Maidstone YMCA (G3TRF/P) | 535 points |
| Leading 14 Mc/s Station | Exeter Group (G3ID/P) | 677 points |
| Leading 21 Mc/s Station | Belfast and District Group (GI2KR/P) | 277 points |
| Leading 28 Mc/s Station | Gravesend RSGB Group (G3SXZ/P) | 105 points |

Overseas Station contributing most points to competitors ... Famagusta (Cyprus) Group ZC4CZ/P

IN a year when the weather has provided more than enough cause for complaint it is good to be able to say that the second weekend in June proved to be satisfactory both weather-wise and contact-wise to Field Day enthusiasts. Usually, NFD is held during the first weekend in June but fortunately Whitsun was late this year and the change of dates enabled fair weather and Field Day to coincide.

Congratulations to the Cardiff Group (GW5BI and GW4FW) who, with a total of 2156 points, are the 1965 winners of the NFD Shield. This group entered only a single station in 1964 and were then in fifth position in that section. Oxford and District Amateur Radio Society (G2DU and G8PX) are runners-up again this year and will receive the Gravesend Trophy for the second year in succession.

In third place is the Croydon Group (G3BFP and G6LX) whose hard work has brought them up from sixth place in 1964. In fourth place in the two-station section is Cannock Chase Amateur Radio Society, another society which entered a single station last year (and were twenty-second in that section) but who put a really first-class two station effort this year.

The leading GI entry, Belfast and District Group, finished in fifth place—a drop of two places from last year.

The Bristol Trophy, for the leading single station entry, is awarded this year to Maidstone YMCA (G3TRF) who did not enter at all last year and who must therefore receive additional praise for this effort. Runners-up in this section are KW Radio Club who were winners of the NFD Shield in 1964. Stourbridge and District Radio Society finish third—one place below last year's position.

In the two station section there were 69 entrants compared with 72 in 1964 and in the single station section there were 75 entrants compared with 60 in 1964—an overall increase of 12 entries.

### 1·8 Mc/s

Scores were generally up on last year. The highest claimed score was from GW3RSR who made an all-out effort to gain the band award—only ten points on the other bands. Unfortunately a breach of Rule 19—a most important rule—prevents this entry being placed first and the 1·8 Mc/s band award goes to another Welsh station, Blackwood Amateur Radio Society, GW6GW, who have 503 points on this band. Only three points behind them is the Ayrshire Group who were leaders last year. It is significant that four Welsh stations are in the first five places on 1·8 Mc/s—maybe the bonus points do give them an advantage!

### 3·5 Mc/s

Chelmsford Group B station (G4VF) had a very clear lead over Cardiff and Oxford whose scores are identical on this band. Chelmsford seem to have spent very little time on their other bands (14 and 21 Mc/s), making a real and successful effort on this band.

### 7 Mc/s

The 7 Mc/s band brought higher scores than last year and it seems that in spite of the QRM, ever present on this band, some good scoring rates were achieved. Leaders were Maidstone YMCA (G3TRF) who with their single station entry also won the Bristol Trophy. Their score of 535 points gives them a clear lead over those veterans of NFD—Oxford and District who were 35 points behind and the only other Group to make more than 500 points on this band.

### 14 Mc/s

The Exeter Group really did well on this band as they spent 16 of the 24 hours knocking up the fine score of 677 points from 222 contacts to become band leaders for 1965. All their equipment was home constructed and in common with most of the high scorers on this band they used a cubical quad aerial system. Belfast and District who always do well on 14 Mc/s (leaders in 1964) had to be content with second place with 596 points from 192 contacts, 81 points behind, and fairly closely followed by Wirral Amateur Radio Society.

Although a number of entrants commented unfavourably on DX conditions, examination of the logs showed that inter-European and medium distance contacts were made during most of the 24 hours. As to be expected with long periods of short-skip, the European portables provided entrants with the greatest number of points. The Cyprus portables and several fixed North African stations were contacted by most of the UK portables and the Bermuda, Malaysian and Malta portables also provided useful points.

There was a short opening to Africa early on, followed by similar short openings to the Far East and Australia via the short-path. From 22.00 to 02.00, contacts with North America were fast and furious and all W and most VE districts were worked. The band was quiet between 02.00 and 04.30, but opened up again for North America with many W6-7 and VE7 contacts logged at 599. A few KH6, KL7, VK and ZL contacts were made before the band reverted to short-skip and the long drag of Sunday morning one and two point contacts.

There were several brief openings to the west during the

G3TRF/P, the Maidstone YMCA station, which won the Bristol Trophy, in the hands of G3ORH. The receiver is an HQ170A, with a Codar " Q " Multiplier.

*(Photo by G3ORP)*

afternoon but, in the main, Europeans and North Africans again were the providers of points. Several stations commented on the lack of contacts between UK portables on this band. There were certainly fewer QSO's than in previous years but it has been suggested that this may have been due to the strong short-skip covering up the weaker UK signals.

### 21 Mc/s

Conditions on 21 Mc/s were not good at all but a great fight for band leadership developed between Belfast and District Group (GI3JXS) who beat Oxford and District (G8PX) by the narrowest margin—one point! In third and fourth places on this band were Cardiff and Pontypool—maybe a non-G prefix has some advantage on this band!

The band leaders only worked one British station—a GM and only two stations outside of Europe, CR6 and JA, out of a total of 79 contacts. Oxford on the other hand worked a much more varied selection with 73 contacts.

The most popular aerial system on this band is the cubical quad—used by the first three stations although nearly every type of aerial was used by someone.

### 28 Mc/s

The band leaders, Gravesend RSGB Group (G3SXZ), spent only two hours on this band but still managed to clock-up 30 contacts for 105 points. Using a 21 Mc/s cubical quad they contacted most of the Commonwealth and DX stations that were on. As with other stations in the south-east they

Members of the Cyprus Amateur Radio Society Famagusta Group. Standing: ZC4LK, ZC4CI (G3TIY), ZC4CZ (GM3LWS), 5B4NG. Kneeling: 5B4CA (G3CAA), 5B4KG (GM3KGT), ZC4GF (G3AGF).

*(Photo by E. H. Ross)*

The Manchester and District Amateur Radio Society encountered the curse of the generator that refuses to work. Left to right: a Salford Boy Scout, G3OAG, s.w.l. Campbell, s.w.l. Hunt and G3TJX.

*(Photo by G3IJA)*

G3CBU operating the Basingstoke A station, G3TCR/P, with s.w.l. Roger Hartley logging.

Five minutes before the East Worcestershire Group is due to start, and an aerial changeover relay contact sticks. G3FKM, D. Parker, G3HCT, G3KWK, R. Bennett, G3EVT, G3RZI, G3TBW, G3GHB and T. Reeves all lend a hand.

*(Photo by G3HZG)*

**Three operators at G8AB/P, the Loughton and District Radio Society's station, enjoying possibly the most pleasurable part of NFD. Left to right: G3OPA, who handled D and OE contacts, Ivanitch, G3JBS, in contact with a U prefix, and G3TUM, preparing to work the G portables.**

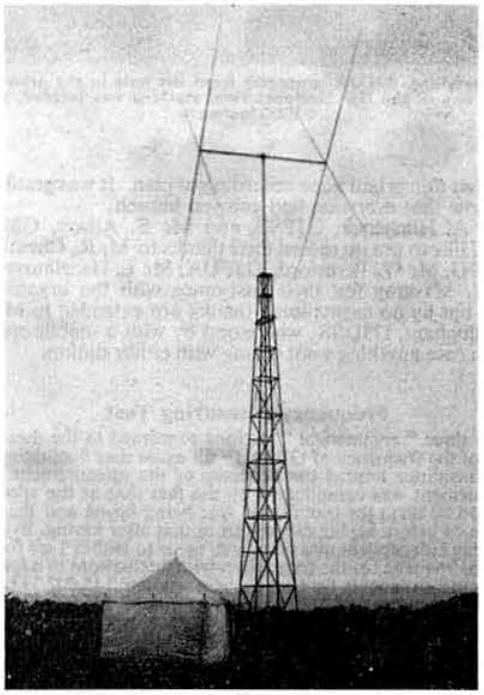
*(Photo by G8AB)*

were able to make ground-wave QSO's with other G portables which helped their score along.

The overall NFD runners-up, Oxford and District (G8PX) were also the second highest scorers on this band with 74 points.

It is interesting to note that the Gravesend Group were the only single station entry on this band which showed activity during the slow-scoring Sunday morning shift between 08.00 and 13.00. Although only 28 entrants sent in logs several others reported that they had spent time on the band but had not found any stations to work.

Most of those who found signals on the band collected points from one or more of the ZC4/P and Malta stations



**The 32 ft. tower bearing a 20 + 10m cubical quad belonging to the Guildford Amateur Radio Society's B station.**

*(Photo by G3OLM)*

that were active. The special Malaysian expedition station 9J6AA/P also provided some points as did 9J2DT, 7X2AH and ET3VR. Other activity was confined to inter-G and European fixed and portable working.

Most Groups used some form of beam aerial and, as to be expected, the cubical quad was well to the fore. The ease with which a 10m loop can be fitted inside a 15 or 20m quad without affecting operation on the other bands was remarked on by several entrants.

### Equipment

No startling changes were observed as far as transmitters were concerned and the 807 still seems to be the most popular p.a. valve amongst the nig.i-scoring stations alt.ioug.i 6146's in commercial gear were also in evidence. Also used were 5763's and TT11's. Input to the p.a. never seems to vary from 300 volts at 33 mA or 250 volts at 40 mA! Receivers again were much as before ranging from a small number of home-built ones to a large number of very expensive and not too portable commercial ones. Transistors were used in receivers this year rather more than in the past which is perhaps only a sign of the times.

Power supplies, as ever, ranged from batteries—getting fewer each year—to the increasingly popular petrol-electric generators producing 250V a.c. at from 1 to 4 kW.

Aerials ranged from dipoles—the most popular—to ground planes and, for the nig.ier frequency bands, the rotary quads and " ZL specials."

One problem with equipment—that of making sure that operators are familiar with the controls—was solved in a very simple manner by Basingstoke. They used identically laid out transmitters at both stations and 888A receivers in both positions. Both transmitters were of the heterodyne (c.o.-v.f.o.-mixer) type.

Comment by Reigate: " Our 20m ZL Special made out of bamboo canes, string and wire looked quite a sight at 35 ft. and our visitors were greatly impressed that we had the courage to erect such a monster."

### Comments

" Weather organization much appreciated " (*Harrow*). " Thoroughly enjoyed " (*Ariel*). " No complaints on operating except for the apparent deliberate jamming by a couple of DL's—The Famagusta Group enter with the sole object of being the overseas station to give most points to UK portables," (*ZC4CZ*). And they did! " Being a new club we gained a lot of experience this time " (*Moray Firth*). " Weather much improved over last year but could be better " (*Reigate*). " Generator which was performing well up to the starting time seized solid . . . generator now in river " (*Gravesend Group*). " We had no trouble with the p.e. set—we haven't got one!" (*Yarmouth*). " Object to bonus system on 160m—Committee should reconsider the matter for next year " (*Reigate*). " Do not agree with bonus points on Top Band " (*Edgware*). " Conditions on 3·5 and 7 Mc/s to the continent were wonderful " (*Yarmouth*). " P.a. valves should be limited to those having a maximum anode dissipation of 5 watts " (*Grimsby*). " Most successful NFD to date " (*Basingstoke*).

### Comments by the Committee

A number of entrants will be disappointed to see that they have not been given a placing in the results table* although their unchecked claimed scores are shown. In the reports on NFD for 1963 and 1964, the Contests Committee stressed the requirement for entrants to show operator's call-signs against their contacts in the logs. This information is needed in addition to the names on the cover sheets as otherwise

* See pages 664, 665 RSGB BULLETIN, October 1965.

(*Continued on page 826*)

# CONTEST NEWS

RESULTS — REPORTS — RULES

## D/F National Final, 1965

On a glorious day, which in itself was an occasion, the 14 teams of finalists assembled at Alport Height which commands a breathtaking view over the Derbyshire countryside. This put everyone in a good mood before the hunt was under way.

The two hidden transmitters had previously been rigged up by the organizers and their assistants, but it was found on the Saturday prior to the contest that the storms in the area had dislodged the aerial at the " A " station and the ground was so badly waterlogged that it was considered unsafe for the contestants. At the last minute a new site was chosen on a disused railway embankment (NGR 175517). The two routes to the station were either from the A6, or alternatively from Tissington village, the latter approach meaning the possible fording of Bradbourne Brook, which spelt the failure of some competitors' car ignition systems.

The first team to arrive was Mr Mahoney at 14.50. He slipped in and out so quietly that the operator wondered if he was real or a figment of the imagination. By contrast, at 14.55 as Mr Mollart was signing in, from below the station Mr Butson decided the easiest way in was to jump backwards into the brambles under which the station was hidden. The operator feared they would be put off the air by the rapidly descending competitors. The first team to sign in after locating the " B " station was Mr Hawkins although he had already passed within 4 ft. of the transmitter five minutes before.

The " B " station (NGR 366619), approximately 8 miles NE of the start, was hidden under a huge rock and the organizers were lucky in finding a gap approximately 1 ft. wide into which G3FUA was persuaded to crawl. The gear was eventually set up at a depth of 8 ft., the aerial being fed through a fissure in the rock via a plastic tube.

The eventual winner, Mr Hawkins, found no difficulty in locating this, going straight into the hole, but conversely Mr Grant took nearly an hour before signing in. Other competitors also took a considerable time before signing in, apparently emulating badgers in the process! Mr Mahoney could not decide whether the hole was a dummy or not so proceeded to drop boulders into it, terrifying the operators in the process.

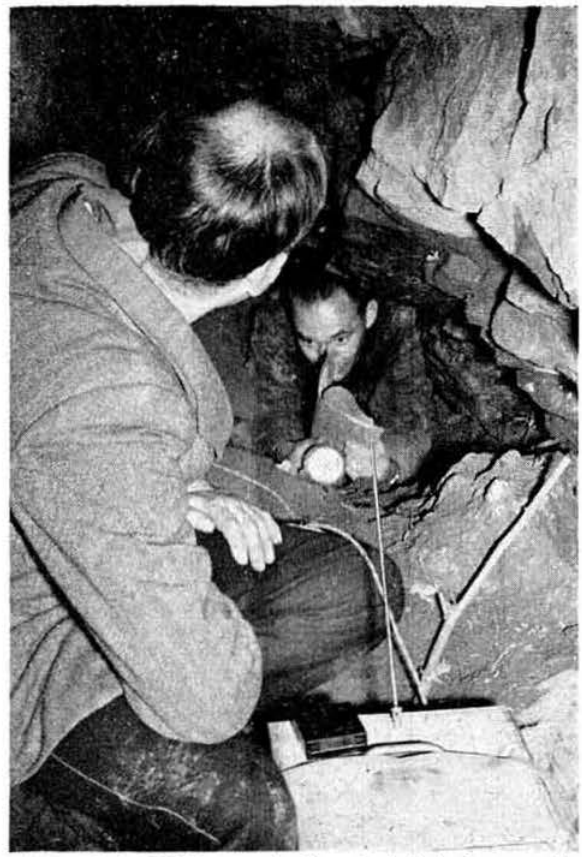
The organizers had hoped that approximately three teams would locate both stations and in fact four teams did as listed here.

1 M. Hawkins
2 B. J. Mahoney
3 E. Mollart
4 E. Bristow

At the ensuing tea rendezvous, at which 66 people attended, prizes donated by Derby and District Amateur Radio Society were presented by the Honorary Secretary, Mr Fred Ward, G2CVV to the winning team. The team also received framed momentos of the occasion from the organizers.

The umpire for the event was the welcome figure of Geoff Peck, who had been honoured with an invitation to undertake the task by the RSGB. Also present was the equally welcome Doug Findlay of the Contests Committee just to keep a fatherly eye on the proceedings!

The organizers felt satisfied with the afternoon's activity and that things had gone according to plan. It was gratifying to know that everyone had enjoyed himself.



**Bill Beresford, G3FUA, emerging from the hole in the ground in which one of the D/F National Final stations was located, while G3IZC looks on.**

Mr A. Hitchcock, G3ESB, and Mr F. Allsop, G3IFA, would like to put on record their thanks to Mr R. Chambers, G3RTG, Mr W. Beresford, G3FUA, Mr L. Hazelhurst and Mr E. Maskrey for their assistance with the organizing. Also, but by no means least, thanks are extended to Mr N. Whittingham, G3DSR, who stood by with a mobile station just in case anything went wrong with either station.

## Frequency Measuring Test

The three " commercial " stations concerned in the measurement of the frequency of GB3VHF all agree that fluctuations at the transmitter limited the accuracy of the measurement. The measurement was complicated by the fact that at the specified time (16.00 BST) the transmitter was being keyed and that the frequency before keying differed from that after keying. Even so the three independent measurements agree to within 1 c/s for the average frequency of the transmitter with fluctuations of a few c/s.

The measurements by G4LU, who quoted 145,002,333·5 c/s for the frequency and by G3JKV who quoted 145,002,335·8 c/s (with uncertainties of ± 1·5 and ± 1 c/s respectively), are well within the known variations of the transmitter and are accepted as equivalent to the professional measurements and beyond criticism.

Both these entrants used substantially the same method of measurement, namely, to beat a harmonic of a 100 kc/s source with the incoming signal and to compare the output frequency

## RESULTS

| | Station | Frequency above nominal (c/s) | Error (c/s) | Claimed accuracy (c/s) |
|---|---|---|---|---|
| * | BBC Tatsfield | 2335 ± 5 | — | ± 1 |
| * | G3PYE | 2334 ± 2 | — | ± 0·7 |
| * | G5FK | 2334 + 4 — 1 | — | ± 1 |
| 1 | G4LU | 2333·5 ± 1·5 | — | not claimed |
| 1 | G3JKV | 2335·8 ± 1 | — | not claimed |
| 3 | G3HWR | 2370 | + 36 | ± 700 |
| 4 | G3CCM | 2436 | + 102 | ± 540 |
| 5 | BRS526783 | 4300 | + 1966 | not claimed |

* Check logs—non entrants
Observed fluctuations of transmitted frequency
Also G5FK quoted the keying frequency shift as 658 kc/s and G3CCM quoted as 660 c/s.

(approximately 2334 c/s) with an accurate h.f. oscillator. In the case of G4LU the 100 kc/s source is derived by means of a multivibrator from a 1 Mc/s crystal which is " phase-locked " to MSF at 5 Mc/s. Similarly G3JKV derived his source by a multivibrator from a 5 Mc/s crystal oscillator which was sufficiently stable to " stand on its own feet."

The inaccuracies in these measurements lie mainly in the a.f. oscillator which can be calibrated at leisure.

Third in the contest came G3HWR with an error of 36 c/s though his claimed accuracy is ± 700 c/s. His method is to measure the first i.f. from the converter (in this case apparently 4·502370 Mc/s) with a BC221. The first oscillator which is crystal controlled was checked by tapping off from the multiplier chain and receiving the BBC Channel 1 sound transmitter on 41·5 Mc/s on a second converter; a measurement of the i.f. obtained from this converter gives a figure for the frequency of the local crystal oscillator. In his case accuracy was largely limited by backlash in the BC221 dial equivalent to about 500 c/s on 2m. G3HWR remarks that the frequencies of the v.h.f. broadcast stations (TV and f.m.) are maintained to a high degree of accuracy and provide useful standards in this part of the spectrum.

All entrants are to be congratulated on the accuracy of measurement; even an error of 2 kc/s (i.e. 2 parts in $10^5$ is much better than many stations can quote, for errors in quoted frequency of a part in $10^4$ are regrettably common on the 2m band).

G3HWR and G3CCM will presumably be examining their apparatus to see whether the conservative estimates of their errors were justified, while G4LU and G3JKV will be rearranging the pictures on the walls of their shacks to make room for well earned certificates of merit.

### V.H.F. Listeners' Championship

After the first six months of the championship the situation was as shown in the table. Although R. A. Ham, BRS15744, is leading, the rule that the six best only will count means that other contestants can still catch him in the overall score. Good conditions in the later contests can completely change the picture. No listener logs were received for the 1296 Mc/s Contest.

| Name | 144 Mc/s (1) | 70 Mc/s (1) | 144 Mc/s (2) | 70 Mc/s (2) | 144 Mc/s (3) | 432 Mc/s | 1296 Mc/s |
|---|---|---|---|---|---|---|---|
| A. A. Goagher, A3942 | 305 | | 795 | | 615 | | |
| M. Harrison, 24733 | 1170 | | 945 | | 1235 | | |
| R. A. Ham, BRS15744 | | 655 | 2325 | 1740 | 1400 | 3540 | |
| A.W.Blandford,BRS18572 | | | 1780 | | | | |
| A. R. Poulter, A4048 | | | 1710 | 1045 | | | |
| M. Vincent, A3470 | | | 1650 | | 1285 | | |
| G. W. Rolland, A3766 | | | 1590 | | | | |
| G. Swan, A3696 | | | 1500 | | | | |
| D. J. Barlow, A3768 | | | 1140 | | 735 | | |
| J. T. Eden, A3604 | | | 1130 | | | | |
| J. K. McHugh, BRS26476 | | | 1110 | | | | |
| D. J. Reid, A3993 | | | 555 | | | | |
| D. J. Butler, A4242 | | | | 310 | | | |
| M. Shaw, A3973 | | | | 1595 | | | |

### First 144 Mc/s Contest (C.W.) 1966

This contest is now the only v.h.f. one in the RSGB Calendar scored on a " points per contact " basis. Comments on this will be welcomed.

1. When: 10.00 GMT to 22.00 GMT on Sunday, January 30, 1966.
2. Sections: (a) High Power (up to 150 watts input to the p.a. stage); (b) Low Power (up to 30 watts input to the p.a. stage).
3. The General Rules relating to RSGB Contests, published in the January 1965 issue of the RSGB BULLETIN, will apply except as superseded by the rules of this Contest.
4. **Eligible Entrants:** All fully paid-up members of the RSGB resident in Region 1.
5. **Contacts:** May be made on A1 only.
6. **Scoring:** For each completed contact with a station in the operator's own **county** or in an adjacent **county** 10 points may be claimed. For each completed contact with a station in any other **county** in the operator's own **country** 20 points may be claimed. For each completed contact with a station outside the operator's own **country** 30 points may be claimed. In addition 20 bonus points may be claimed for each British Isles county worked.
7. **Contest Exchanges:** RST reports followed by the contact number, and county (e.g. RST559001, Cornwall, or RST579002, London). The full name or the abbreviation given on page 50 of the January, 1965 RSGB BULLETIN must be used to designate the county.
8. **Logs:** (a) Must be tabulated in columns headed (in this order) " Date/Time (GMT)," " Call-sign of Station Contacted," " My report on His Signals and Serial Number Sent," " His report on My Signals and Serial Number Received," " County," " Bonus Points," " Points Claimed."
(b) The cover sheet must be made out in accordance with RSGB Contests Rule 4 and the declaration signed. The address of the station must include the county.
(c) Entries must be postmarked not later than Monday, February 14, 1966.
9. **Awards:** At the discretion of the Council of the RSGB, certificates of merit will be awarded to the leading station and runner-up in each section.

### First 70 Mc/s Contest (Open) 1966

The rules for this popular event are unchanged, except that QRA locators may be used if desired. Check logs from listeners are invited and may be credited towards the V.H.F. Listeners' Championship. Any comments on the rules will be welcome and will be considered when the rules for the next similar contest are made.

1. **When:** 10.00 GMT to 20.00 GMT on Sunday, February 13, 1966.
2. The General rules of RSGB contests as published in the January 1966 issue of the RSGB BULLETIN will apply except as superseded by the rules of this contest.
3. **Sections:** (A) Single Operator fixed stations. (B) Other stations.
4. **Contacts** may be made on any mode permitted in the Amateur (Sound) Licence A, except A2 (m.c.w.).
5. **Scoring** will be on the basis of one point per mile.
6. **Contest Exchanges:** RST or RS reports followed by the contact number and location (e.g. RST 599001, 4 north Macclesfield, Cheshire). This location must be accurately identified on the Ordnance Survey " Ten-mile " map. Alternatively, five-character QRA locators may be exchanged. It is the responsibility of the receiving operator to obtain the information necessary to calculate his distances correctly.
7. **Entries:** (a) Logs should be tabulated in columns headed in this order: " Date/Time (GMT) "; " Call-sign of station contacted "; " My report on his signal and serial number sent "; " His report on my signal and serial number received "; " Location of station as received "; " Call-sign of operator " (Multi-operator entries only); " Distance in miles "; " Points claimed ".
(b) The cover sheet must be made out in accordance with General Rule 4 and the declaration signed. Multi-operator entries should be so marked and the operators listed. The section for which entry is being made must be shown. The QTH as sent, QRA if used, and the NGR full eight-character reference should be recorded. Stations outside the area of the National Grid should show QRA locator.
(c) Entries must be post-marked not later than Monday, February 28.
8. **Awards.** At the discretion of Council a miniature Cup will be awarded to the winner in each section, and Certificates of Merit to the runner-up in each section.

### First 1·8 Mc/s Contest 1966

The rules for next year's First Top Band Contest are as follows:

1. **When:** 21.00 GMT on Saturday, February 19, to 03.00 GMT on Sunday, February 20, 1966.
2. **Eligible Entrants:** All fully-paid members of the RSGB resident in G, GC, GD, GI, GM and GW.
3. The General Rules to be published in the January, 1966 issue of the RSGB BULLETIN relating to RSGB Contests will apply.
4. **Contacts:** C.w. (A1) only in the **1·8-2 Mc/s** band.
5. **Scoring:** Three points for contacts with stations in the entrant's own county and those counties having a common boundary with that of the entrant and five points for all other contacts.
6. **Contest Exchanges:** RST reports followed by the contact number starting with 001 and the county code letters given in the January, 1965, issue of the BULLETIN, e.g. for a contact from Surrey, 579005SY. All reports must be acknowledged with " R ".
7. **Logs:** (a) Must be tabulated in columns headed (in this order): " Date/Time GMT," " Call-sign of station worked," " My report on his signals and serial number sent," " His report on my signals and serial number received," " County code letters received," " Points claimed." The

county code letters as sent must be entered at the top of each log sheet.

(b) The cover sheet must be made out in accordance with RSGB Contest Rule 4. The declaration must be signed.

(c) Entries must be postmarked not later than **March 7, 1966.**

8. **Power Input:** The d.c. input to any stage of the transmitter shall not exceed 10 watts.

9. **Awards:** At the discretion of the Council, the **Somerset Trophy** will be awarded to the winning station and certificates of merit to the stations placed second and third. In addition, the **Maitland Trophy** will be awarded to the Scottish member with the highest aggregate number of points in this contest combined with the Second 1·8 Mc/s Contest 1965.

A **certificate of merit** will also be awarded to the **non-transmitting member** submitting the best check log. Check logs submitted by non-transmitting members for consideration for the award of a certificate of merit should give in this order the following details: Date/Time (GMT); Band; Call-sign of station heard; Report and serial number sent by station heard; Call-sign of station being worked; any other information required by the above rules.

### Awards to Members of the Contests Committees

As reported in *Society Affairs* in this issue, the Council recently discussed a suggestion that members of the H.F. and V.H.F. Contests Committees should be banned from participating in RSGB Contests.

After it had been pointed out that it is essential for members of these Committees to be interested in contests, and bearing in mind that interested parties withdraw from Committee meetings while matters concerning them are discussed, the Council decided to take no action on the suggestion.

## CONTESTS DIARY

| | |
|---|---|
| December 5 | – Fourth 70 Mc/s Contest (C.W.)· (see page 690, October, 1965). |
| | **1966** |
| January 15–16 | – Affiliated Societies' Contest (see page 679 October, 1965) |
| January 29–30 | – CQ WW 160 DX Contest |
| January 30 | – First 144 Mc/s (C.W.) Contest (see page 825) |
| February 12–13 | – ARRL DX Contest (Phone) |
| February 13 | – First 70 Mc/s (Open) Contest (see page 825) |
| February 19–20 | – First 1.8 Mc/s Contest (see page 825) |
| February 26–27 | – ARRL DX Contest (C.W.) |
| March 5-6 | —Second 144 Mc/s (Open) and 144 Mc/s Listeners' Contests* |
| March 12-13 | —ARRL DX Contest (Phone) |
| March 19-20 | —BERU (see page 609 September 1965) |
| March 26-27 | —ARRL DX Contest (C.W.) |
| April 3 | —Low Power Contest |
| April 16-17 | —CQ WW DX SSB Contest |
| April 16-17 | —Second 70 Mc/s (Open) and 70 Mc/s Listeners' Contests* |
| April 24 | —D/F Qualifying Event |
| May 8 | —Third 144 Mc/s (Portable) Contest* |
| May 22 | —D/F Qualifying Event |
| May 28-29 | —First 420 Mc/s (Open) Contests* |
| May 29 | —1296 Mc/s Contest* |
| June 4-5 | —CHC/FHC/HTH QSO Party |
| June 4-5 | —National Field Day |
| June 19 | —D/F Qualifying Event |
| July 3 | —Fourth 144 Mc/s (Portable) Contest*† |
| July 9-10 | —1·8 Mc/s Summer Contest |
| July 17 | —D/F Qualifying Event |
| July 24 | —Third 70 Mc/s (Portable) Contest*† |
| July 31 | —D/F Qualifying Event |
| September 3-4 | —V.H.F. NFD* |
| September 11 | —80 Metre Field Day |
| September 18 | —D/F Final |
| September 24-25 | —21-28 Mc/s Phone Contest |
| October 16 | —Second 1296 Mc/s Contest* |
| October 15-16 | —Second 420 Mc/s Contest*† |
| October 29-30 | —7Mc/s DX (Phone) Contest |
| November 12-13 | —7 Mc/s DX (C.W.) Contest |
| November 19-20 | —Second Top Band Contest |
| December 4 | —Fourth 70 Mc/s (C.W.) Contest* |

* Qualifying contests for V.H.F./U.H.F. Listeners' Championship
† Dates subject to revision

**NFD '65 (Continued from page 823)**

the Committee have no way of knowing which operator made a particular contact. Although this requirement was clearly covered in Rule 19, a number of entrants, including few high scorers, overlooked it.

The checking of entries for the 1965 event has taken longer than usual because of the high incidence of duplicate and incomplete contacts that were included in the claimed scores for many groups. The Committee suspect that much of the trouble was due to the check operators not being able to keep up during the peak scoring periods. Incomplete contacts cannot count for points and if both ends of an incomplete exchange are entrants then neither of them benefits from the partial contact. It is always worth while making certain that the other station has sent " R " before going off the frequency.

Each year one or two stations submit log sheets with all contacts in chronological order irrespective of band. This means that a separate sheet is not used for each band. In order to check the logs, they are separated into bands and the checking is carried out, often by six different groups of people at six different places. If the log sheets have entries for three different bands together then it is just not feasible to find time to go through these logs and separate the contacts and assess the scores.

There has been a suggestion that infringements of the rules should be notified to entrants before checking starts so that the entries may be put in order. This is just not " on " as it means that a member of Headquarters Staff would have to go through each log and cover sheet as received and check for omissions—as the NFD logs amount to some two thousand or more pieces of paper, this task, which requires a knowledge of NFD rules, can only be done by the Committee when they settle down to the checking. It is then too late to start sending logs back to entrants—for correction of errors which are due to carelessness on the part of someone!

The point as to operator's call-signs has been mentioned above but it is worth repeating the requirements of the Committee. Each operator's call-sign must be shown on the log against the contacts made by him; his name or signature need not appear on the log form (*but must appear on the cover sheet*) and it is sufficient if the log sheet shows quite unmistakably which contacts were made by which operator. The Cover Sheet however must show the *name* of the operator and his call-sign (his *signature* is not necessary); this information is needed to compare with Headquarters records to ensure that the operator is a fully paid-up member of the Society.

The infringements of the rules and the near-illegible logs are, however, in the minority and the Committee particularly wishes to thank all those who were concerned in the preparation of the many entries with typed or clearly printed logs. These saved a deal of time during the long hours of checking sessions which were necessary before the results of NFD could be finalised.

### Check Logs

The Committee are always grateful for check logs and the logs from the following were much appreciated: ZC4CZ/P, G2HJ, G2QB, G3BRK/P, G3DQW/P, G3FBA, G3FXA, G3JFY, G3LLM, G3RHP, G3SEN, G3TXJ/P, G6CJ, G6JF, GC8HT, EI4AG/P, EI9F, OZ6HS, SM5CHH/P, VE4TF, VE8BB, WA2PBX, W4HOS and 9H1AA/P.

### Correction

The correct call-sign of the Macclesfield & District Radio Society's " A " station should have read G3LDT and *not* G3CDT as stated in the tabulation of NFD results in the October issue of the RSGB BULLETIN.

# CLUBROOM

## A Monthly Survey of Group and Club Activities

*For further information on membership or the activities of a particular club, application should be made to the person whose Call-sign is indicated at the end of the item. Full addresses may be obtained from the* Call Book.

**AERE (Harwell) ARC** report that all systems were " go " for them during V.H.F. NFD equipment-wise, thanks not only to the equipment itself, but also to some very carefully prepared inventory sheets. However, as time progressed, it became apparent that they were understaffed in terms of operators. In respect of contests generally comes a plea to standardise distance measurements in either miles or km, but not to mix them from one contest to another. Holding equal place is the suggestion that all distance measurements should be based on the 10 miles/inch Ordnance Survey maps for inter-G working. (*G2HIF*)

**Ashton-under-Lyme ARC** meets at the Swan Inn, Stamford Street, Cockbrook on the first Wednesday, Thursday and Friday alternately in each month. Prospective members will be particularly welcome.

**Ayrshire Group** will be holding its December meeting on the 19th at which GM3GSC will be talking on " Theory and Practice of S.S.B." (*GM3THI*)

**Basingstoke ARC** had a change of programme on November 13, and instead of the talk on receiver alignment, took part in the *Short Wave Magazine* c.w. contest. (*G3CBU*)

**Bedford ARC** has moved its HQ to the Westfield School, but meetings continue to be held on the second and fourth Thursday in each month. Newcomers to the Bedford area will find a warm welcome at the club meetings. (*G3OWQ*)

**Belfast YMCA RC** has cleared its AGM, redecorated the clubroom, and got under way with a lecture entitled " The Uses and Misuses of Transistors." Visitors will be made most welcome at the club's meetings. Full information on all activities is available from the YMCA General Office or *GI3IVJ*.

**Midland ARS** has had to increase the subscription of its external members in order to balance the books. However, backed by the facilities of the Birmingham and Midland Institute, there is still very good value for money.

**Bristol ARC** ran a coach to the Communications Exhibition for some 30 to 40 members. About 75 members and visitors attended a meeting held on October 7, at which slides were shown of home built equipment, some travelling from as far afield as Bath. (*G3SXY*)

**Bromsgrove ARC** meets at 8 p.m. on the second Friday in each month. On the basis that long laid plans are the best, the November meeting was concerned with possible arrangements for the 1966 NFD. The December meeting will be held on the 10th and at which G2CLN will be talking on " Aerial Systems and Coupling Units." The winter programme is available from *G2CLN*.

**Cambridge ARC** started off the autumn session with a bang—well, several bangs in fact—as G3PTB, now of Norwich, conducted a Junk Sale in his usual inimitable style. Visitors and prospective members are always welcome. (*G5BQ*)

**Cheshunt RC** has, in addition to the formal meetings on the first Friday in each month, introduced an informal meeting on the second Thursday after the first Friday. At the October meeting, two old timers, G4GA and G8SK, gave a very absorbing account of the (Good) Old Days of Amateur Radio. (*G3GBL*)

**Chester ARS** noted the usual fall in attendances during the summer months, but despite this, got through a very varied and interesting programme. The society meets every Tuesday, with the exception of the first in the month, at the Chester YMCA, commencing at 8 p.m. (*G3TZO*)

**Chesterfield RS** meets at the Barnett Observatory, Newbold, on the second and fourth Wednesday in each month. New members are welcome. A programme of talks and visits is being arranged, and the Annual Dinner will be held in December. (*G3THO*)

**Cray Valley RS** has completed another Activity Week-end, and if the comments of the chairman, G3JJC, contained in the November issue of *QUA* are anything to go by, a good time was had by all. We hope that their President will not be shattered by the threatened deluge of QSL cards. (*G3KYV*)

**East Worcs. Amateur Radio Group** had two favourable write-ups in the local paper. One concerned participation in the Scout Jamboree-on-the-Air, and the other the formation and operation of a RAEN Group.

**Echelford ARS's** October *Newsletter* contains two useful items relating to the finishing of equipment. One is a home-brewed crackle paint, and the other deals with the anodising of aluminium chassis, the latter being with a particular view to equipment to be placed in exhibitions. (*G3RHF*)

**First Class Operators' Club** circular letter contains a message which is applicable to every single licensee. Although initially directed as an answer to the question " What is the FOC? " out of context it summarises the amateur spirit in the most thorough manner which we have ever seen. Many have tried to put it into words, but up to now your conductor feels that no one has quite succeeded. What was said?—simply this: Character, Integrity, Compassion, Education, Discipline, Charity and Fraternisation. (*G3JLB*)

**Hull ARS** is now completely installed in its new club QTH, and meetings are being held on alternate Fridays starting at 8 p.m. Preceding each meeting, and running from 7.30-8 p.m., is a slow Morse practice session. On December 3, the meeting will be concerned with Radio Fundamentals, while on the 16th there will be a lecture on " Crystal Grinding." A hearty welcome is always extended to prospective new members. (*G3AGX*)

**Irish Radio Transmitters' Society** found that its Junk Sale held in September was such a rip-roaring success that it has been decided to hold another on December 10. Please attend early, bring lots of surplus gear and plenty of money. (*EI6AS*)

**Loughton RS** meets on alternate Fridays at Loughton Hall, Rectory Lane. On Saturday, November 13, the society held a ladies' night at the Rainbow and Dove which proved highly successful. (*G3JBS*)

**Mid-Warwickshire ARS** is running a series of tape recorded lectures covering the RAE, each lecture being given twice. First on a Tuesday, and then followed nine days later by a repeat on the Thursday.

**Newark SW Club** is making good progress on the club transmitter, and members have set themselves up with a comprehensive tool kit for club projects. (*G3TWV*)

**North Kent RC** is going through one of the difficult times which seems to beset all clubs from time to time. This is not due to lack of support, lack of members, or lack of enthusiasm, but rather an inability to find members who are able to devote adequate time to the duties of the officers, and in particular, that highly demanding appointment of secretary. This unenvied fellow needs the patience of Job, the skin of an elephant, and to exude enthusiasm and sincerity in the face of the inevitably vocal critics. The strange thing is that it is always the critics, whether of the club itself, or of others, who turn out to be the most reluctant to put their shoulders to the wheel. The truth is that self-opinionated criticism is easy. Work on the other hand demands effort, and for a secretary constructive effort at that. (*G3UFR*)

**Purley RC** reports a record attendance at the Junk Sale in October, and was especially glad to welcome six prospective members. The December meeting will be held on the 3rd and will be quite informal. Following this on the 17th will be the Christmas Social for which members are strongly advised to make application for tickets as early as possible. (*G3FTQ*)

**Plymouth RC** held an annual Open Night in November to which all amateurs and local clubs were invited. Like one other club, Plymouth lays plans well in advance, and arrangements are well in hand for the Annual Dinner on February 18. (*G3UKI*)

**Carlisle RAF RS** has now obtained its own call-sign which is G3USQ and meets every Friday night starting at 7.30 p.m. Membership of this society is restricted to RAF personnel and civilian employees. (*G3HUU*)

**Salop ARS** has arranged a full winter programme. Meetings are held at the Morris Hall on the second Thursday in each

(*Continued on page 829*)

# Forthcoming Events

**Details for inclusion in this feature should be sent to the appropriate Regional Representatives by the first of the month preceding publication. A.R.s and club secretaries are reminded that the information submitted must include the date, time and venue of the meeting and, whenever possible, details of the lecture or other event being arranged. Regional Representatives are requested to set out the copy, preferably typed double spaced, in the style used below. Standing instructions cannot be accepted.**

### REGION 1

**Ainsdale (ARS).**—December 8, 22, January 5, 8 p.m., Clifton Road, Southport.

**Allerton (SRHS).**—Thursdays, 8 p.m., 3rd Allerton Scout Group Headquarters, Church Road, Woolton, Liverpool.

**Blackburn.**—Fridays, 8 p.m., West View Hotel, Revidge Road.

**Blackpool (B & FARS).**—December 6 (Open Night), December 13 ("Puzzles, Games and Computers," by D. Taylor G3OPT), December 20 (Questions & Answers), December 27 (Open Evening), January 3 (Tape, "The Engineer & Society" by P. P. Eckersley), 8 p.m., Pontins Holiday Camp, Squires Gate. Morse Tuition from 7.30 p.m.

**Bury (B & RRS).**—December 14 (Annual General Meeting), 8 p.m., Old Boars Head Crompton Street (private room).

**Chester.**—Tuesdays, 8 p.m., YMCA, except first Tuesday in each month.

**Crewe & District.**—December 6, January 3, 8 p.m., Earl of Crewe Hotel, Nantwich Road.

**Eccles (E & DAC).**—Tuesdays, 8 p.m. Patricroft Congregational Schools, Shakespeare Crescent, Patricroft, Eccles. Every Thursday Club Top Band net 20.30 hours.

**Liverpool (L & DARS).**—Tuesdays, 8 p.m., Conservative Association Rooms, Church Road, Wavertree.

**Macclesfield.**—December 7, 21, January 4, The George Hotel, Jordongate.

**Manchester (M & DARS).**—Wednesdays, 7.30 p.m., 203 Droylsden Road, Newton Heath, Manchester 10.

**(SMRC).**—Fridays, 7.45 p.m., Rackhouse Community Centre, Daine Avenue, Northenden.

**Morecambe.**—December 1, January 5, 125 Regent Road.

**Preston.**—December 14, 28, (All meetings start with a Morse practice at 7.30 p.m.), St. Paul's School, Pole Street.

**Southport (SRS).**—Wednesdays, 8.30 p.m., Sea Cadets Camp, The Esplanade.

**Stockoort.**—December 1, 15, 29, The Blossoms Hotel, Buxton Road, Stockport.

**Wirral.**—December 1, 15, January 5, Harding House, Park Road West, Claughton, Birkenhead.

### REGION 2

**Bradford.**—December 7, 14 (Quiz Night conducted by L. A. F. Stockley, G6EKE/T), 7.30 p.m., Bradford Technical College, Great Horton Road.

**Catterick.**—Tuesdays and Thursdays, 7.30 p.m., Clubroom, Vimy Road.

**Durham.**—Alternate Thursdays, Vane Tempest Community Centre, Gilesgate.

**Northern Heights.**—December 8 (Annual Dinner), December 22 (Ragchew), 7.30 p.m., Sportsman Inn, Ogden.

**Scarborough.**—Thursdays, 7.30 p.m., rear of 3 Trinity Road.

**Spen Valley.**—December 9 (Recorded Lecture by WIBB), December 16 ("Power Supplies," Supplementary Syllabus), 7.30 p.m. Heckmondwike Grammar School.

### LOOKING AHEAD

**December 17.**—RSGB Annual General Meeting.

**December 9.**—RAE Examination.

**December 27-January 8.**—Daily Mail Schoolboys' and Girls' Exhibition.

**January 7.**—Presidential Installation.

### REGION 3

**Birmingham (MARS).**—December 21, (Christmas Party and Bring 'n Buy Sale), 7.45 p.m., Birmingham Library, Margaret Street, Birmingham, 1.

**(Slade).**—December 10, ("Fun & Games,") 7.30 p.m., The Church House, Erdington. No meeting on December 24.

**(South).**—December 16, 7.30 p.m., Friends' Meeting House, Moseley Road, Birmingham.

**Cannock (CCARS).**—December 2, 8 p.m., The Bridgtown Social Club, Walsall Road, Cannock.

**Coventry (CARS).**—Mondays, 8 p.m., TA Centre, Westfield Road, Coventry.

**Dudley (ARS).**—Fridays, 8 p.m., Art Gallery, Dudley.

**Mid Warwickshire (MWARS).**—Mondays, 7.30 p.m., 7 Regent Grove, Leamington Spa.

**Redditch (EWARG).**—December 9, 8 p.m., Redditch Old People's Centre, Park Road, Redditch.

**Salop (SARS).**—December 9, 7.30 p.m., Morris Hall, Bellstone, Shrewsbury.

**Stratford-upon-Avon (S-u-AARS).**—Fridays, 7.30 p.m., Masons Arms, Sanctus Road, Stratford-upon-Avon.

**Stourbridge & District (STARS).**—December 7 ("Transistorized Receiver," by Bob Barrett), 7.45 p.m., Foley College, Stourbridge.

**Wolverhampton (WARS).**—Mondays, 8 p.m., Neachells Cottage, Stockwell Road, Tettenhall.

### REGION 4

**Derby (D & DARS).**—December 1 (Surplus Sale), December 8 (Constructors' Contest for Founder Members' Trophy), December 12 (Contest for G5YY Trophy), December 15 (Open Evening and Committee Meeting), December 22 (Annual Christmas Party), December 29 ("The Year in Retrospect,"—Members' Slides and Film), 7.30 p.m., Club Room, 119 Green Lane, Derby.

**Heanor (H & DARS).**—December 7 (Surplus Sale), December 14 (Films). December 18 (Christmas Party—provisional) 7.30 p.m., Heanor Technical College, Ilkeston Road, Heanor.

**Loughborough (LARC).**—December 3 (Illustrated Tape Lecture—"Basic Valve Circuits"), December 10 (Lecture—"Operating Procedure by G. P. Bateman, G3LCG), December 17 (Christmas Sale), December 31 (Open Evening), 7.30 p.m., Club Room, Bleach Yard, Wards End, Loughborough.

**Leicester (LRS).**—Mondays, 7.30 p.m., Sundays, 10.30 a.m., Club Room, Old Hall Farm, Braunstone Lane, Leicester.

**Magnus GS (ARS).**—Tuesdays, 3.50 p.m., Junior Physics Lab, Magnus Grammar School, Newark.

**Melton Mowbray (ARS).**—December 16 ("Stereo Reproduction," by Mr R. Huddlestone), 7.30 p.m., St. John Ambulance Hall, Asfordby Hill, Melton Mowbray.

**Newark (SWC).**—Mondays and Thursdays, 7.30 p.m., The Hall, Guildhall Street, Newark.

**Nottingham (ARCN).**—Tuesdays, Thursdays, Room 3, Sherwood Community Centre, Woodthorpe House, Mansfield Road, Nottingham.

**Peterborough (P & DARS).**—December 3, January 7, 7.30 p.m., Peterborough Technical College. Other Fridays, 8 p.m., the Old Mill Clubroom, London Road.

**Worksop (NNARS).**—Tuesdays (RAE Class), Thursdays (Lecture), 7.30 p.m., Club Room, 13 Gateford Road, Worksop.

### REGION 5

**Bedford (B & DARC).**—December 14 (Visit to Electronics Firm or Public Utility), December 23 (Social Evening), Westfield School, Queens Park, Bedford.

**Cambridge (C & DARC).**—December 3 (Informal Evening), December 10 (Discussion on Receiver Alignment), December 17 ("Moonbounce," by P. K. Blair, G3LTF), January 28 (Annual Dinner at Dorothy Restaurant, Tickets from G3IIT. Mr Yeomanson, G3IIR, President of RSGB, will be guest). Club Headquarters, Corporation Yard, Victoria Road, Cambridge.

**Luton (L & DARS).**—December 7 (S.W.L. Contest), December 14 (Annual General Meeting), December 21 (HAMburger Supper), 7.30 p.m. (Slow Morse Class), 8 p.m., ATC Headquarters, Crescent Road, Luton, Beds.

**Cambridge University (CUWS).**—Tuesdays, 8.15 p.m. Psychology Department, Downing Site, during University Term.

**Royston (R & DARC).**—Wednesdays, 8 p.m., Manor House Social Club, Melbourn Street, Royston, Herts.

**Shefford (S & DARS).**—Thursdays, 8 p.m. (Morse Classes 7.45 p.m.), Church Hall, High Street, Shefford, Beds.

### REGION 6

**Cheltenham.**—First Thursday in each month, 8 p.m., Great Western Hotel, Clarence Street, Cheltenham.

### REGION 7

**Acton, Brentford & Chiswick (ABCRC).**—December 21 (Junk Sale), 7.30 p.m., AEU Club, 66 High Road, Chiswick.

**Ashford (Middx.) Echelford ARS.**—December 15 (Spout & Natter Session), 7.30 p.m., Links Hotel, Ashford.

**Bexley Heath (NKRS).**—7.30 p.m., Congregational Hall, Chapel Road, Bexley Heath.

**Chingford (Group).**—December 14, 17 Forest Drive East, Leytonstone, E.11.

**(SRC).**—December 14, 28, 8 p.m., Friday Hill House, Simmons Lane.

**Croydon (SRCC).**—December 14, 7.30 p.m., Blacksmiths Arms, South End.

**Dorking (D & DRS).**—December 14 (Christmas Dinner), 7.30 p.m., Star & Garter, Dorking. December 21 (Informal), 8 p.m., Wheatsheaf, Dorking.

**East Ham.**—Tuesdays fortnightly, 7.30 p.m., 12 Leigh High Road, East Ham. December 14 (Christmas Dinner).

**East London Group.**—December 19 (AGM and Brains Trust, with G3IIR, G2BVN and G3FZL on the Committee. Questions may be submitted in advance to G3KGU, 25 Purlieu Way, Theydon Bois, Essex), 2.30 for 3 p.m., Lambourne Room, Ilford Town Hall.

**East Molesey (TVARTS).**—First Wednesday in each month, Prince of Wales, Bridge Road, East Molesey.

**Edgware & Hendon (EADRS).**—December 13, 27, 8 p.m., John Keble Hall, Church Close, Deans Lane, Edgware.

**Enfield.**—December 21, 8 p.m., George Spicer School, Southbury Road.

**Gravesend (GRS).**—December 15, 7.30 p.m., RAFTA Club, 17 Overcliffe Road.

**Guildford (G & DRS).**—December 10, 8 p.m., Guildford Model Engineering Society, Stoke Park.

**Harlow (DRS).**—Tuesdays and Thursdays, 7.30 p.m., Mark Hall Barn, First Avenue.

**Harrow (RSH).**—December 3 (Practical), December 10 (Junk Sale), December 17 (Christmas Party), December 31 (Practical), January 9 (Lecture on "Stereo" by G3JUM), 8 p.m., Roxeth Manor County School, Eastcote Lane, Harrow.

**Havering (H & DARC).**—December 8, 22, 52 Western Road, Romford, Essex.

**Holloway (GRS).**—Mondays and Wednesdays (7.30 p.m., RAE and Morse), Fridays (7.30 p.m., Club), Montem School, Hornsey Road, N.7.

**Hounslow (HADRS).**—December 13, 27,

**LONDON MEMBERS' LUNCHEON CLUB**

will meet at the White Hall Hotel, Bloomsbury Square, London, W.C.1.

**at 12.30 p.m. on Friday, January 21, 1966**

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

Canteen, Mogden Main Drainage Department, Mogden Works, Isleworth.

**Ilford.**—Thursdays, 8 p.m., 579 High Road, Ilford (Nr. Seven Kings Station).

**Kingston.**—December 16 (Cups Night and Film Show), 8 p.m., YMCA, Eden Street. December 30, no meeting. Fridays (Morse classes), 2 Sunray Avenue, Tolworth.

**Leyton & Walthamstow.**—December 14, 28, 7.30 p.m., Leyton Senior Institute, Essex Road, London, E.10.

**London U.H.F. Group.**—December 2 (Film and Free U.H.F. Transistor Night), Bull & Mouth, Bloomsbury Way, Holborn, W.C.1.

**London Members' Luncheon Club.**—December 10 (Christmas Dinner), otherwise 12.30 p.m., third Friday in each month.

**Loughton.**—December 17 (Film of Mobile Rally and NFD), 7.30 p.m., meetings on alternate Fridays, Loughton Hall (nr. Debden Station).

**New Cross (CARS).**—Wednesdays and Fridays, 8 p.m., 225 New Cross Road, London, S.E.14.

**Norwood & South London (CP & DRS).**—December 18 (Christmas Party and Junk Sale), CD Centre, Bromley Road, Catford, S.E.6.

**Paddington (P & DARS).**—Wednesday, 7.30 p.m., Beauchamp Lodge, 2a Warwick Crescent, W.2.

**Purley (P & DRC).**—December 17 (Christmas Party), 8 p.m., Railwaymen's Hall (Side Entrance), Whytecliffe Road.

**Reigate (RATS).**—December 18 (Club Night), 7.30 p.m., George and Dragon, Cromwell Road, Redhill.

**Romford (R & DRS).**—Tuesday, 8.15 p.m., RAFTA House, 18 Carlton Road.

**Scout ARS.**—December 16, 7.15 p.m., Baden Powell House, Queens Gate, South Kensington.

**Science Museum (CSRS).**—December 7 (Films on Amateur Radio), December 21 (Informal Meeting and Christmas Party. Contact the secretary, 2 Hollister Heights, Purley, Surrey), January 4 ("Lasers," by G. C. Clarke, GPO Research Laboratory), 6 p.m., Science Museum, South Kensington.

**Sidcup (CVRS).**—December 2, January 6, 7.30 p.m., Congregational Church Hall, Court Road, Eltham.

**Slough (SARS).**—First Wednesday every month, 8 p.m., United Services Club, Wellington Street.

**South London Mobile Club.**—December 4 (Lecture on "Printed Circuits," by G3SRY), December 18 (Programme for 1966), Clapham Manor Baths, Clapham Manor Street, London, S.W.4.

**Southgate & District.**—December 9, 7.30 p.m., Parkwood Girls School (Behind Wood Green Town Hall).

**St. Albans (Verulam ARC).**—December 15 (AGM), 8 p.m., Marconi Service Works, Hedley Road.

**Sutton & Cheam (SCRS).**—December 21, 8 p.m., The Harrow Inn, High Street, Cheam.

**Welwyn Garden City.**—December 9 ("R.F. Cables," by Clem Jardine, G5DJ, of BICC), 8 p.m., The Blackhouse Room, Handside Lane.

**Wimbledon (W & DRS).**—December 10, 8 p.m., Community Centre, St. Georges Road, Wimbledon, S.W.19.

**Wembley GEC ARS.**—December 10, Visitors should telephone ARNold 1262 first.

**REGION 8**

**Crawley (CARC).**—November 10 (Informal, for details contact G3FRV), November 24 (Lecture by P. K. Blair, G3LTF), 8 p.m., Trinity Congregational Church Hall, Ifield.

**Worthing (WARS).**—December 13 (Contest proposals for 1966), 8 p.m., Adult Education Centre, Union Place, Worthing.

**REGION 9**

**Bath.**—December 17, 7.30 p.m., RNR Training Centre, James's Street West, Bath.

**Bristol.**—December 10 (Annual General Meeting), 7.15 p.m., Small Physics Theatre, Royal Fort, Bristol University, Woodland Road, Bristol 8.

**Burnham-on-Sea (B-o-SARS).**—Second Tuesday in each month, 8 p.m., Crown Hotel, Oxford Street, Burnham-on-Sea.

**Camborne (CRAC).**—First Thursday in each month, Staff Recreation Hall, SWEB Headquarters, Pool, near Camborne.

**(CRAC V.H.F. Group).**—Third Thursday in each month, 7.30 p.m., The Coach and Horses, Rydar Street, Truro.

**Exeter.**—First Tuesday in each month, 7.30 p.m., George and Dragon Inn, Blackboy Road, Exeter.

**Plymouth (PRC).**—Tuesdays, 7.30 p.m., Virginia House, Bretonside, Plymouth.

**Saltash (S&DARC).**—Alternate Fridays, 7.30 p.m., Burraton Toc H Hall, Warraton Road, Saltash.

**South Dorset (SDRS).**—First Friday in each month, 7.30 p.m., Labour Rooms, West Walks, Dorchester.

**Torquay (TARS).**—December meeting, Inter-club Quiz Contest and Social Evening, Club HQ, Belgrave Road, Torquay.

**Weston-super-Mare.**—First Friday in each month, 7.15 p.m., Victoria Hotel, Weston-super-Mare.

**Yeovil (YARC).**—Wednesdays, 7.30 p.m., Park Lodge, The Park, Yeovil.

**REGION 10**

**Cardiff.**—December 13 (Christmas Informal Meeting), 7.30 p.m., TA Centre, Park Street, Cardiff.

**REGION 13**

**Edinburgh (LRS).**—December 9 ("TVI," by A. S. McLachlan), December 23 ("ATV," by A. J. Mason, GM3PSP), 7.30 p.m., YMCA, South St. Andrew Street, Edinburgh.

**REGION 14**

**Ayrshire.**—Third Sunday in each month, 7.30 p.m. Conservative Club, Sturrock Street, Kilmarnock.

**Glasgow.**—First and third Wednesdays in each month, Christian Institute, 70 Bothwell Street, Glasgow, C.2.

**REGION 15**

**Belfast.**—Mondays and Wednesdays (RAE Classes), Tuesdays (Morse instruction), Belfast College of Technology, Marine Radio School, Hardcastle Street, Belfast.

**REGION 16**

**Basildon (BDARS).**—Details from G3IJB.

**Chelmsford (CARS).**—December 7 (Closed Circuit Demonstration of Amateur TV by G6NOX/T), 7.30 p.m., Marconi College, Arbour Lane, Chelmsford.

**Great Yarmouth.**—Fridays, 7.30 p.m., the Manager's Office, the Old Power Station, South Quay, Swanston's Road, Great Yarmouth. Details from G3HPR.

**Ipswich (IRC).**—Last Wednesday in each month, 7.30 p.m., Red Cross Headquarters, Gippeswyck Hall, Ipswich. Details from J. Rhind, G3UJR.

**Norwich (NARC).**—Mondays, 7.30 p.m., the Club Centre, 140 Oak Street, Norwich. Details from G3TLC.

**Southend (SDARS).**—Meetings in the Executive's Canteen, E. K. Cole Ltd., Priory Crescent, Southend-on-Sea. Details from G3NPF.

## Clubroom (Continued from page 827)

month. On December 9, G6US will be talking on "Forty Years in Amateur Radio."

**Saltash ARC** held its AGM in November, but, from all accounts, without the wisdom of G9BO to misguide its deliberations. Seems he somehow has become entangled with commercial radio. (*G2DFH*)

**Slade RS** presented its second closed circuit TV show on October 2. Video equipment worked well, but the sound gave trouble. Considerable experience was gained by those involved.

**Southgate, Finchley and District Group** is all set for the AGM which is being held on December 9. All members are asked to make a supreme effort to attend. (*G3TDM*)

**Stockport RS** is holding the AGM on December 19. The New Year looks as though it will be as hectic from an activity angle as was 1965, and a very full programme is projected. (*G3MBQ*)

**Torbay ARS** is making a return visit to Plymouth ARC on November 20 for a quiz match, and hopes to avenge its recent defeat. Unfortunately we go to press too early for the outcome to be included. (*G3LKJ*)

**Worthing RS** has now revived its interest in National Events with particular interest in h.f. and v.h.f. activities. It also reports an increasing interest in v.h.f. mobile working. (*G3IWL*)

★ ★ ★

*Is your club, society or group getting the fullest advantage from the publicity which it can secure from this column?* Those contributions which are associated with a call-sign do. Does yours? If not, why not?

Deadline for the **January** issue is **December 3.**

Deadline for the **February** issue will be **January 7.**

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| The Amateur Radio Handbook (Third Edition) | 36/6 |
| Radio Data Reference Book | 14/– |
| Technical Topics for the Radio Amateur | 10/8 |
| Amateur Radio Circuits Book | 8/6 |
| Amateur Radio Call Book | 6/6 |
| Radio Amateurs' Examination Manual | 5/9 |
| A Guide to Amateur Radio | 5/7 |
| Service Valve Equivalents (Fifth Edition) | 3/6 |
| S.S.B. Equipment | 3/– |
| Communications Receivers (Second Edition) | 3/– |
| The Morse Code for Radio Amateurs (Third Edition) | 2/– |
| Log Book (RSGB) | 7/– |

## ARRL PUBLICATIONS

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|---|---|
| Antenna Book, 10th Edition | 18/6 |
| A Course in Radio Fundamentals | 10/– |
| Hints and Kinks, Volume 6 | 10/– |
| Mobile Manual for Radio Amateurs | 23/6 |
| Radio Amateur's Handbook | 42/6 |
| Radio Amateur's V.H.F. Manual | 18/6 |
| Single Sideband for the Amateur (Fourth Edition) | 23/6 |
| Understanding Amateur Radio | 18/6 |

## CQ PUBLICATIONS

| | |
|---|---|
| Antenna Roundup | 23/6 |
| *CQ* Anthology, 1952-59 | 23/6 |
| *CQ* Anthology, 1945-52 | 16/– |
| *CQ* Mobile Handbook | 23/– |
| *CQ* New Sideband Handbook | 24/– |
| RTTY Handbook | 30/– |
| Shop and Shack Shortcuts | 29/6 |

## 73 MAGAZINE PUBLICATIONS

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|---|---|
| Care and Feeding of a Ham Club | 8/– |
| Index to Surplus | 12/– |
| Simplified Math for the Hamshack | 4/6 |
| V.H.F. Antenna Handbook | 15/– |

## EDITORS AND ENGINEERS PUBLICATIONS

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| Radio Handbook (16th Edition) | 78/– |
| Transistor Radio Handbook | 42/– |

## AMERICAN MAGAZINE SUBSCRIPTIONS

| | |
|---|---|
| *CQ* (*Cowan*) Monthly (p.a.) | 44/– |
| *QST* (*ARRL*) Monthly (p.a.) | 43/6 |
| Institutions, groups, etc. (p.a.) | 50/– |
| *73 Magazine* Monthly (p.a.) | 30/– |

## MISCELLANEOUS PUBLICATIONS

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|---|---|
| Guide to Broadcasting Stations (*Iliffe*) | 5/6 |
| Log Book, 150 pages, opens flat (*Martins*) | 21/9 |
| Manual of Transistor Circuits (*Mullard*) | 13/6 |
| Radio Amateur Operator's Handbook (*Data*) | 5/6 |
| Short Wave Radio and the Ionosphere (*Iliffe*) | 12/– |
| Short Wave Receivers for the Beginner (*Data*) | 6/6 |
| Transistor Radios, Circuitry and Servicing (*Mullard*) | 5/9 |
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## MORSE COURSES

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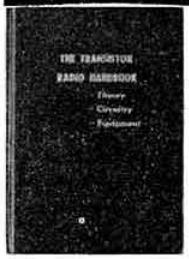


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**SSB TX.**—G3AUB, 8 Longden Lane, Macclesfield. Macclesfield 5910.

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**CIRCUIT AND DETAILS** of G2DAF TX, Mk. I—Bartlett, 3 Heathfield, Chippenham, Wilts.

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