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VOL. 34, NO. 5

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R.S.G.B. BULLETIN

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Current Comment

discusses topics of the day

Mutual Self-help

ON November 26, the second R.S.G.B. Radio Hobbies Exhibition opens at the Royal Horticultural Society's Old Hall in London. Such an exhibition provides the radio amateur and home constructor with a unique opportunity not only to examine the latest products necessary for the enjoyment of his hobby but also to meet and talk to the manufacturers and dealers who supply them. The show presents an opportunity, too, for the builder of equipment to exhibit the results of his own skill and to see the equipment like-minded enthusiasts are making. No visitor will be able to come away from the show without a fair crop of new ideas for improving his station or the pleasure he gets from his own personal branch of the radio hobby.

But a specialist exhibition of this type would be impossible without the support of the commercial organizations. In particular it costs a great deal of money and therefore the support of manufacturers and dealers is necessary for financial success, but equally important are the commercial displays themselves, because the exhibition is undoubtedly the most practical means for the radio amateur to see the wide variety of new equipment which becomes available each year. All of us whose hobby is radio, in whatever form it takes, must therefore be grateful to both the specialist firms and the electronics manufacturers who help to make our annual show such a success. It must be remembered, however, that the exhibitors themselves do not go to the show entirely for fun—fundamentally they do so for sound business reasons. And, make no mistake, they are very sound reasons. With the electronics industry expanding at great speed, progress depends on enthusiastic technical leadership at all levels. Amateur Radio is a forcing ground for the qualities required and the big industrial concerns are alive to the value of encouraging the hobby for that reason, apart altogether from sales to the thousands of "hobbyists". Amateur Radio is a recruiting centre as well as a market for them.

The specialist firms which exist to serve the radio enthusiast have perhaps even more obvious reasons for supporting the show, for the job of supplying the growing amateur home constructor market is big business to them. Taking the nation's transmitting amateurs as an example, the value of equipment in use is of considerable value—certainly not less than £1,000,000—and it does not last for ever! Replacements alone are of great importance while the continued improvement of techniques also results in more equipment, more components, being sold. At the same time, it must not be forgotten that the number of licensed amateurs is rising too—in the last year there has been a 10 per cent increase, a healthy sign indeed. Add to the transmitting amateurs' requirements those of vast numbers of shortwave listeners and home constructors of hi-fi and stereo amplifiers, tape recorders and test gear—here surely is reason enough for the specialist firms to be present.

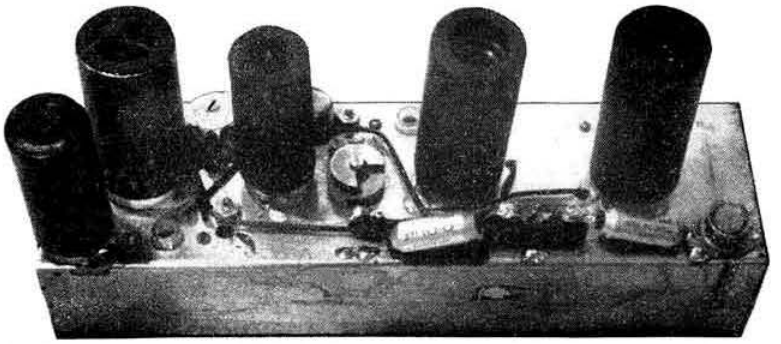
Last year exhibitors reported very satisfactory results from their participation in the show, not to mention the goodwill engendered by personal contact with the visitors, who, they found, were not merely idle lookers-on but enthusiastic and technically competent users. This year there seems every prospect that a new record attendance will be set up—evidence, if any is still required, of the importance of the show.

While exhibitors get some immediate idea of the success for them of an exhibition, magazine advertisers are not always so well placed. Ideally, they must be told by the customer where he saw their advertisement. Like every other magazine today, the R.S.G.B. BULLETIN is largely dependent on advertisers. Without them, the number of pages in an issue would have to be more than halved—a glance at the Accounts enclosed in this issue will provide proof of this point! Alternatively, subscriptions would have to go up by at least 10s. a year. The importance of letting manufacturers and dealers know when goods have been purchased as a result of advertisements in the Society's journal cannot be too strongly stressed. Advertisers, as Mr. Caws says in his Report, will not continue to take space unless they know sales result therefrom.

Important though advertisers are financially, the value of the BULLETIN advertising pages as an additional source of information must not be forgotten. BULLETIN advertising is good business for us all, advertiser and reader alike. Let's resolve to tell the advertiser so whenever we make a purchase.—J.A.R.

A High Performance Two Metre Converter

By D. T. BRADFORD
(VQ4EV, ex-G3GBO)*



An above-chassis view of the high performance converter. The r.f. input socket is on the right with the crystal oscillator chain on the left.

THE design to be described in this article is the result of a search for a converter of top line performance using fairly easy-to-get valves and components. The circuit has been cut to the bare essentials without jeopardizing its excellent performance. It is fairly easy to get going and once the local oscillator chain is operating it should be possible to receive strong local stations at once with almost any setting of the coils. When the circuit is properly aligned a noise factor of the order of 4 to 5 can confidently be expected, although in many cases performance will be found to be even better than these figures.

Several models of this converter have been tried using intermediate frequencies as low as 6 to 8 Mc/s for use with a car radio and results with all of them have been excellent. It has been found that to get the converter working well is easy, but to get the noise factor down those odd tenths of a db requires careful and patient adjustment and re-adjustment of the coils. (There is no short cut to a " super " noise factor—you have to work for it with any converter!)

Circuit

The basic circuit consists of an ECC84 double triode, operating as a d.c. coupled cascode r.f. amplifier, followed by one half of a 12AT7 as a grounded grid r.f. amplifier while the second half of the same 12AT7 serves as the mixer. Local oscillator injection is provided by half a 12AT7 as an overtone oscillator giving output on 21 Mc/s, the second half of this valve tripling to 63 Mc/s. A 6C4 triode doubles to 126 Mc/s, with a balanced-tuned anode circuit, providing link-coupled injection for an 18 to 20 Mc/s i.f. to cover the 144 to 146 Mc/s band.

All signal-frequency coils are self-resonant with the inter-electrode capacities of the valves. No difficulty has been experienced in peaking the circuit provided good low inductance v.h.f. by-pass capacitors of the ceramicon, disc ceramic or feed-through types are used.

Construction Features

The first point with the construction is to see that the chassis is made of light gauge tinplate. This avoids the contact resistance effects experienced with soldering tags when a slightly oxidized aluminium chassis is used. Hardly any nuts and screws are needed at all, as valveholders, coaxial sockets and tag strips are all soldered to the chassis. This provides a very efficient connection, is easily carried out with a small iron and reduces the amount of metal work required —an important consideration for the " kitchen table " constructor.

As the oscillator is crystal controlled, the use of a light gauge metal chassis does not effect the frequency stability of the converter in any way. The advantages of tinplate are many. Apart from the electrical contact considerations mentioned above, there is also the question of space—there are no awkward screw ends sticking through the chassis to get in the way of wiring. The use of this easily soldered material makes it easy to provide short direct connections to earth points while screening is easy to construct and install.

Very careful screening is used, and, as a result, regenerative effects are negligible. Adjustment of the neutralizing coil on the cascode stage is purely a means of improving the noise factor and is not necessary to prevent actual oscillation. (Due credit for this must also go to Mullard Ltd. for the design of the internal valve screening in their ECC84.) The sub-chassis layout is shown life-size in Fig 2.

All " utilities " such as h.t. and l.t. supplies are fed along the top of the chassis, going through holes immediately above the respective h.t. filter resistor or heater pin, at which point they are by-passed to earth. This leaves the various screening compartments free from being cluttered up with h.t. and l.t. wiring and enables the compact construction to be carried out without any undue difficulty. It also, incidentally, reduces the possibility of feed-back coupling along these supply wires and the stray capacities of tuned circuits to earth. The careful screening of the oscillator and multiplier stages tends to minimize the danger of swamping the mixer with unwanted injection frequencies, thus maintaining optimum mixer operation. It also reduces spurious responses in other parts of the v.h.f. spectrum. The two variable condensers used for the oscillator/multiplier chain are mounted above the chassis for ease of access and saving of space within the screening compartments. The i.f. output, neutralizing and Squier oscillator coil tuning slugs are also adjustable from above the chassis. These coils are wound on miniature $\frac{1}{4}$ in. diameter Aladdin type formers.

The valve holders are made of p.t.f.e. This is especially useful for the ECC84, although poorer v.h.f. insulating materials can be used for the other stage valve holders with no noticeable deterioration in performance. In short all the usual rules for the construction of v.h.f. equipment apply in this case.

Adjustment

Having built the unit and carefully checked the wiring and searched for any loose connections, power may be applied (250 volts and 6·3 volts for the heaters).

The crystal oscillator is the first section to get going. If circuit constants are correct, merely rotating the slug of the Squier oscillator should produce crystal controlled output on 21 Mc/s. However, to allow for quite large circuit discrepancies a small variable capacitor (C17) is also included, so that the range of actual tuning of the oscillator is quite wide. This is doubly useful as quite wide ranges of intermediate frequency can be employed using the same

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oscillator components. The easiest way of checking the oscillator for stability and frequency is by listening to it on a communications receiver. The second stage can be aligned by placing a sensitive microammeter in series with the 6C4 grid leak (R10) at the " earthy " side. The anode circuit of the second half of the 12AT7 (L9/C14) is then adjusted for maximum grid drive into the 6C4. This can be checked if an absorbtion wavemeter or grid dip oscillator is available covering 63 Mc/s. The last oscillator chain tuned circuit (L8/C10) is finally adjusted for maximum on an incoming signal, but a rough peak can be found when the coil has been resonated as described later.

To tune the i.f. output coil, L6, the converter is fed into a receiver set for 19 Mc/s (or any other chosen intermediate frequency with a suitable crystal) and an h.f. band aerial temporarily clipped to the mixer grid. This should cause either strong signals to be picked up at the i.f. or the mixer valve to burst into oscillation. In either eventuality this output is peaked at the required i.f. by adjusting the slug in L6, but more careful adjustment should be made later on with incoming signals. With the i.f. output coil roughly resonant it should be possible to hear a slight, but noticeable, increase in background noise when the 6C4 anode tuned circuit is resonated. The injection output can also be checked by means of an absorption wavemeter covering 126 Mc/s or by using a g.d.o. as in the case of the 63 Mc/s stage.

If no signal generator covering 145 Mc/s is available, a two metre aerial should be connected to the converter and a strong local station tuned in. The signal frequency coils L1, L3 and L5, are peaked by squeezing together or pulling apart the turns whilst carefully watching the " S " meter on the main receiver. This can be done by ear with the a.v.c. switched off but a meter provides a more positive indication. The adjustment of the aerial input and mixer grid coils will be fairly broad, but the cathode coil (second anode L3) of the second grounded grid stage will be found somewhat sharper. If strong signals are few and far between it is advisable to start the signal frequency circuit adjustments with L3. Properly adjusting this to resonance will make weaker stations more easily audible.

When incoming signals are available it is a good plan to re-peak all the oscillator chain circuits by means of their trimmers to give maximum " S " meter reading and also to re-peak the signal-frequency coils on a station near the band centre. By this stage in the alignment procedure car ignition and other unwanted noises should be easily heard and the set-up should sound quite " lively." Adjustment of the cascode neutralizing coil L12 is unnecessary for run-of-the-mill working, but for serious v.h.f. work it is essential to use a noise generator and measure the noise factor of the converter with each half turn of the slug. This may sound tedious, but in actual fact the correct position

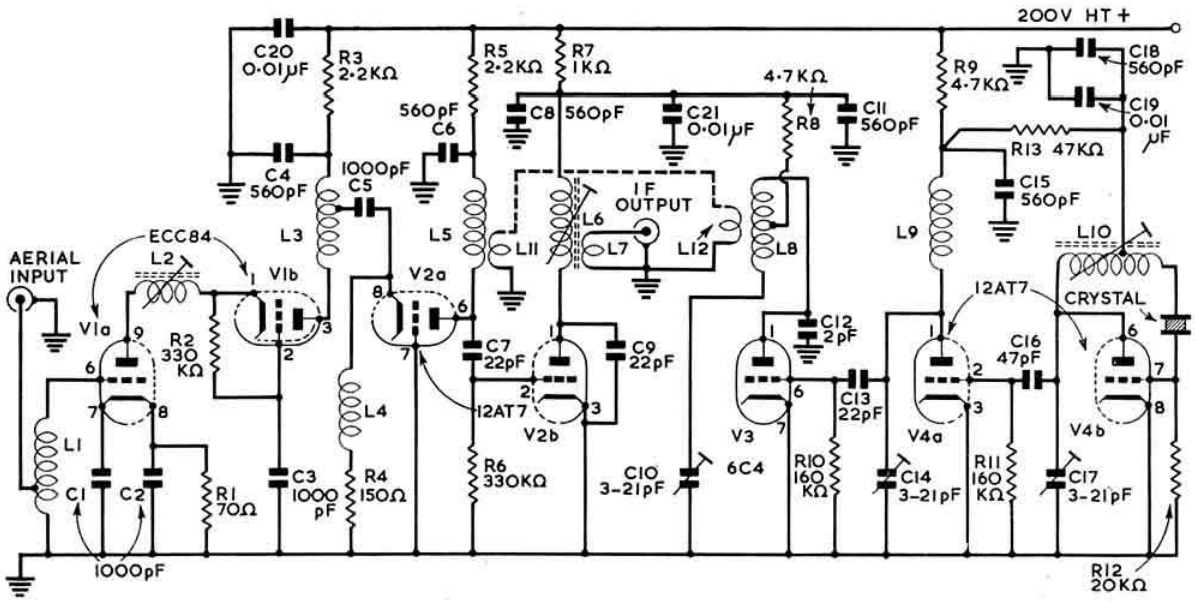

Fig. 1. Circuit diagram of the VQ4EV two metre converter. The numbers round the valves indicate the pin numbers. An internal screen is connected to pin 2 (grid) of the ECC84 and pins 1, 2 and 3 must therefore always be used for the grounded grid stage. Similarly the two cathode connections (pins 7 and 8) should be used for the first triode.

C1, 2, 3, 5, 1000pF miniature.
C4, 6, 8, 11, 15, 18, 560pF pillar ceramicon.
C7, 9, 13, 22 pF ceramicon.
C10, 14 (both above chassis), C17 (below chassis), 3–21pF ceramic trimmer.
C12 (for i.f.s above about 12 Mc/s), 2pF.
C16, 47pF ceramicon.
C19, 20, 21, 0·01μF 500 volt wkg. (T.C.C. Metalmite).
L1, six turns ¾ in. i.d. 20 s.w.g. tinned copper, tapped 1½ turns from earthy end (air spaced.)
L2, four turns 22 s.w.g. enamelled on ¼ in. Aladdin polystyrene slug tuned former.
L3, seven turns ¾ in. 20 s.w.g. tinned copper tapped 3¼ turns from h.t. feed end (air spaced).
L4, r.f. choke—27 in. 36 s.w.g. enamelled on ½ watt 1 Megohm resistor.
L5, five turns ¾ in. i.d. 20 s.w.g. tinned copper (usually wide spaced turns).
L6, 24 turns 22 s.w.g. enamelled on ¼ in. Aladdin polystyrene slug tuned former (for 18–20 Mc/s i.f.).
L7, four turns 20 s.w.g. p.v.c. covered wound on earthy (h.t.) end of L6.
L8, nine turns ¾ in. i.d. 20 s.w.g. tinned copper centre tapped (smaller for lower intermediate frequencies).
L9, seven turns ¾ in. i.d. 20 s.w.g. tinned copper centre tapped (smaller for lower intermediate frequencies).
L10, 30 turns 22 s.w.g. enamelled on ¼ in. Aladdin polystyrene slug tuned former, tapped five turns from crystal end for h.t. feed.
L11, 12, one turn 20 s.w.g. p.v.c. covered self-supporting link coupling coil.
R1, 70 ohms ½ watt.
R2, 6, 330K ohms, ½ watt.
R3, 5, 2·2K ohms ½ watt.
R4, 150 ohms ½ watt.
R7, 1000 ohms ½ watt.
R8, 9, 4·7K ohms ½ watt.
R10, 11, 160K ½ watt.
R12, 20K ohms ½ watt.
R13, 47K ½ watt.
Crystal, 21,000 kc/s, Q.C.C. overtone type on B7G base (or 7 Mc/s crystal operating on its third overtone).

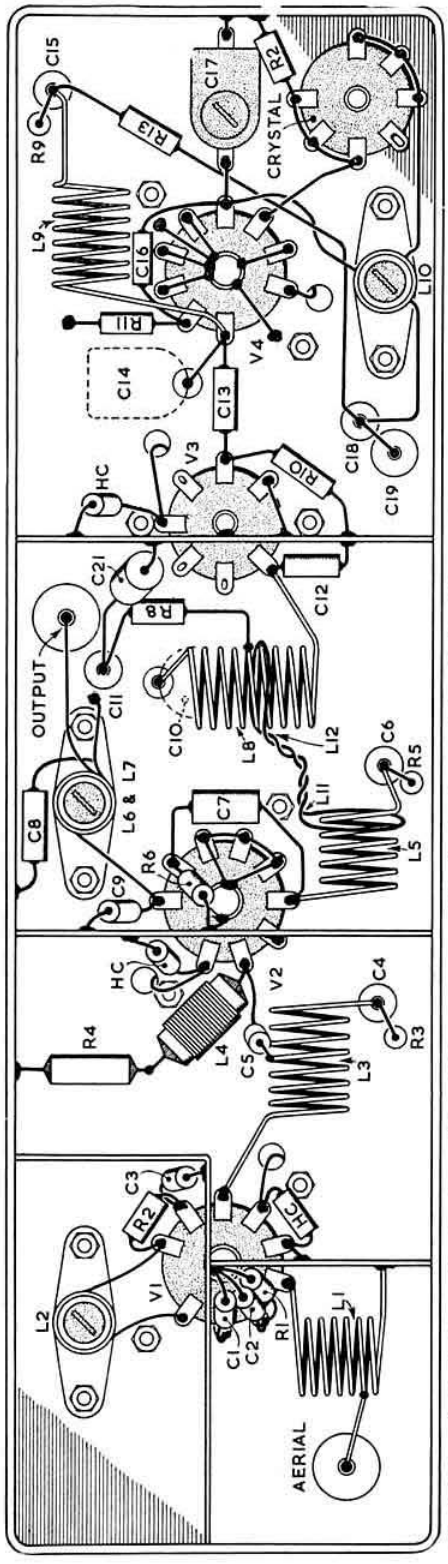

Fig. 2. The sub-chassis layout showing the position of the components. The drawing is actual size. It should be noted that the live heater pins of each valve (except the 12AT7 crystal oscillator) are by-passed to earth with 1000pF miniatures. Incoming h.t. positive and live heater leads are by-passed to chassis with 0·01μF 500 volt Metalmites at the point of connection to the unit. With the exception of C20, these are not shown in the circuit diagram of Fig. 1.

of the neutralizing setting can usually be found within half an hour without difficulty. Finally on some models it has been found necessary to reduce the neutralizing coil by one turn to obtain the best noise figure.

Final Notes

As mentioned earlier, several models have been tried but the use of intermediate frequencies lower than 6 to 8 Mc/s is not recommended, for even with careful screening, there is then a danger of the injection frequency tending towards "blocking" the earlier stages which are naturally fairly broad band. When using an i.f. of 21 Mc/s the injection link coupling needs to be quite tight, while at an i.f. of 6 to 8 Mc/s as used on the converter designed for mobile use, it was found adequate just to "show" the oscillator output and mixer grid coils to one another.

To those who have not before used self-resonant coils, a few words of advice may be in order. Use a non-metallic tool and not your fingers to carry out the adjustments (remember the h.t. on L3 and L5!). The author used a "Tufnol" trimming tool with a small ¼ in. metal screwdriver blade section in one end. The trick is to touch the "hot" end of the coil being adjusted with this small blade, and if the output falls (due to the added stray capacity introduced) then the coil needs opening up, while if it rises the coil needs squeezing together. At the last stage of adjustment the output reading should be checked with the trimming tool well clear of the coil, otherwise insulation losses and di-electric effects can give a false impression.

There is no doubt that this converter would work after a fashion with no screening whatsoever, but do not be misled by assuming that the final noise factor would necessarily be quite so good. As with many things near perfection is never easily obtained and in this case it is apparent that the careful screening is a contributory factor to the good results experienced.

The Racal RA17 Communications Receiver

Reviewed by

FRANK FLETCHER (G2FUX)*

A front panel view of the Racal RA17 Receiver.

THE RA17 is a 23 valve triple conversion receiver. The way in which the front end is arranged provides a complete departure from the usual as does the frequency changing circuitry.

It will be seen from the block diagram (Fig. 1) that signals arriving at the grid of Mixer No. 1 are combined with the output of Oscillator No. 1, the resultant i.f. being the difference between these two frequencies. The output of Oscillator No. 1, is also mixed with the harmonics of a 1 Mc/s crystal oscillator in Mixer No. 4, but a band-pass filter only allows the passing of the resultant beat which falls within ± 150 kc/s of 37·5 Mc/s, all other beat frequencies being ineffective. The first oscillator is tuned in steps of 1 Mc/s ± 150 kc/s: any attempt to set up at any other frequency results in no output from the filter. The 37·5 Mc/s output is combined with the first i.f. in Mixer No. 2 to give an output in the second i.f. band between 2 and 3 Mc/s.

To illustrate this in detail, take the case of a signal at Mixer No. 1 on say 3·5 Mc/s. Oscillator No. 1 will be set to 43·5 Mc/s (calibrated as 3 Mc/s) the resultant first i.f. being 40 Mc/s; mixing this signal with 37·5 Mc/s gives a second i.f. of 2·5 Mc/s.

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The frequency stability of this section is automatically perfect. For example any drift in the first oscillator which would produce a rise in the first i.f. will also give a rise in the 37·5 Mc/s output of Mixer No. 4 and so correct the output of Mixer No. 2 back to 2·5 Mc/s.

The frequency of the first oscillator has only to be set within fairly broad limits, and the dial, which is the small aperture on the front panel, is calibrated in Mc/s from 0 to 29. Band changing thus requires no switching or turrets, with all their possibilities of bad contacts, etc.

The author of this article has been using a Racal type RA17 receiver for the past few months. He describes it as the "ultimate" in communications receiver design.

It can now be seen that all signals arriving at the grid of Mixer No. 3 will be within the range 2 to 3 Mc/s. These signals are mixed with the output of Oscillator No. 2, which is tunable over a range of 2·1 to 3·1 Mc/s. This range never has to be changed. Oscillator No. 2 is very stable and is

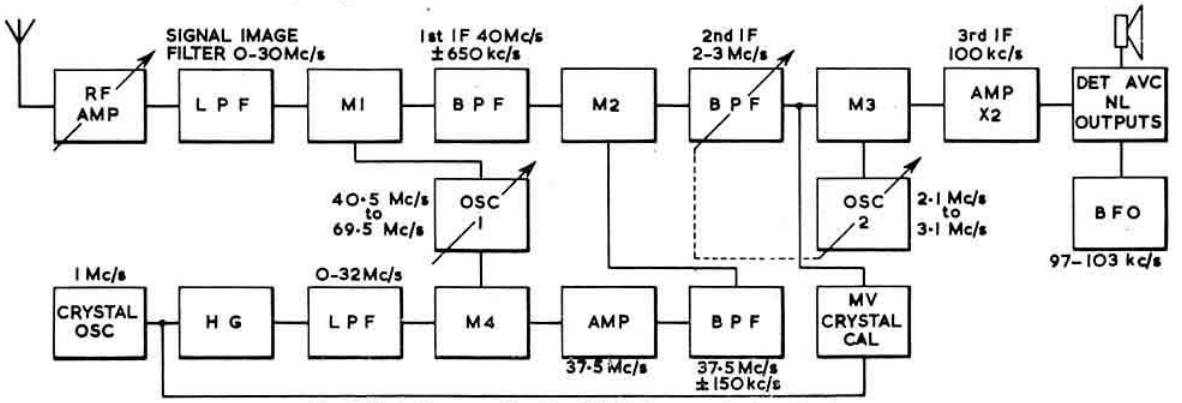


Fig. 1. Block diagram of the Racal RA17 Communications Receiver.

temperature compensated; it is tuned over the 1 Mc/s range by the main tuning drive, which actuates the long film strip dial showing in the top window on the panel. This film is calibrated in 1 kc/s divisions and can easily be read to within 500 c/s. The cursor is movable and can be set accurately at any 100 kc/s point with the aid of harmonics from the 1 Mc/s crystal via a multivibrator.

Stability and Mechanical Construction

The total drift from cold is given by the makers as being within 1500 c/s in three hours and thereafter within 150 c/s, but in the writer's experience stability is very much better than even these figures suggest. Such stability would be useless unless the mechanical construction was in keeping, while with two variable oscillators and one crystal oscillator,

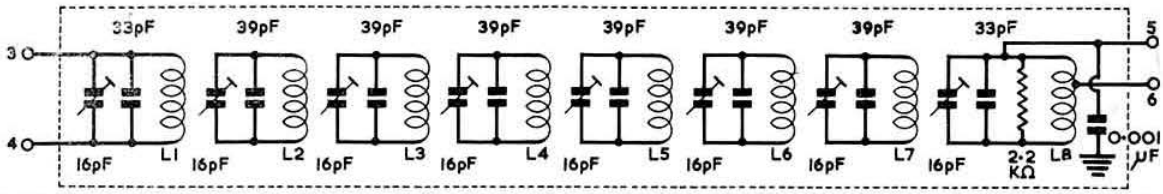


Fig. 2. The 40 Mc/s band-pass filter. The only coupling between the component parts is by the stray coupling between the tuned circuits.

The circuit from the aerial to the grid of the r.f. amplifier has a broad band position, with a tuned input as an alternative which is useful in the presence of strong local signals as it allows the r.f. input to be tuned " on the nose." There is no interstage tuning, either at signal frequency or at the first intermediate frequency. Instead band-pass filters are used. The circuit of the 40 Mc/s filter is shown in Fig. 2. The only coupling between the separate tuned circuits is electro-magnetic. The second i.f. has a tuned band-pass filter ganged to the Oscillator No. 2 control.

Following Mixer No. 3 is a two stage 100 kc/s i.f. amplifier, controlled by either a.v.c. or manual gain control. The interstage coupling (Fig. 3) includes fixed tuned band-pass filters giving three different widths (at 6db down) of 8 kc/s, 3 kc/s and 1·2 kc/s plus crystal lattice filters for 750 c/s, 300 c/s and 100 c/s. The skirts of the response curves are really sharp (Fig. 4) and it has been found possible to receive a.m. phone on whichever sideband is required to combat the severest QRM. On c.w. the reception is truly single signal; the only trouble when the receiver is in the 100 c/s position is to find stations which will stay within the pass band!

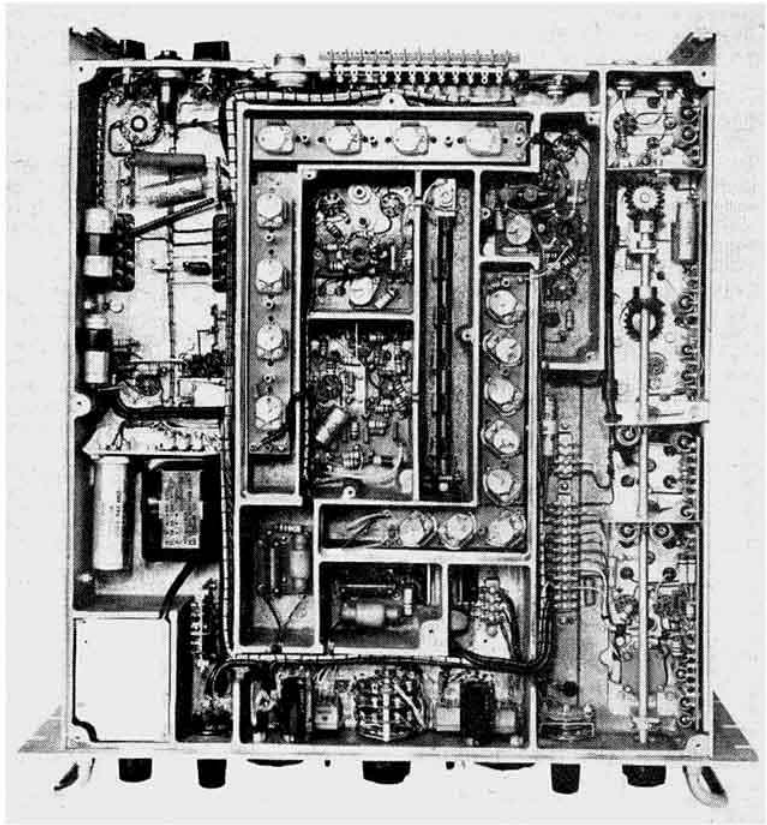
The i.f. amplifier is followed by a diode detector, diode a.v.c. valve, a good noise limiter, a.v.c. time constant diode and the output stages. Two separate output stages are used to provide several different output impedances, one of which is controlled independently of the main audio gain control. The audio outputs are brought out at the rear, as is also the a.v.c. line and h.t. line. There are also two outputs at 100 kc/s via a buffer amplifier, and an output from the 1 Mc/s oscillator.

The b.f.o. is of the required stability to match the rest of the receiver and can be set up to ±3 kc/s off tune. It is calibrated in kilocycles.

the screening must be just about perfect to eliminate all the possible beat frequencies that could occur. The chassis is a solid casting including all screening on the underside. The upper side of the chassis is also well screened and here again several sections are castings. It is possible to tune in WWV to zero beat on 25 Mc/s, and then pick up the whole receiver by the handles without any change in note being observable.

Controls

There is no continuously variable r.f. gain control, but an



A view of the cast chassis from below showing the screening.

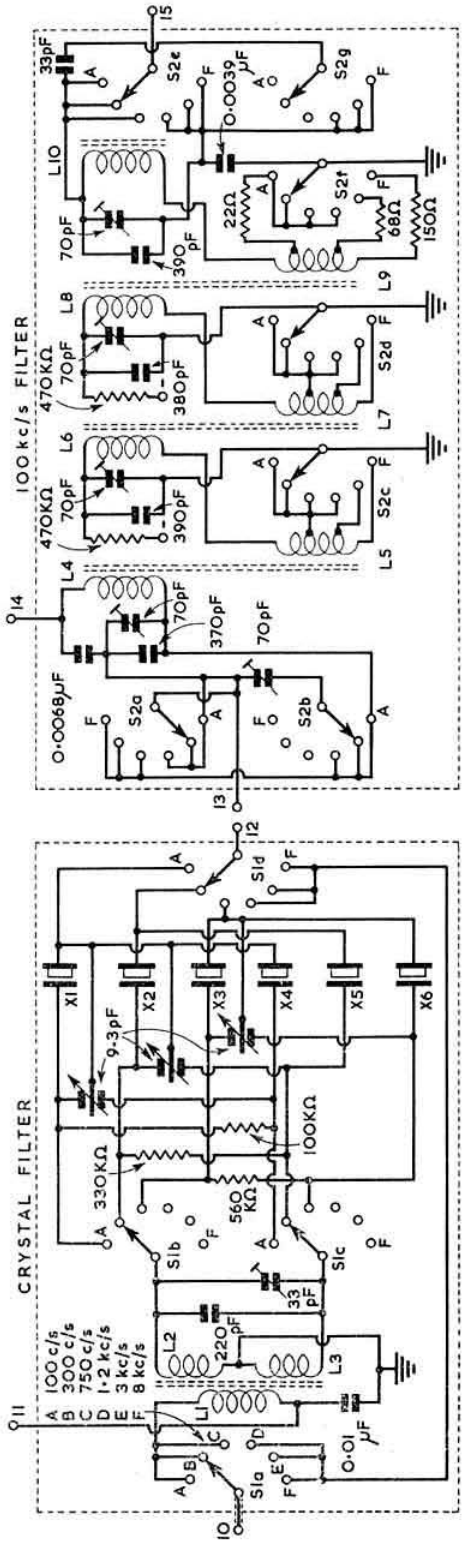


Fig. 3. The 100 kc/s interstage coupling.

r.f. attenuator is provided giving five steps of attenuation. The gain of the 100 kc/s i.f. stage is adjustable from a panel control when the a.v.c. is off.

The main function switch has five positions: OFF or STANDBY (when the main h.t. line to the front end is cut), MANUAL GAIN, A.V.C., CAL. (when 100 kc/s check points are available) and CHECK B.F.O. (when in addition to the 100 kc/s check the b.f.o. can be set to zero).

As can be seen from the photograph at the beginning of this article, the front panel is complete with a meter, reading at the turn of a switch, either R.F. (diode current), s units (calibrated in 4 db steps up from 1·25 μV) or AUDIO (rectified volts in a 600 ohms load) and a monitor speaker, which has been found to give very good speech quality for amateur communication.

The arrangement of the controls on the front panel is very good and they all fall conveniently to hand, once the feel of the receiver has been experienced. One thing which does want getting used to is the distance one has to tune; when an

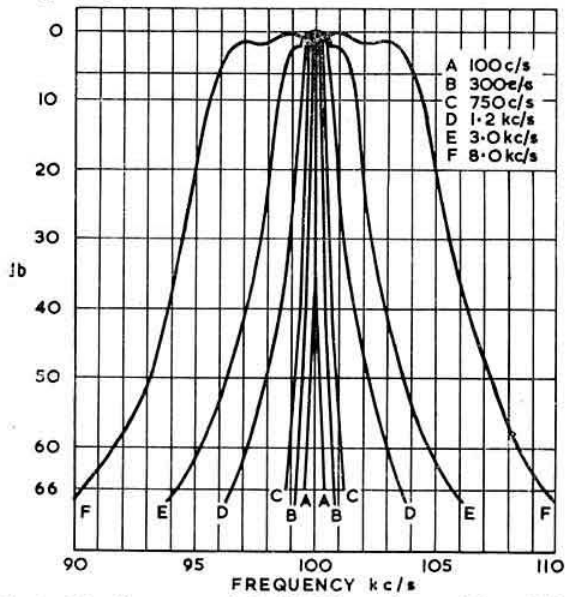


Fig. 4. Selectivity curves of the RA17 in various positions of the selectivity control.

operator says he will QSY 20 kc/s one has to tune a couple of inches away, passing perhaps a dozen other stations on the way! The tuning rate is constant, irrespective of the frequency in use, and 6 in. of scale is used for each 100 kc/s and one revolution of the drive control. On the amateur bands the actual amount of scale is as follows: 1·8 to 2 Mc/s = 12 in.; 3·5 to 3·8 Mc/s = 18 in.; 7·0 to 7·15 Mc/s = 9 in.; 14·0 to 14·35 Mc/s = 21 in.; 21·0 to 21·45 Mc/s = 27 in.; 28·0 to 30 Mc/s = 10 ft. (yes, feet!).

The aerial input is 75 ohms unbalanced, and the sensitivity is given by the makers as 1μV on c.w. or 3·5 μV on 30 per cent. modulated a.m. for a 20 db signal-to-noise ratio. S1 on the meter is set at 1·25 μV input but a.m. phone signals well below this value are easily readable if the external noise will permit.

Amateur Use

From the purely amateur point of view there are some small items to mention apart from the price, which is somewhat high by normal standards. The 28-30 Mc/s band is covered in two separate ranges, but this does not in fact present much difficulty, as the frequency accuracy does not

(*Continued on page 216*)

Two Useful Switching Circuits

By J. MACINTOSH, F.C.C.S., A.M.Brit.I.R.E. (GM3IAA, ex-VS1AA)*

IT would be interesting to know who used the first switch and for what purpose. The writer is not particularly addicted to switching, but there are occasions when the use of switches is a *sine qua non*. Some months ago two such occasions arose and it is proposed to describe these two circuits.

Push-pull Triodes or Beam Tetrodes

The problem in the first case was to be able to select at will two KT66s arranged in (*a*) a push-pull triode circuit or (*b*) a push-pull beam tetrode circuit.

Fig. 1 shows the pair of KT66s in a push-pull triode circuit based on the final stage of the Williamson amplifier. This stage is the final of part 1 of the modulator, driving, via an 80 ohm coaxial cable, a pair of TZ40s in class B. It was desired also to be able to modulate an 815 final in a separate transmitter, using only part 1 of the modulator. This raised a little problem as regards the power output of the KT66s.

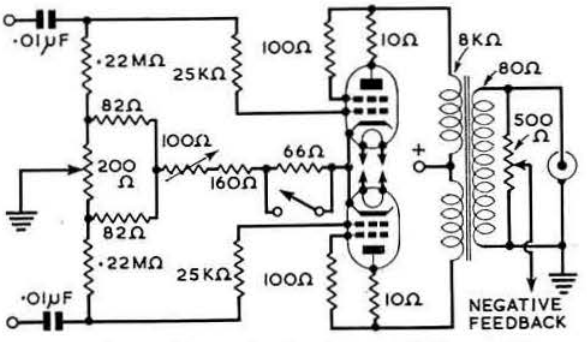


Fig. 1. Circuit diagram showing the use of KT66s as triodes in push-pull.

According to the G.E.C. technical publication *TP3*, two KT66 valves in triode push-pull class AB1 with 400 volts on the anodes and automatic bias will give a power output of 14·5 watts. Under similar conditions, a pair in tetrode push-pull will furnish 30 watts output.

To ensure linear modulation under ordinary conditions, it is necessary to modulate the screen of the 815 simultaneously with the anode. It was obvious that 14·5 audio watts would do no more than modulate an input to a p.a. stage of about 25 watts and this would include both anode and screen currents. For reasonably efficient modulation, therefore, a much greater audio output was necessary when the 815 final was in use. The d.c. input to an anode modulated 815 beam amplifier in class C is about 60 watts and 30 watts of audio power is necessary for full modulation. Indeed, it is highly desirable to have a reserve of audio power over and above the figure set by theory. This could be achieved by fitting a pair of KT88s in place of the KT66s.

With 425 volts on the anodes, a pair of KT88s in push-pull triode connected in class A, will give an audio output of 25 watts, while the same valves, tetrode connected in push-pull, class AB1, and using the same automatic bias as in the triode connection, would deliver about 50 watts of audio power.

* "*Broom Park*," *Cradlehall, Inverness.*

Circuit Arrangement

The circuit arrangement finally decided upon is shown in Fig. 2. Points which should not be overlooked are:

(1) *Voltage on the Anodes.* This should be measured between the anode and cathode, and, to allow for the drop in voltage caused by the cathode resistor (approximately 35 to 45 volts depending on the valves and connections in use), it is necessary to provide a power unit which will deliver 450 volts at the required current. Choke input to the power unit is to be preferred, as this gives better voltage regulation than condenser input.

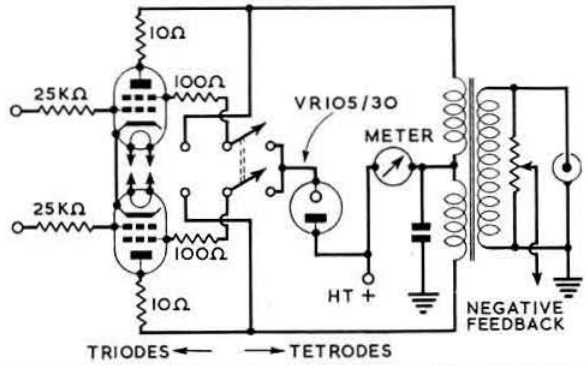


Fig. 2. Circuit adopted by the writer to provide push-pull operation of KT66s as either triodes or tetrodes.

(2) *VR 105/30.* This valve drops about 105 volts to the screens in the tetrode connection. It may be omitted if 400 volts are to be applied to the screens. The voltage regulator holds the screen at approximately 105 volts less than the anode supply voltage *under all conditions of operation.* It should not be overlooked that there is a large variation in screen current between quiescent and full output, i.e. between no signal and full signal.

(3) *Cathode Resistor.* It is generally recommended that separate resistors be used in each cathode return circuit, in which case each resistor will be twice the value of those shown in Fig. 1. Audio by-pass condensers must then be used. Nevertheless, the circuit shown in Fig. 1 works exceedingly well.

(4) *Switch.* Any good double pole, double throw switch is suitable, the usual care being taken to avoid coupling between wiring to the input and output circuits, which might cause instability.

Oscillator Selection by Switching

The second problem was to be able to use either the oscillator in the main transmitter or a table top v.f.o. When frequent frequency-changing was of little importance, the main oscillator was in use, but when it was necessary to make rapid small changes without leaving the operating chair, the v.f.o. was put into service.

Fig. 3 shows the method adopted after numerous experiments. Both oscillators are of the Franklin type but an extra valve was soon fitted in the v.f.o. to counter the drop in efficiency when V3 is driven on the cathode instead of the grid.

Frequencies of 1·75 Mc/s, 3·5 Mc/s, 5·25 Mc/s and 7 Mc/s may be selected and these are link coupled to a coaxial cable which is plugged into a socket in the main transmitter.

The switch shown in Fig. 3 is a two-pole, two-way ceramic rotary type fitted in the main oscillator compartment.

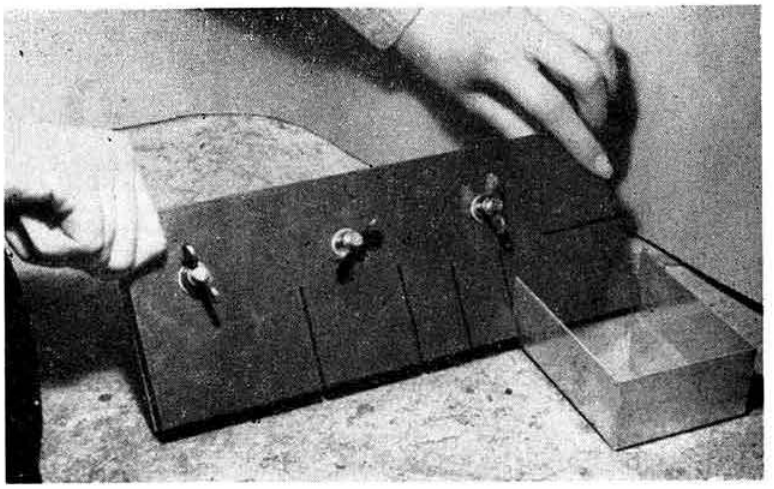
In the case of oscillator keying, the necessity for grid bias to V3 gave rise to considerable thought and some experiments. The use of a cathode resistor, connected and by-passed for r.f., proved to be one solution. It was found

(*Continued on page 216*)

A Simple Chassis Bending Tool

By C. H. L. EDWARDS (G8TL)*

The simple little tool, the construction and use of which is described here, aroused considerable interest at the 1957 Radio Hobbies Exhibition and will be on show again this year. The tool is easy to make and greatly facilitates the fabrication of small chassis for special requirements.



Bending a chassis with the tool described in the accompanying article.

METALWORK is a problem for many amateurs, particularly chassis making. The simple tool shown in use in the photograph above is itself easy to make and provides a solution to most of the difficulties encountered in producing chassis of different sizes at home.

The tool consists of two bright drawn mild steel plates slotted where required and held together by three bolts with wing nuts for quick release. It can be made any size to suit the particular needs of the user. The example shown in the photographs is made of $\frac{3}{8}$ in. steel plate and measures 10 in. long by 4 in. wide.

It is essential that the inside surfaces of the two plates should be perfectly flat, so one side of each should be turned in a lathe or ground. Suitable $\frac{3}{8}$ in. plate, ideal for the purpose, can be obtained machined flat on all sides but it is very expensive. Bright drawn mild steel or ordinary hot rolled blue scale steel is the easiest to procure and much cheaper but may need grinding on one side.

Construction

First set out and drill the three bolt holes (Fig. 1), which should be about $2\frac{1}{2}$ in. from the front edge and $2\frac{1}{2}$ in. from one side to allow for bending chassis up to 2 in. deep. When the holes have been made, bolt both plates together and mark out slots to the width of the chassis to be made. The distance between the right-hand edge and a slot determines the width of the chassis, hence odd sizes cannot be made unless the jig is specially slotted to take them.

Next cut the slots to a depth of $2\frac{1}{2}$ in. with a sharp hacksaw or machine, making them about $\frac{3}{32}$ in. wide so that they easily take 16 gauge aluminium (the maximum which can be bent with the tool).

Making a Chassis

To bend a chassis, the following procedure should be adopted. Mark out the aluminium as shown in Fig. 2, X and Y being equal to the width and length of the chassis to be made plus twice its depth. Cut out the four corners and put the pieces aside for use later. Next, open up the jig by removing the wing nuts and sliding out the bolts. Put three of the pieces of aluminium cut from the corners between the bolts, cutting them to size if necessary and keeping them behind the slots to allow the chassis material to slide in unhindered. On top of them, place another very thin piece of metal (such as tin) and bolt the plates together again. The slot between them will now be the thickness of the aluminium to be bent plus the " ten thou' " clearance to allow the material to slide in.

The metal to be bent is then pushed between the faces of the tool up to the bend line for one of the longer sides (Fig. 2). Then, keeping the aluminium flat on the bench, bend upwards with the jig until it is at right angles to the metal. The other long side should next be bent in a similar manner.

* *28 Morgan Crescent, Theydon Bois, Essex.*

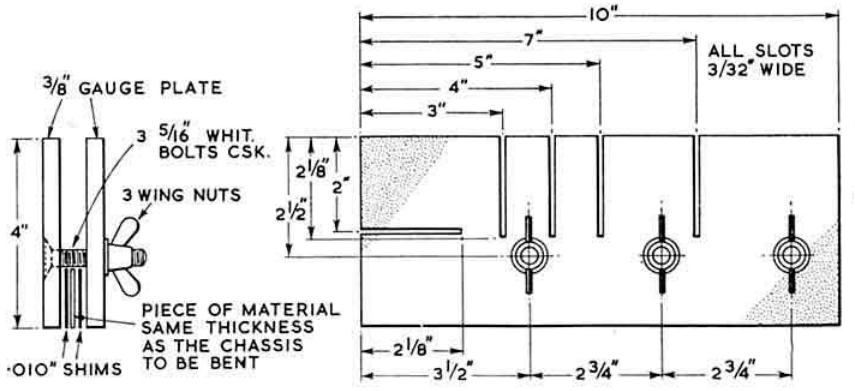


Fig. 1.
Layout of the chassis bending tool.

To make the last two bends (the short sides) the slots in the tool are used, the previously bent sides being in line with one edge of the tool and an appropriate slot, as shown

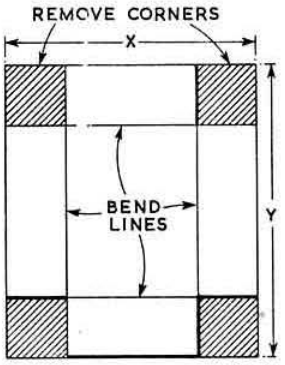
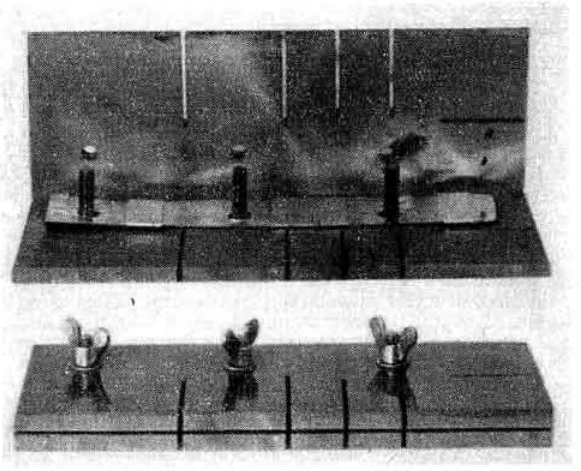


Fig. 2. Method of marking out the aluminium sheet from which a chassis is to be made. The dimensions X and Y are equal to the width and length of the chassis respectively plus twice the depth. The shaded portions are the corners which have to be cut out before bending commences.

in the photograph at the beginning of this article. If care is taken, a neatly bent chassis will result.

The same type of tool can be made from wood if desired, thought it will obviously not last so long as the bending edges will wear more quickly. However, they could be planed down from time to time. It is advisable to use plywood, eleven ply $\frac{5}{8}$ in. thick being suitable.



Two views of the tool. Below, closed; above, opened to show the pieces of aluminum and tin placed between the plates.

Acknowledgments

The writer expresses his thanks to Mr. H. T. Stott, Chief Designer of A. F. Bulgin Ltd., for helpful suggestions in the design of this tool which is similar to one in use in the Bulgin Laboratory.

Racal RA17 Receiver

(Continued from page 213)

of course depend on careful setting of the Mc/s control. The other point is that on occasion it would be useful to have the i.f. gain control available and still keep the a.v.c. in circuit. Later models do, in fact, incorporate this modification, which is particularly useful when receiving s.s.b. The stability of the receiver and the steep sides to the i.f. response curve make s.s.b. signals as easy to tune as a.m. on conventional receivers, with the exception that manual control of gain has to be made when there is a large difference in the strengths of different stations in a "round table."

Although the RA17 is adequate, so far as stability is concerned, for the reception of s.s.b., there is the usual inefficiency of the diode detector and b.f.o. injection. Racal have now available a separate s.s.b. adaptor, type RA63, which takes its input from the 100 kc/s i.f. strip of the RA17. The 100 kc/s signal is mixed with a stable oscillator of 82 kc/s, variable $\pm$ 1 kc/s, the output at 18 kc/s (centre frequency) being fed into either an upper or lower sideband multi-section band-pass filter, followed by a product detector, with a carrier re-insertion oscillator on 18 kc/s, a further output stage and built-in speaker similar to that in the RA17. The adaptor is suitable for the reception of s.s.b.s.c., s.s.b. with pilot carrier, or single sideband reception of a.m. It is constructed on a standard $3\frac{1}{2}$ in. rack panel and has a self-contained power supply. The writer has not yet had the opportunity of using the RA63, but hopes to do so in the near future.

The makers of the RA17 are the Racal Engineering Co. Ltd. of Bracknell, Berks, to whom the writer expresses his thanks for providing the photographs and for assistance in preparing this article.

Two Useful Switching Circuits

(Continued from page 214)

necessary to connect a 15 p.f. by-pass condenser direct from the valve cathode to an earth connection close to the valve, in order to prevent certain self-oscillation effects which took place in V3 due to the switch and its associated wiring. These effects were manifested by a considerable drop in the anode current of the stage concerned and were present in both 6AG7 and 5763

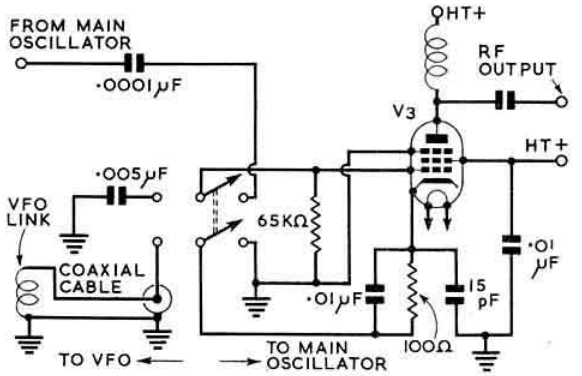


Fig. 3. Switching arrangement for selection of main oscillator or table top v.f.o.

types. It was thought at first that the long path of the cathode return to earth, via the coaxial cable and the link, was directly responsible, but this was proved to be incorrect as the self-oscillation effects persisted when the coaxial cable was removed and the socket connection on the transmitter panel shorted to earth. The 15 p.f. by-pass condenser provided a complete cure, at the cost of a little drop in r.f. output which was not serious on the lower frequencies.

Can You Help?

● E. A. Kimber (B.R.S. 17722), Tone Bridge Cottage, Creech St. Michael, Taunton, Somerset, who requires the crystal frequencies required in the R.1392/P.104 receiver to cover the 2m band and information on converting the crystal oscillator to v.f.o.?

Technical Topics

By PAT HAWKER (G3VA)

PROBABLY as many fixed condensers are used in Amateur Radio equipment as all other components put together. And yet, all too often, we just search around in the junk box for the right number of " muffs " or " puffs," hope the rather dirty object we discover will stand the voltage, and reach for the soldering iron . . . and then wonder why results do not always match up with expectations.

Choosing Condensers

Recently, there have been several useful articles on choosing condensers for particular applications (especially W1ZEO/2 on the right types for an s.s.b. exciter in *QST* July 1958 and W5DF in *CQ* August 1958 on negative temperature coefficient condensers) while a good deal of information for designers appears in the standard reference books. Although a full scale attack on this subject would take more space than can be spared for *Technical Topics*, it is felt that the following notes may at least indicate to newcomers some of the complexities involved.

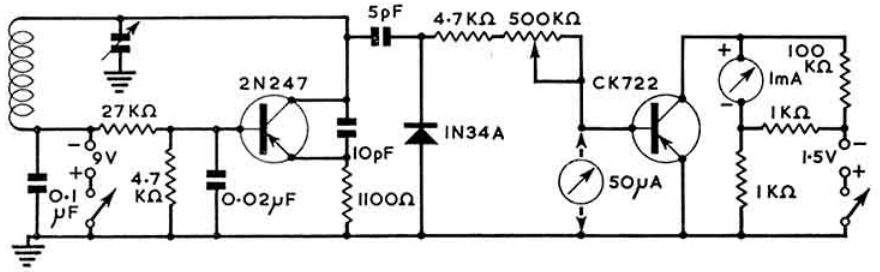


Fig. 1. A transistorized grid dip meter based on recent CQ and QST designs. By using a more sensitive meter the second stage could be omitted. A similar metering arrangement can be used with a valve oscillator. The second stage—the transistor d.c. amplifier circuit—is useful for many other applications (such as harmonic monitors) where a high sensitivity meter is required. Most a.f. junction transistors would be suitable.

Not so many years ago, condensers fell conveniently into three main categories: paper condensers for a.f. work; mica condensers for r.f. circuits; and electrolytics for smoothing. Today, there are dozens of different types, each with its own particular merits, and disregard of a designer's specification may jeopardize results and reliability.

For example, waxed cardboard paper tubulars are still widely used, but should be avoided for any position where a high insulation resistance is essential. After a few years' use—and much less than this in the tropics—their d.c. resistance

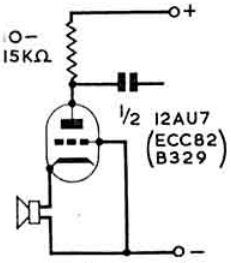


Fig. 2. W5SUC's microphone input circuit for mobile operation. Alternatively, audio compression can be obtained by varying the gain by biassing the grid.

may easily amount to only about 5 Megohms. For many purposes this does not matter much but, for instance, if used for inter-valve coupling may easily result in a positive bias being applied to the following valve; avoid them also for decoupling a.g.c. lines. To reduce leakage there have been introduced many new types of containers which maintain an insulation resistance of some hundreds of Megohms even at quite high temperatures (the effect of high ambient temperatures on the life expectancy of some types of condensers can be alarming).

Then again, the type of voltage applied across a paper condenser affects considerably the ratings required. It is sometimes forgotten that high a.c. voltage peaks may occur in quite low power a.f. stages, and any condensers subjected to these voltages must be rated to withstand the peaks, plus any direct voltage which may be across them. Condensers subjected to continuous a.c. stress—for example chassis, aerial and earth isolating condensers in a.c./d.c. equipment, and those for the suppression of interference in motors, etc.—should always be rated specifically for a.c. working (roughly speaking an a.c. working of 300 volts is about equivalent to a 1,000 volt d.c. rating). For such condensers, petroleum jelly or liquid impregnants are much better than wax. Special types of condensers have been developed for electrical interference suppression, and the use of conventional types for this purpose may prove highly dangerous, as their failure can result in the outer casings of domestic appliances becoming " live."

Moulded mica condensers are still widely used for r.f. purposes, although the smaller size of the silvered mica types has made these very popular. As the power factor of either type of good quality mica condenser is low, they can handle quite high transmitter currents. Silver mica types are very stable over long periods and should therefore be used for tracking and padding in tuned circuits.

Ceramic condensers have taken over many of the tasks formerly allotted to mica condensers, except where a very high order of stability is necessary. The so-called high-permittivity (high-κ) types are useful and economical for most r.f./i.f. decoupling, and similar purposes. In the low-permittivity class, deliberate use can be made of their sensitivity to temperature variation to provide compensation for changes which would otherwise occur in tuning circuits during warming up. There are few modern television and f.m. tuners which do not make use of this characteristic to keep frequency drift within permissible limits (admittedly, these tend to be wide by communications standards), and correct use of such condensers can greatly reduce drift in receivers and v.f.o.s. Incidentally, even professional designers tend to determine the type of drift correction condenser required in a circuit largely by " try it and see " work on prototypes, so the amateur need not be discouraged. By using one of the N750 (i.e. 750 parts/million/degree Centigrade) types the value of this condenser can usually be kept a small proportion of the total capacity across the tuned circuit. With some ceramic condensers, excessive heat from a soldering iron can cause permanent damage.

Electrolytics have improved beyond all recognition over the years; a remarkable number of " muffs " can now be contained in a very small space, and will continue to stay there happily for many years (it is not so long since a respectable explosion in a broadcast receiver at G3VA sent the contents of an electrolytic far and wide). At least one broadcast receiver has 116μF of smoothing and 300μF is a common figure for television sets; a transistor receiver may have 200μF across the battery. But even today it is worth remembering that the shelf or junk box life of an electrolytic is much less than when in regular service. After some months out of use, the insulation resistance falls sharply, and

the condenser then requires re-forming (or re-ageing as it is often called) before putting into use. Otherwise, there may easily be a blown condenser and, more likely than not, a dead rectifier valve. The usual method of re-forming a condenser is to apply the normal d.c. working voltage through a limiting 10K ohms resistor until the leakage current falls to a low figure.

Looking over these notes, it is realised that such important points as series inductance, tolerances, ripple currents, and the like, have had to be omitted; but at least we may have shown that there is more than just a couple of lines on a diagram to the modern fixed condenser, and that we can no longer ignore specified types with impunity.

Grid Dip Meters

If the amateur draws on the professionals for fixed condenser developments, at least one device has recently travelled in the opposite direction. This is the useful grid dip meter, now popular far beyond the field of Amateur Radio. Although the conventional circuit is highly reliable, several variations have become popular lately. Both in modern transistorized versions (see *QST* June 1958 and *CQ* September 1958) and in valved meters (see *Radio and Television News* August 1958), there is a trend to take the meter out of the oscillator circuit and use it to monitor the r.f. developed across the tuned circuit (Fig 1); this is done with the aid of a crystal diode. When the oscillator is brought near a resonant circuit, r.f. is " sucked " out of the tuned circuit, and the familiar dip obtained. The instrument can then be used also as a field-strength meter or telephony monitor without power

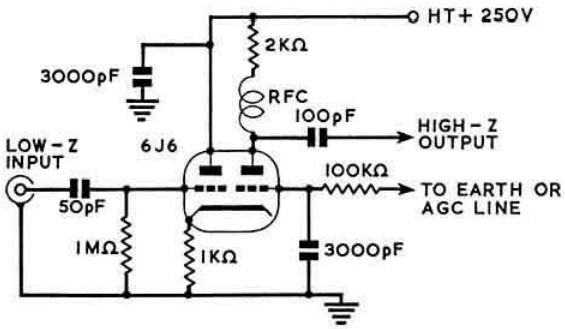


Fig. 3. IIDAJ's T-R switch described in QST, September 1958.

being supplied to the oscillator. For transistor meters, a sensitive meter of the order of 50 μA f.s.d. is required if the meter is placed directly across the diode output, but a much less costly meter can be used by adding a simple d.c. transistor amplifier, using one of the normal a.f. transistors. At the moment, high frequency transistors for the oscillator stage are not easy to come by in this country, although one firm (Semiconductors Ltd.) is now producing suitable surface-barrier types.

Grounded-grid Microphone Amplifiers

The grounded-grid input stage, which permits the use of a carbon microphone without an input transformer or battery, is now a familiar feature of mobile work. In *CQ* (September, 1958), W5SUC shows that the gain of this arrangement is much improved by the use of a low anode load resistor, as the increase in microphone current more than compensates for the loss due to mis-matching: see Fig. 2. He also shows that the grid of this valve can be put to good use by rectifying a little of the audio output of the modulator, and by bringing the d.c. bias so obtained to the grid to provide automatic volume compression (permitting a higher average modulation percentage).

From All Quarters

In the July *Technical Topics*, two multi-band aerials using 300 ohm feeders were described; since then G2NS (see September issue) and other correspondents, including G3GKS, have pointed out that the " T2FD " can be used effectively on most bands. The other aerial, the off-centre-fed 300 ohm dipole (Windom), normally covers all bands from 3·5 to 28 Mc/s with the exception of 21 Mc/s. In *Radio and Television News* (July 1958), W9GJY comes up with a means of using this aerial on 21 Mc/s by adding two shorted quarter-

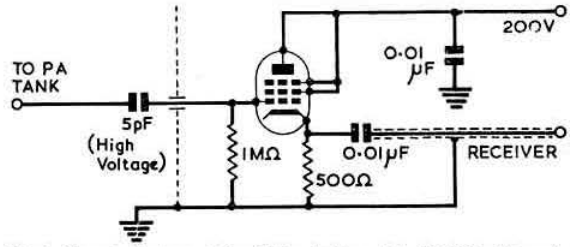


Fig. 4. Circuit diagram of the T-R switch used by G3GSZ. The valve is an EF50. The unit is built into a small metal box clipped to the side of the transmitter cabinet through which a short lead connects to the high voltage input condenser.

wave stubs, at 76 ft. and 38 ft. from the feed point. The stubs at W9GJY are made of 300 ohm feeder brought inwards and supported along the aerial by small stand-off insulators.

Two short items from *Radio and Television News* (August 1958): a description of a Russian receiver powered by thermo-couples heated in a kerosene lamp (we always knew somebody, some day would find a use for those gas-operated units that created almost as much a sensation at the 1936 Radio Show as stereo discs did this year); secondly, a hint for those whose " bug " keys wander on the desk—use threaded rubber suction caps of the type used for car accessories.

Three different T-R switch circuits appear in September 1958 *QST:* one, using the readily available 6J6, without a wide-band transformer, is shown in Fig. 3. With a high impedance output, it should be made part of the receiver and coupled directly to the grid side of the receiver aerial input transformer.

The circuit diagram of the simple T-R switch referred to by G3GSZ in his letter on page 188 of the October issue of the BULLETIN is shown in Fig. 4.

The European Band Plan

PLANNING of the high frequency amateur bands was originally put forward by the R.S.G.B. and has since been adopted by all European I.A.R.U. Societies. The plan, which is voluntary, is as follows.

Frequency Band	Type of Emission
3500— 3600 kc/s	Telegraphy only
3600— 3800 kc/s	Telephony only
7000— 7050 kc/s	Telegraphy only
7050— 7150 kc/s†	Telegraphy and Telephony
14000—14125 kc/s	Telegraphy only
14125—14350 kc/s	Telegraphy and Telephony
21000—21150 kc/s	Telegraphy only
21150—21450 kc/s	Telegraphy and Telephony
28000—28200 kc/s	Telegraphy only
28200—30000 kc/s	Telegraphy and Telephony

†7100–7150 kc/s Shared with broadcasting which has priority

Transistor A.F. Amplifiers for Portable Mobile Operation

By C. COLLINS (G8SC, ZC4SC)*

RECENTLY a small modulator utilizing transistors throughout was described,† its principle advantage being the considerable reduction in power consumption over a comparable unit employing valves. Similar economies cannot yet be realized by transistorizing the r.f. portion of a mobile transmitter since suitable r.f. power transistors are not generally available in the U.K. However, there is ample scope on the receiving side. Although the power drawn by ordinary small receivers is much less than the corresponding transmitter, the usual ratio of receive to transmit time is such that economies in receiver consumption are very worthwhile. Reduction in the physical size of equipment is also possible by using transistors.

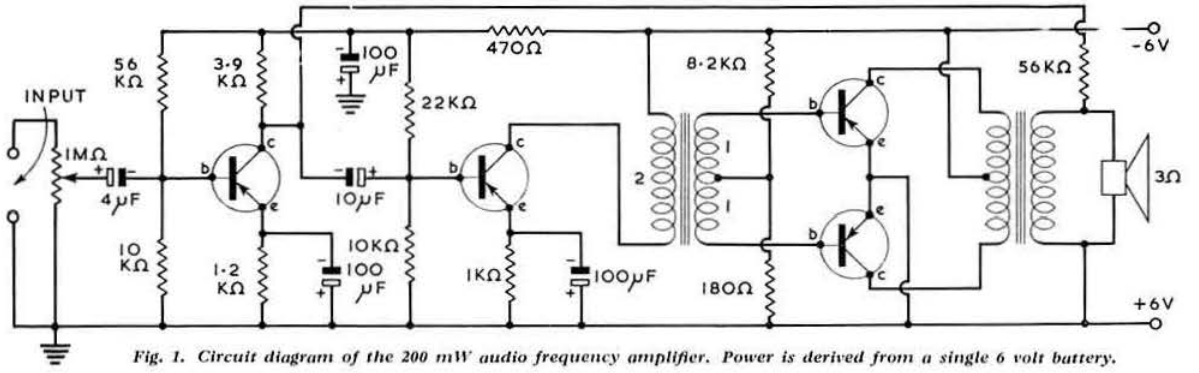


Fig. 1. Circuit diagram of the 200 mW audio frequency amplifier. Power is derived from a single 6 volt battery.

A logical first step is to transistorize the a.f. portion of a receiver and a description of two amplifiers follows. However, before deciding on the most suitable type of amplifier some consideration must be given to operating requirements.

For actual mobile operation or where a relatively large volume of sound is required, a push-pull amplifier having a rating of about 250 mW at 10 per cent distortion will be required. In practice, by limiting the base response somewhat, and by hard driving and accepting rather more distortion, considerable output can be obtained on speech for standing currents of 5–6 mA, average currents of 20 mA and peak currents of 55–65 mA from a 6 volt dry battery. Such distortion does not reduce the readability of speech signals but simply gives them a "hard" quality which is by no means unpleasant to listen to.

Alternatively, if maximum economy in space and battery consumption is required a simple three-stage amplifier having an output of 10–15 mW for a consumption of 4–5 mA at 4·5 volts will be quite adequate for static operation when using a small loudspeaker, or when mobile if the operator wears headphones. In no circumstances should the wearing of headphones by a driver whilst mobile be considered.

To ensure success with transistor amplifiers, a few points must be borne in mind. It is essential to prevent r.f. pick-up in the early stages of the amplifier since in strong fields it is possible to wreck the transistor. Suitable screening and filtering is not difficult to arrange and the screening of interconnecting leads where they are exposed is a help.

It must also be remembered that the heaters in modern cars are most effective and since the characteristics of transistors vary greatly with heat, a mounting location away from heater ducts is obviously desirable. When wiring up, the use of heat shunts on the transistor leads, or for that matter, on all small components, is most necessary.

A 200 mW Amplifier

A circuit for a 200 mW amplifier is given in Fig. 1. This arrangement is, incidentally, available as a kit of parts, including a printed circuit, from Messrs. Lasky of Tottenham Court Road, London. Alternatively, it is a simple matter to rig up such an amplifier on a tag board. In either case the amplifier may be housed in the loudspeaker case or in a small metal box. The turns ratio of the output transformer should be approximately 5 + 5 : 1.

A 10–15 mW Amplifier

The circuit of this amplifier, which has been reduced to essentials, is given in Fig. 2 and has been built upon a small tag strip measuring 2 in. × 3½ in. Both of these amplifiers have been given a thorough workout for some months, the larger as a gramophone amplifier feeding into a 10 in. speaker and the smaller as a personal receiver feeding a 5 in. loudspeaker with a germanium diode rectifier and a ferrite rod aerial.

Both have also been used as output stages following the second detector in the writer's two-metre receiver.

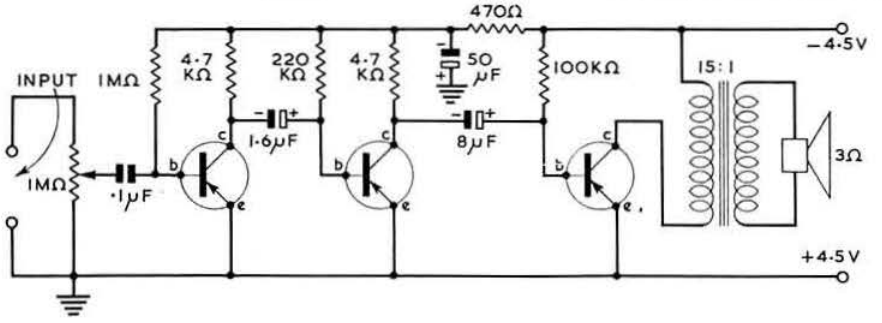


Fig. 2. The 10–15 mW transistor amplifier.

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

† *"A 10 Watt Modulator using Power Transistors," R.S.G.B. Bulletin, August 1958.*

Annual Report of the Council

THE Report which follows deals with the work of the Society during the year ended June 30, 1958, and covers major activities only. A Supplementary Report dealing with the period from July 1, 1957, to the early part of December 1957, was submitted to the Annual General Meeting of the Society held on December 13, 1957. A Supplementary Report covering a similar period for the current year, will be presented to the members present at the Annual General Meeting on December 12, 1958.

Membership

For the second year in succession an increase in membership can be recorded. The net gain amounted to 600, compared with a net gain of 393 last year. During the period from 1949 to 1956 losses had been recorded each year.

As at June 30, 1958, the total membership was 9,095 compared with 8,495 a year earlier.

The following table compares the number of members in each grade over the past two years:

	1957	1958	Gain
Corporate Members:			
Licensed	5,490	5,898	408
Not Licensed	2,710	2,768	58
Associates	295	429	134
	8,495	9,095	600

An analysis has been made to ascertain the number of members who are licensed to operate an Amateur Radio station. This shows that as at June 30, 1958, 64·8 per cent of all Corporate Members held a licence. The percentage last year was 64·6.

Details of the analysis, compared with 1957, follow:

	1957		1958	
Corporate Members (Licensed)				
Country	3,429		3,575	
London	1,149		1,224	
Overseas	912		1,099	
		5,490		5,898
Corporate Members (Not Licensed)				
Country	1,764		1,788	
London	764		792	
Overseas	182		188	
		2,710		2,768
Associates				
Country, London and Overseas		295		429
		8,495		9,095

London members are those who reside within a radius of 25 miles of Charing Cross. The whole of Surrey is also included in the London Region.

As at June 30, 1958, 8,190 United Kingdom Amateur (Sound) Licences were in force. At the same date 577 Mobile and 67 Television licences had been issued. The figures a year earlier were 7,546 Sound and 395 Mobile licences.

At the end of June 1958 approximately 60 per cent of all U.K. licence holders were members of the Society, a similar figure to that recorded a year earlier. Concerted efforts to increase the membership met with success but many newly-licensed amateurs are not yet members of the Society. During the year approximately 1,400 members were elected but as the net gain was only 600 it will be seen that some 800 members failed to renew their subscriptions.

The Council records its thanks to Mr. J. D. Kay (G3AAE) who, during the year, was responsible for enrolling 102 new members, making his total for the past two years, 182.

R.S.G.B. Bulletin

Volume 33 of the Society's Journal ran to 592 pages, an average of just over 48 pages per issue compared with the 580 pages that comprise Volume 32.

Monthly commentaries were again contributed by Mr. F. G. Lambeth, G2AIW (" Four Metres and Down ") and Mr. S. A. Herbert, G3ATU (" The Month on the Air "). Mr. J. D. Kay (G3AAE) continued his monthly Frequency Predictions.

The technical standard remained at a high level but no outstanding original work was published during the year. The Bevan Swift Memorial Prize for the most meritorious contribution to Volume 33 was awarded to Mr. George Jessop (G6JP) for a description of his 144 Mc/s Crystal Controlled Converter. The first award of the Ostermeyer Trophy (donated to the Society by the widow of the late Mr. E. Dawson Ostermeyer, G5AR, a Past President), was made to Mr. J. M. Railton (G8AB), whose miniature high power transmitter was considered to be the best piece of home-constructed equipment described in Volume 33 of the R.S.G.B. BULLETIN.

The Council, acting on the advice of the Technical Committee, decided that no contribution had qualified for the Norman Keith Adams Prize or for the Varney Trophy.

Revenue from advertising increased during the year which helped materially to offset the increase in postage charges. The Council records its thanks to contributors and advertisers.

The International Geophysical Year

As reported upon in the Supplementary Report presented to the membership at the 1957 Annual General Meeting, Society members are making useful contributions to the International Geophysical Year. (An interim report on the various activities undertaken by members appeared in the July 1958 issue of the Society's Journal.)

The Council records its thanks to the I.G.Y. Co-ordinators (Messrs. G. M. C. Stone, G3FZL, and C. E. Newton, G2FKZ) for the great work they have already undertaken on behalf of the Society. Thanks are also recorded to the many members who have contributed, and are continuing to contribute, to the work of the I.G.Y. A special certificate has been awarded to those who have reported consistently to the I.G.Y. Co-ordinators.

An I.G.Y. marker station, previously reported, has been operated by Mr. K. E. S. Ellis (G5KW), whilst special high power licences for I.G.Y. work on 52·5, 144 and 420 Mc/s were issued during the year to those members who had applied for them.

Radio Amateur Emergency Network

During the year, as the result of discussions at a meeting of Chief Constables, the Home Office decided to ask the Post Office to agree that radio amateurs should be permitted to co-operate with the police in an emergency, or during exercises, in the same way that radio amateurs are permitted to co-operate with the British Red Cross Society and St. John Ambulance Brigade.

The Emergency Network has continued to improve its organization by the establishment of chains of stations along certain key routes. Happily the Network has not been called upon to act in an emergency but it is gratifying to know that the organization has carried out a number of valuable exercises which have received commendation from the police and other services.

The work of the Network has again been co-ordinated by the R.A.E.N. Committee under the chairmanship of Lt.-Col. A. C. Dunn (G2ACD) who has had the valued support of Mr. E. Arnold Matthews (G3FZW) as Honorary Secretary.

News Bulletin Service

Regularly every Sunday morning a News Bulletin compiled by Headquarters staff has been transmitted on frequencies in the 3·5 Mc/s and 145 Mc/s bands. Due to interference from other stations the transmissions on 7 Mc/s were discontinued.

The Bulletins were read by a number of authorized operators, but the brunt of the work was undertaken by Messrs. A. O. Milne (G2MI) and W. R. Metcalfe (G3DQ) on 3·6 Mc/s, and by Messrs. K. E. S. Ellis (G5KW) and H. Beaumont (G5YV) on 145 Mc/s.

It is difficult to assess the value of the News Bulletins but there is evidence to show that they are listened to with interest by many members.

Exhibitions

The Society's stand at the National Radio Show, Earls Court, 1957, attracted a good deal of attention and as a reuslt more than 60 new members were enrolled.

During October 1957 a Radio Hobbies Exhibition was held in the Old Hall of the Royal Horticultural Society, London. This new venture owed its success to the enthusiasm and inspiration of Mr. P. A. Thorogood (G4KD) who undertook the organization of the Exhibition. The attendance during the four days of the exhibition exceeded 7,000. Exhibitors expressed satisfaction with the results achieved. An active amateur station operated throughout the period of the exhibition under the call-sign GB3RS/A.

The Council records its thanks to the members of the Exhibition Committee who were responsible for the organization of the R.S.G.B. stands at the National Radio Show and at the Radio Hobbies Exhibition.

The Chairman of the Committee was Mr. C. H. L. Edwards, A.M.I.E.E. (G8TL). Mr. F. F. Ruth (G2BRH) undertook the duties of Stand Manager at both exhibitions with enthusiasm and efficiency.

Scheme of Representation and Affiliated Societies

In order to broaden the scheme of representation, societies affiliated to the R.S.G.B. were invited to nominate members to serve as Affiliated Societies' Representatives. Societies taking advantage of this new arrangement were entitled to take part in the R.S.G.B. National Field Day event for 1958, and 13 did so. Unfortunately less than a quarter of the 130 Societies affiliated to the R.S.G.B. have appointed A.S.R.s.

The Council, through the Membership and Representation Committee, the Chairman of which is Mr. H. A. Bartlett (G5QA), has given much thought to the present three-tiered scheme of representation but so far no entirely satisfactory alternative has been devised.

The Council records its thanks to those who have acted as representatives and also to the many members who have helped forward the work of local groups.

Official Regional Meetings

Official Regional Meetings were held in Cardiff (September 21, 1957), Prestatyn (September 29, 1957), Nottingham (April 20, 1958), Birmingham (May 11, 1958), Cambridge (June 29, 1958) and Exeter (June 29, 1958).

Attendances varied a great deal but on the whole there appeared to be rather less interest in such functions than in mobile rallies and events of a more social nature.

The Council records its thanks to those who organized and supported the meetings and to the many trade concerns and individuals who donated prizes for raffles.

Mobile Rallies

During the year a number of mobile rallies took place in various parts of the country. The rallies were organized in the main by local R.S.G.B. groups or affiliated societies. The rally held at Woburn Abbey, Bedfordshire, on September 29, 1957, attracted an attendance estimated to have exceeded 500 persons and more than 250 vehicles.

Mobile operation has led to the development of many ingenious devices and circuits. At most of the rallies prizes were given for the best items of equipment on show.

Rally organizers are thanked for making a valuable contribution to the corporate activities of the Society.

V.H.F. Conventions

Successful V.H.F. Conventions were held in Glasgow (March 15, 1958) and London (May 17, 1958). The latter event was organized jointly by the R.S.G.B. V.H.F. Committee and the London U.H.F. Group.

International Matters

The Council decided during the year to appoint delegates to attend a Conference of I.A.R.U. Region 1 Member Societies in Bad Godesberg, Germany, during July 1958. A report of the major decisions reached at that Conference appeared in the August 1958 issue of the R.S.G.B. BULLETIN.

The Council also decided during the year to nominate the General Secretary as a member of the I.A.R.U. Region 1 Delegation to the Ordinary Administrative Radio Conference which is due to open in Geneva on August 17, 1959.

In preparation for the Geneva Conference, the Society was invited by the G.P.O. in November 1957, to submit its proposals for frequencies. After carefully considering present-day frequency problems the Council decided to ask for the retention of all existing allocations and for consideration to be given to a few minor additions. The views put forward by the Society were subsequently examined by the Steering Committee which had been set up by the G.P.O. to prepare for the Geneva Conference and from information subsequently received it would appear that the United Kingdom Government will propose to the Conference that the present frequency allocations for amateurs in Region 1 shall remain unchanged except for very minor amendments and additions.

Frequency Advisory Committee

In January 1958 it was announced that a committee had been set up " to advise the Postmaster General on the broad aspects of radio frequency planning with a view to the efficient use of the radio frequency spectrum and the economic development of equipment for that purpose by the radio industry ".

The General Secretary was invited to serve on the Committee which meets under the chairmanship of Sir Lawrence Bragg, O.B.E., M.C., F.R.S. Dr. R. L. Smith-Rose, Director of Radio Research, D.S.I.R., Honorary Member and President-Elect, Major-General Eric S. Cole, Director of Telecommunications, War Office (G2EC) and Mr. C. G. Phillips, O.B.E., Ministry of Transport and Civil Aviation (G5PJ), are also members of the Committee.

Intruder Watch

Major D. W. J. Haylock (G3AWZ) and the members of his Intruder Watch have continued to provide Headquarters with evidence of the presence of commercial and broadcast stations in bands exclusively assigned to amateurs.

Reports from the Intruder Watch have been forwarded to the G.P.O. who have been asked to register protests with

the appropriate administrations. Some successes have been achieved.

Members of the Intruder Watch are thanked for their co-operation.

Radio Amateurs' Examination

Two examinations were conducted during the year. The first, by the G.P.O. in October 1957, resulted in 67 (76 per cent) passes and 21 (24 per cent) failures. The second, by the City and Guilds of London Institute in May 1958, resulted in 518 passes (72·4 per cent) and 198 (27·6 per cent) failures. The 1958 examination was conducted in accordance with the new syllabus which places added emphasis on licence regulations.

The percentage of failures in the 1958 City and Guilds examination was less than in 1957 (34 per cent) but the number of failures was actually greater (185 in 1957; 198 in 1958). It would appear that the majority of those who failed the examination studied on their own.

Courses of instruction were arranged by local education authorities in various parts of the country, but there are still many towns and cities where prospective amateurs must depend upon correspondence courses. The Council trusts that Town Representatives will use their best endeavours to provide courses of instruction if the local education authority is unable so to do.

Contests

Once again the Society organized a wide variety of contests designed to cater for all interests. The R.S.G.B. Telephony Contest, which took place during November 1957, attracted 122 entries and check logs, compared with 102 for the 1957 Contest. The winner for the second year in succession was Mr. D. A. G. Edwards (G3DO), with Mr. G. A. Bird (G4ZU), in second place. United Kingdom stations occupied the first 14 positions in this world-wide contest.

The High Power Section of the 1958 B.E.R.U. Contest was won by Mr. R. G. Henwick (ZS6DL) with Mr. G. F. Barrett (ZC4IP), second, and the 1957 winner, Mr. V. Williams (VE3KE), third. In the Low Power Section the winner was again Mr. J. C. van Wyk (ZS6R). Mr. D. C. Piccirillo (ZD2DCP) was second and Mr. E. D. Willies (ZB2I) third. Mr. W. E. Wilkinson (B.R.S.20317) beat Mr. B. K. Dare (G3JFT/HN), by a small margin to win the Receiving Contest.

The ever-popular National Field Day event was won by the Gravesend Radio Society with Stamford and District R.S.G.B. Group in second place.

Support for some of the more specialized contests was below expectations but the Top Band and Two Metre events attracted good support.

The Contests Committee was under the Chairmanship of Mr. W. H. Matthews (G2CD) until December 1957 when he stood down in favour of Mr. D. A. Findlay, D.F.C. (G3BZG).

Technical Committee

The Technical Committee under the Chairmanship of Mr. H. A. M. Clark, B.Sc.(Eng.), M.I.E.E. (G6OT), has given valuable assistance to the Council and Editorial staff on various matters of a technical nature. Certain members of the Committee have served on the Handbook Sub-Committee.

V.H.F. Committee

The V.H.F. Committee under the Chairmanship of Mr. W. H. Allen, M.B.E. (G2UJ), has dealt with a variety of matters concerning v.h.f. operation. Members of the Committee assisted in the organization of the London V.H.F. Convention.

TVI/BCI Committee

A new committee whose task it is, *inter alia*, to investigate interference complaints and generally to give advice to members was constituted during the year under the Chairmanship of Mr. D. A. Findlay, D.F.C. (G3BZG).

Publications Committee

A Publications Committee, also under the Chairmanship of Mr. D. A. Findlay, D.F.C. (G3BZG) was set up to examine all current Society publications and to put forward proposals for new ones.

R.S.G.B. Amateur Radio Call Book

The 1957-1958 edition of the *R.S.G.B. Call Book*, published in November 1957 was the most comprehensive publication of its kind ever produced in the United Kingdom being based on the official Post Office Call Sign Record. More than 99 per cent of the call-signs which had been issued up to the time the edition closed for press were listed. The Council records its thanks to Mr. W. J. H. Kempton (G8LN), who was responsible for collating the information and for preparing it for publication. A printing of 5,000 copies was exhausted within nine months of publication.

The Amateur Radio Handbook

The Council much regrets that production of the new edition of the *Amateur Radio Handbook* has been delayed for a variety of reasons. The Council is making every effort to ensure that the new edition appears during 1959.

QSL Bureau

The Society's QSL Bureau has continued to handle very large quantities of cards with speed and precision. The Bureau was again managed by Mr. A. O. Milne (G2MI) who had the fullest possible co-operation of a team of sub-managers.

The Council records its thanks to all who have assisted in the operation of the Bureau.

Slow Morse Transmissions

Once again the Council desires to place on record its thanks to the many members who have assisted with Slow Morse transmissions. This service has been greatly appreciated by those preparing for the Radio Amateur Certificate. Mr. C. H. L. Edwards, A.M.I.E.E. (G8TL) was responsible for supervising the programme of transmissions.

Honorary Certificates' Managers

For the first few months of the year under review, Mr. Ron Perks (G4CP) continued his duties as Honorary Certificates' Manager but due to pressure of business he was subsequently compelled to resign. His successor was Mr. George Verrill (G3IEC). Both Mr. Perks and Mr. Verrill are cordially thanked for the very great services they have rendered to the Society. Between them they have handled many hundreds of certificate claims, including a great many from non-members.

It is of interest to record that although the Empire DX Certificate has now been available for more than 11 years the total number issued to date is less than 200—proof of the claim that it is still one of the most difficult of all major DX awards to obtain. Each Empire DX Certificate is produced by hand on vellum by Mr. G. A. C. Wakeling and a special badge is sent to those who qualify for the certificate.

Films and Tapes

Mr. L. S. Gillham continued to act as Honorary Curator of the Society's Film Library, whilst Mr. E. S. G. Fish (G2HCZ) performed a similar honorary service as Curator of the Society's Library of Tape Recorded Lectures until

pressure of business compelled him to resign. He was succeeded by Mr. F. H. Lawrence (G2LW).

The Council records its thanks to the Honorary Curators, all of whom have performed great service to the Society.

London Lecture Programme

The following programme of lectures was arranged at the Institution of Electrical Engineers, London:

September 27, 1957.—" Trends in Aerial Design for the Amateur," by S. Kharbanda, A.M.Brit.I.R.E., Assoc.I.E.E. (G2PU), Labgear (Cambridge) Ltd.

November 1, 1957.—" Microwave Link Equipment," by S. Korytko, Transmission Division, Standard Telephones and Cables Ltd.

November 29, 1957.—" Some Aspects of Atmospheric Radio Noise," by F. Horner, M.Sc., A.M.I.E.E., D.S.I.R., Radio Research Station.

January 24, 1958.—Presidential Address followed by a lecture " The Human Machine as a Radio Operator," by F. J. H. Charman, B.E.M. (G6CJ).

February 14, 1958.—" The TVI Problem," by G. A. Bird (G4ZU), Radio Group, London Regional Headquarters, G.P.O.

March 21, 1958.—" The Junction Transistor and its application to Short-wave Radio," by E. Wolfindale, B.Sc., A.M.I.E.E. and L. E. Jansson, Mullard Radio Valve Co. Ltd., Southampton.

Council and Committee Meeting Attendances

The following is a list of attendances by members of the Council for the period from July 1, 1957 to June 30, 1958:

Name	Council Meetings		Committee Meetings
	Possible Attendances	Actual Attendances	Attendances
Allen, W. H.	12	10	17
Bartlett, H. A.	12	7	6
Caws, N.‡	6	6	4
Edwards, C. H. L. ..	12	12	17
Ellis, K. E. S.†	6	6	4
Findlay, D. A.	12	11	16
Green, W. J.*	11	11	2
Hammans, R. H. ..	12	0	1
Hicks-Arnold, F. ..	12	4	1
Hum, J. H.	12	11	10
Ingram, E. G.* ..	11	7	1
Matthews, W. H.† ..	6	6	7
Metcalfe, W. R. ..	12	12	2
Milne, A. O.	12	11	2
Mitchell, H. W. ..	12	0	0
Newnham, L. E. ..	12	12	14
Scarr, W. A.	12	9	2
Williams, A. C.‡ ..	6	5	2
Yeomanson, E. W.‡ ..	6	6	7

* Elected August 1, 1957. † Retired December 31, 1957. ‡ Elected January 1, 1958.

During the year 48 Committee Meetings were held. The attendances of Council Members at these meetings is shown above.

Extraordinary General Meeting

At an Extraordinary General Meeting of the Society held on December 13, 1957, a special resolution to amend Article 19 to read " The annual Subscription shall be £2 10s. for Corporate Members and £1 5s. for Associates or such lesser sums as the Council may decide from time to time," was carried by the required majority.

The Home Corporate subscription remained unchanged at 30s. throughout the year under review.

Silent Keys

The Council records with deep regret the passing of a number of members, including David J. Beattie (G2WW), R. L. Kirlew (G6KW), John Cullen (G2AD), A. F. Johnson, C.B.E., D.F.C. (G3JN), Gilbert Tonkin (G5RQ), S. Kember (G6KM), Arthur Simons (G5BD) and George A. Hume (G5UX).

R.S.G.B. Regional Representatives

THE following is a list of R.S.G.B. Regional Representatives and the names of their respective regions:

Region 1.—North Western. B. O'Brien (G2AMV), 1 Waterpark Road, Prenton, Birkenhead, Cheshire.

Region 2.—North Eastern. J. R. Petty (G4JW), 580 Redmires Road, Sheffield 10, Yorkshire.

Region 3.—West Midlands. W. A. Higgins (G8GF), 28 Kingsley Road, Kingswinford, nr. Brierley Hill, Staffs.

Region 4.—East Midland. E. S. G. K. Vance, M.B. (G8SA), 43 Blackwell Road, Huthwaite, Sutton-in-Ashfield, Notts.

Region 5.—Eastern. T. A. T. Davies (G2ALL), Meadow Side, Comberton, Cambridge.

Region 6.—South Central. L. W. Lewis, (G8ML), 117 Fairview Road, Cheltenham, Gloucestershire.

Region 7.—London. F. G. Lambeth (G2AIW), 21 Bridge Way, Whitton, Twickenham, Middlesex.

Region 8.—South Eastern. E. R. Dolman (G2DCG), 20 Canterbury Road, Margate, Kent.

Region 9.—South Western. W. J. Green (G3FBA), 82 Bloomfield Avenue, Bath, Somerset.

Region 10.—South Wales. C. Parsons (GW8NP), 90 Maesycoed Road, Heath, Cardiff, Glam.

Region 11.—North Wales. F. G. Southworth (GW2CCU), Samlesbury, Bagillt Road, Holywell, Flintshire.

Region 12.—East Scotland. A. G. Anderson (GM3BCL), " Helford," Pitfodels, Aberdeen.

Region 13.—South-East Scotland. G. P. Millar (GM3UM), 8 Plewlands Gardens, Edinburgh 10.

Region 14.—West Scotland. D. W. R. Macadie (GM6MD), 154 Kingsacre Road, Glasgow, S.4.

Region 15.—Northern Ireland. J. William Douglas (GI3IWD), 54 Kingsway Park, Cherryvalley, Belfast, Northern Ireland.

Region 16.—East Anglia. H. H. Lowe (G2HPF), " Akabo," Main Road, Boreham, Chelmsford, Essex.

Region 17.—Southern. M. P. Nicholson (G2MN), Ranworth, South Leigh Road, Warblington, Havant, Hants.

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

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

G2 and DL2 calls:	**G. Verrill (G3IEC), 10 Seahorse Street, Gosport, Hants. (Certificates Manager).**
G3, 4 and 5 two-letter calls & GC	**P. Jones (G3ESY), 94 Holme Lacy Road, Hereford.**
G6 calls:	**A. J. Mathews (G6QM), 62 Ashlands Road, Hesters Way Estate, Cheltenham.**
G8 calls:	**A. W. Gover (G4AU), 20A, Cambridge Road, Bromley, Kent.**
G3AAA-BZZ:	**M. Hassall (G3EMD), 99 Shenstone Valley Road, Quinton, Birmingham.**
G3CAA-DZZ:	**C. A. Bradbury (B.R.S. 1066), 13 Salisbury Avenue, Cheltenham.**
G3EAA-HZZ:	**W. J. Green (G3FBA), 82 Bloomfield Avenue Bath.**
G3IAA-KZZ, B.R.S. and A numbers	**C. Usher (G2CCD), 24 Carlisle Road, Dartford, Kent.**
G3LAA-NZZ:	**G. C. Voller (G3JUL), 13 Marlborough Road, Ashford, Middlesex.**
GD calls:	**T. R. Moore (GD3ENK), " Glyn Moar," St. John's, Isle of Man.**
GI calls:	**W. H. Martin (GI5HV), " Swallow Lodge," Greenisland, Co. Antrim, Northern Ireland.**
GM calls:	**D. Macadie (GM6MD), 154 Kingsacre Road, Glasgow, S.4.**
GW calls:	**J. L. Reid (GW3ANU), 28 Walterston Road, Gabalfa, Cardiff.**

THE MONTH ON THE AIR

By S. A. HERBERT (G3ATU)*

THE improved conditions on virtually all bands which carry DX traffic remain very much with us and as winter approaches, m.u.f.'s rise higher and higher and it looks as though we can look forward to something special in the behaviour of long-distance radio circuits in the months ahead. Already, 10m is wide open all day and often far into the night, while the lower frequency bands are in a thoroughly healthy state. Forty metres is as good as it deserves to be. The present occupants—both amateur and non-amateur—have fouled it up so successfully that most of the DX that should be on the band has given it up as a bad job and moved elsewhere. Regrettably, this state of affairs applies also to 80, where, 10 years ago, VK5KO could be heard working Europe almost nightly from 19.00 G.M.T. Nowadays, about all one normally hears on that band is a mess of commercial " mock Morse " or whatever the stuff is supposed to be. Only when an international DX contest is under way is there an opportunity for us to listen and reflect that this is what should be happening all the time. Ah, well!

News from Far and Wide

Christmas Is. (VR3): Cyril Gleeson (ex-**VR3Q**/**JZ0PB**), is newly home from VR3 and he relates sadly that a further plea to Authority to lift the ban on Amateur Radio activity on the island has failed. " In fact," he says, " the subject must now be considered permanently closed." However, all is not lost, for on Fanning Is., where Ray Baty (VR3A) operated until his recent accident, a colleague, Trevor Thatcher, has applied for a licence and hopes to be on, possibly as VR3T, by the end of November. Cyril hears that his old call **JZ0PB** is being used by the man who relieved him from duty in swamp-ridden New Guinea. From experience, he finds the best time for Europeans to work that area is around 12.00/13.00 G.M.T. He himself is enjoying a well-earned rest before moving on to yet another rare DX spot.

Alone to Distant Parts: Greg Lovelock **(G3III)** has been on a flying trip which embraced ZB1, 5A1, SU, VS9 (Aden), AP, 4S7, VS1, ZC5, VK, VR2, VR1/KB6, VR3, KH6, MP4B and ZC4 and as a result he passes along some first-hand news of happenings in places that are just names to most of us. Added to the curtain over VR3, we have KB6BJ (Canton Is.) due to leave for W3 in October. But in Singapore, VS1FJ has 175 of his 210 countries confirmed —this with some 40 watts only. VS1GZ is active on 14, 21 and 28 Mc/s with c.w. and experimental n.b.f.m. 4S7KD told Greg that the Ceylon emergency was extended until the end of October, after which he has hopes of resuming activity on all bands. Newcomers to DX and possibly 4S7KD himself may care to note that G3ATU and several other chasers had little difficulty in working the then VS7NG on *eighty* c.w. a few years back: even with the prevailing horrors at work, a G/4S7 QSO is very much on the cards. Further " gen " from 4S7KD is that VS9MA has now a v.f.o. and has been joined on the Maldives by **VS9MI**, now active with 30 watts on c.w. and 15 watts phone.

Finally, Greg can confirm that **MP4DAA** is in fact on **Das Is.**, in the Persian Gulf. His QSL to VS1FJ is proof conclusive.

G3ID (Dawlish) makes a topical point by relaying that VK4TT is looking for G3III on 14 Mc/s phone. VK4TT also said that FK8AS would operate from Wallis Is. (FW8) during October, but that is past history.

British North Borneo: Clive Berry (G3LZV) is active from Labuan as **ZC5CB**, looking for QSOs on 14 Mc/s. VS1BB/ZC5 was active for a short time on low-power s.s.b. and his QSOs included G2MA, G3CMY, G3HRO, G4CP, GM3EST, KG6FAE and VK9AD on Norfolk Is.

Singapore: Joe Poole (G3MRC, ex-VS2FW) has been **VS1FW** since mid-June, using an 807 p.a. and a long wire, with a CR100 receiver. With 61 countries worked, he is looking forward to the winter and better conditions. Meanwhile, on c.w., he has accounted for DX such as FB9ZZ, VQ8AJC, KC6JC, ZC3AC, FO8AT, OR4VN, CR9AI and by now he may have tracked down JT1AA and JT1YL, plus one or two others on his wanted list.

VS1HU (Kranji) has a Geloso v.f.o. plus 807 rig and is able to use all bands at last. The score is now 186/161, with ZS8I (phone), FO8AT and VP2VB all new. The gang are busy with a 28/21 Mc/s quad, but are held up due to lack of co-ax cable. News items from VS1HU relate that ZC3AC visited Singapore, but is back on Christmas Is. and should be on with his new call—VK9XN. VK9XM is also on the island, which should improve the QSO situation somewhat. AC4AX is heard daily on 14100 kc/s (his only crystal frequency) between 11.00 and 13.30 G.M.T., on c.w. The W6UOU s.s.b. rig is now in Ceylon, en route to the Maldive Is. station.

VS1HU on 21080 kc/s c.w. has been working KR6AK on teletype and they are looking for VK3KF and W0BP, two other R.T.T.Y. stalwarts. Mike wonders if there are any U.K. R.T.T.Y. stations!

North America: G3KZR (Cambridge) and **G3MIK** are home after an " epic " trip which took them through W2, '3, '4, '7, '8, '9, '0, VE2, '4, '5, '6 and '7. They met amateurs in all areas except W3, '7, '9, VE4 and VE6 and a striking thing to them was the amount of home-built equipment in the U.S.A., even among the " big guns " of the DX world. VE7KX's teletype station, for instance, is largely home constructed. YN0YN, XE4A, one of the KC4AF team, and lots more DX men were met. G2PU and G3AAM were mentioned frequently. It seems they occasionally put something of a signal over to the U.S.A.!

W7ADS (Yakima, Wash.) has worked VK2FR (Lord Howe Is.) and ZL3DA (Chatham Is.) on 14 Mc/s A3, with FO8AT and JZ0AG on A1, while on 21 Mc/s, Glenn dealt with VQ9GU and VS9MA, giving him 238 confirmed.

W2CTN has the logs of VK2FR, VK2AYY/LH, FK8AT, VQ3CF, VR2DA and VR2DK and will assist as required. Stout going.

G2MI heard directly from YA1AA, who is W9MOW and is in Kabul. All QSLs *must* go via the Bureaux. Arthur has some cards for ZK1AV, now in the U.K. W2QHH would also like to get in touch with the ZK.

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

VE4TT and his XYL, **VE4ST** are on the lookout for G3s on 14 Mc/s c.w. and phone.

VE7KX is trying desperately to find a European equipped for radio teletype operation for the first ever R.T.T.Y. W.A.C. He already has the other five continents.

Ten Metres

Ten is doing fine these days, though W/VE power houses mask a lot of the DX.

G3FKM (Birmingham) worked VQ1PBD on A3. The voice sounded like VQ3PBD but QSLs should be via the VQ4 Bureau. John wonders if Guinea is a new one now, as FF8AC/GN is active on 14 Mc/s c.w., emphasizing the "GN" part. **G3IFB** (Harrow) worked VS9MA (18.00), FP8AR, VP2AY, VK9DB (10.00), VQ5, ZD7 and KH6 on the key, while G3LKZ (Cleadon) got on to VK9XK and VK9DB, plus 12 other VKs. **G3EYN** (Macclesfield) raised LA4CG/P (10.30), XW8AJ (15.00), KC4USB (17.30) and UI8AJ for new ones on 10.

G3GMY (Potters Bar) contacted VQ4 and MP4BBL on c.w. while c.w. for **G3FPK** (E.10) made it 43 on 10 with EL, UA9, VK, VK9 andZL.

Fifteen Metres

With DX easier to come by than is the case on ten, business has been brisk and **G8OJ** (Manchester) hooked XE1PJ, DU7SV, VS1, JA and KM6BL, who asks for QSLs via KM6AX. **G3AAE** (Barnet) worked the KM6 at 08.45 ('065), FK8AT ('105-07.30), HR1, UL7 and VS9AS on c.w. **G6XL** (Leeds) had phone contacts with VK9LE (Cocos, '120, 15.45) and ZK2AB ('200, 07.45), whereas **G3KAA** (Luton) used c.w. to QSO LU1ZS (South Shetlands, 22.00), VS9AT (Aden) and JA7AD, though FB8XX (13.00), KH6MG/ZK1 (10.00), ZD1FG and KW6CO eluded him.

G3FKM cannot remember hearing so much DX on the bands before; his G4ZU three-bander helped him work KX6BT and XW8AH on c.w. and to QSO FB8XX, '8ZZ, KM6BP, XZ2SY and ZK2AB on A3. On c.w., **G3EYN** raised a brand new one in HC8LUX on the Galapagos, plus K7BQJ/7 (Utah), KR6JF and VR2AS. **G3FPK** went to 74 with UQ2 and VK9, plus ZL2 for his B.E.R.T.A. Norman was ignored by UN1AE, VQ5EK, ZD1FG and KM6BL. The KM6 said that if anyone else called him while he was in QSO, he'd close down, whereupon several YUs immediately called him! Who would be a rare DX station!

B.R.S.20135 (Newport, I. of W.) has his SX28 back and often hears VK2OQ in the evenings with a good signal. Other phone DX logged recently was VR2DE, VP3HAG, VP5BL and 9K2AZ, while a nice one slipped from 28 Mc/s was HS1B. **B.R.S.21918** (Hayes) heard SV0WT (Crete) and VS9AO on A3, while **B.R.S.20317** (Bromley) dug for JT1AA, KM6, KX6BT (10.00 to 15.00), VK9 and ZD1FG on A1. He also logged PY7SC (Fernando da Noronha) on A3 at 19.25Z, and heard KR6LW and KW6CB ('530, 09.40) on ten.

B.R.S.20106 (Petts Wood) logged FP8AR, VP8CY (11.20), ZD1FG (08.30), VP8CV (20.00), JA9FV (08.30), KM6AX, '6BL on the key with TG7JD (02.00), HS1E and VU on phone. He heard FS7RT on s.s.b. on *ten.*

B.R.S.21762 has been uprooted from Loughton, Essex, and finds himself some 100 yards away from G3ATU at Roker. He has what amounts almost to an underground aerial which, when added to the fierce electrical accompaniment from un-suppressed sewing machines, cramps his style more than somewhat. However, an aerial in the clear will see him happily at it once more. **B.R.S.2292** (Hounslow) found one morning session—07.45 to 09.00—produced nothing nearer than 10,000 miles with KM6BL the best signal, ploughing through legions of half-witted European callers. VR2DG was also there. I5AAW, KG4AY, VK7KA, VS6 and VS9 on c.w. were logged at odd times.

Fourteen year old **A.1583** (Penryn) heard phone from VK2, VK3, ZL1 and 4 while another 14 year old, **A.1622** (York), logged ZP5FC, VP6KL, MP4BCC and CO2ZH. **A.1437** (Bristol) comes in with ZD1EO and VP8BI (Base "A"), both new ones.

Twenty Metres DX Happenings

Little needs to be said about 20 except that just as much variety exists as ever it did, though non-amateur interference is becoming too noticeable by a long way and this particular problem will have to be tackled eventually by somebody, preferably before the situation gets out of hand.

G3IGW (Halifax) removed VP2AY, VP4WI, VP5BL, VP9Y, W3ZA/3W, OA4GT and UH8 from his wanted list and turns the century on the band. **G3AAE** heard that HC8LUX came up on 14306 kc/s s.s.b. at 04.00 and dragged himself out of bed in time to hear the HC duly appear, only to swap S9 reports with Ws and VEs until 06.30, when he faded out under a jammer. Ah well, t'was ever thus! John hears that a VQ1 is on 21 Mc/s phone and that VQ4ERR will be on s.s.b. early next year from VQ3 *and* VQ1. The month's best DX was AC4RF—he was in the shack at the time, though!

G6XL *did* QSO HC8LUX at 06.45 (QSL to W0LUX), then he worked FB8YY ('330, 07.30), YS1O and heard YS1MM ('315, 05.00) and MP4DAA. **G3KAA** had c.w. QSOs with VP4WI (QSL to W4ORB), VQ3CF (23.30) and heard PY7AFN (Fernando da Noronha, 23.00), XW8AI (22.30), KS4AZ (23.00), VP8DN (Grahamland), VK0IJ and SM5WN/LA/P (22.00). A QSL came over from KP6AL (W7FNK). **G3IFB** worked VP2AY, VU2SL and VP8DN, missed FK8AS (19.00) and received the No. 7 W.A.S.M. to go to a G.

G3FKM heard some choice items. On c.w., K6IGP/KP6 and W3ZJU/KP6 were working Ws (09.00), while W2EPS/KJ6 ('068, 08.00) and FU8AE (08.00) were on, as was FB8CH (Comoros?, '091, 18.00), while VS5BY was there on s.s.b. John's QSOs were equally special. On A3 he worked ZL3DA (s.s.b.), HC8LUX and VK0KT and on A1 he accounted for KS6AG (her first G), KM6BJ, KS4BJ, KS4AZ, KH6MG/ZK1 (Danger Is.), KX6ZC, XW8AI and someone signing MT4TG, who said he was in I5! **G3EYN** QSO'd KH6MG/ZK1, stated to be on Pogo Is., which he hopes will count as a new one and trapped VS9MI (20.00), KS4AZ, VP8DG and VP4WI. He heard HL9KR, too. He has sent all 320 cards required for W.A.Z. and W.P.X. 300. The total postage came to £1! **G3GMY** worked OY2H on c.w. for a new one, while G3FPK was another lucky one with HC8LUX.

B.R.S.21279 (Birmingham) heard an intriguing QSO on s.s.b. between 9K2AM and 9K2AM/M, the latter near Madrid and apparently driving "His Excellency"! He received a QSL from VP2VB—free! **B.R.S.20317** votes last month the best since 1956, with five new ones heard. On c.w., he got KH6MG/ZK1 (Danger Is., in the Tokelaus), HV1CN, VP2AY, VP2GL and on s.s.b., VQ1ERR (already!) and ZL3DA (Chatham Is.), fell to him, making his total 238C, with 213 on 14 Mc/s c.w. only. Very good. **B.R.S.20106** also logged VQ1ERR (19.10), with HK0AI, YN1BS and XE2FA (s.s.b.) on phone and KC4USB, JZ0HA (17.00), FO8AC, FO8AG, FO8AD, FO8AS, W0CUK/KG6 and VP7NA on the key. **A.1583** wonders about M1B on phone. San Marino, and quite good.

Forty Metres

G3IGW worked PJ2ME and VP7BT on c.w., to prove again that YUs have no monopoly on the band. **G3KAA** worked OY1R and OY1J at 22.30. **G3LWS** (Quorn) who is ex-ZC4FB, VP8CZ, has been on 40 ere he moves to Darlington. The wee small hours produced HE9LAC, LU, PY, W6 (RST579 at 06.00), VP3YG, etc. to the tune of 35C in a few weeks. He had not one but two QSOs with Albania, in ZA1FA and ZA1KC (or are they?). For the information of "Eric," who signed G3LWS on 80, starting the very day the genuine G3LWS left for VP8, you can pack in now, friend, the rightful owner is back home. **G3KZR** is going to listen for W3PHL on A3. The W is on the high end of the U.S. phone band and listens on 7100 kc/s, using a beam.

G3FPK connected with VP3BO, and QSY'd as requested to 7010 kc/s for a solid QSO. He also heard LU, UA0AQ and ZA1KC through increasing jammer noises. **G3EYN** has QRM from nearby airport senders and finds his reception improves if he leaves the aerial change-over switch in the "off" position, with the capacity of the switch providing the coupling. Thus, he worked FF8AS, 4X4, ZC4 and VO1.

B.R.S.20106 logged UA9SJ (18.30), VP3VN (01.30), VE6SX, ZL3GU and K5JRN on c.w. and pulled in HR3HH on A3 and K6EHZ on A3a. **B.R.S.20317** logged UL7LA, W5CLF, W6IDY and ZS5RS (18.40). He also has cards in from KS6AD and FO8AT/C.

Eighty Metres and Above

Ex-B.R.S. Alan G. Edwards now signs **G3MBL.** He started on Top Band with 4 watts input to a 135 ft. aerial only 24 ft. high, on which he worked G3CSG/P (Westmorland), and several other distant phone stations. He has now finished a v.f.o./6146 transmitter for the h.f. bands. **G3FPK** used his 7 Mc/s dipole to QSO a new one, OE5EW *and* PY4AON (3514, 23.10) on 80 c.w.

B.R.S.20106 heard his first Russian s.s.b. signal, from UA1EZ, but the quality was poor. A good one on 80 for **B.R.S.2292** was EA6BC.

DX Television Predictions for December 1958
Prepared by J. Douglas Kay (G3AAE)

Barbados	1130–1245	Cyprus	0900–1115
Bermuda	1300–1615	Teheran	0830–1415
Montreal	1315–1700	Tel Aviv	0900–1045
New York	1345–1700	Bangkok	0800–1300
Colombo	1115–1330		

The above predictions are based on the B.B.C. Channel 1 sound transmission on 41·5 Mc/s. The vision frequency is on 45 Mc/s. Amateurs situated in the W3 and W4 districts of the U.S.A. will find that optimum signals are receivable between 1300 and 1530 G.M.T., while those in the W8 and W9 districts should obtain best results between 1500 and 1600 G.M.T. Amateurs in W1 and VE1 should monitor between 1430 and 1730 G.M.T.

Helping-hand Department

G3IGI (66 Quarry Lane, Northfield, Birmingham 31) will help with QSLs due from YI2AM. His brother is in Iraq and has access to the YI2AM log. Send QSO details to G3IGI.

W2HMJ wants to locate EP2BU, worked on June 3, 1947. Mike Faraday, the operator, is ex-G3BUX, GM3BUX, MD7BU, etc., etc. Can anyone help?

K2OEA seeks guidance as to ex-VP8BW (South Orkneys), who was worked on 14 Mc/s on March 21, 1957 and who is now in the U.K.

Which means another M.O.T.A. out of the way. Many thanks to old and new supporters of the column. Items for the December issue by November 19, *please and remember to post early for January. The postal delays around Christmas make copy for that month rather tricky. Good hunting and* 73.

Frequency Predictions for December 1958

PREPARED BY J. DOUGLAS KAY (G3AAE)

BAND	NORTH AMERICA East Coast	NORTH AMERICA West Coast	CENTRAL AMERICA	SOUTH AMERICA	SOUTH AFRICA	NEAR EAST	MIDDLE EAST	FAR EAST	AUSTRALIA	ANT-ARCTICA
M.U.F.	43·5 Mc/s 1515	24 Mc/s 1700	42 Mc/s 1400	36 Mc/s 1600	35 Mc/s 1200	42 Mc/s 0945	40 Mc/s 0800	38 Mc/s 0900	28·5 Mc/s 0800 SP	21·5 Mc/s 0930
28 Mc/s	1200/1845	1700	1215/1900	0900/1945	0800/1830	0700/1700	0700/1600	0700/1545	0745/0845 SP	0930
21 Mc/s	1115/1945	1530/1830	1115/2030	0800/1200 1730/2300	0700/2130	0600/1845	0600/1745	0600/0730 0830/1645	0745/1730 SP 0900/1130 LP 2100/2215 LP	0845/1100
14 Mc/s	0900/2345	0300/2100	1000/1330 2000/0015	0715/0900 2130/0500	1630/0400	0500/2230	0500/0600 1315/1915	1330/1800	1230/1800 SP 0300/0830 LP	2100/0830
7 Mc/s	2200/0830	0000	0100/0800	2330/0830	2100/0200	1500/0830	1730/0100	2000	0800 LP 1600 SP	0000/0430
3·5 Mc/s	2300/0800	0000	0400	0000/0200	0000	2100/0500	0000	2000	0800 LP 1600 SP	0400

These predictions are based on information provided by the Engineer-in-Chief of the Post Office. All times are G.M.T.

Third Old Timers' Dinner

SEVENTY-THREE old timers met for dinner at the Horse Shoe Hotel, Tottenham Court Road, London, W.C.1, on Friday, October 10, 1958, under the chairmanship of Leon E. Newnham, B.Sc. (G6NZ), President of the R.S.G.B. who was supported by eight Past Presidents. Guest of honour was Dr. R. L. Smith-Rose, C.B.E., now President-Elect of the Society.

Following the Loyal Toast, it was announced that a telegram conveying loyal greetings had been sent to H.R.H. Prince Philip, as Patron of the R.S.G.B. and that the following reply had been received:

"*Please thank the seventy-three pioneers of Amateur Radio for their kind message on the occasion of their third Old Timers' Dinner. I wish all those present a very pleasant evening and the best of good fortune in the future. Philip, Patron.*"

It was also announced that a telegram of good wishes had been sent to Rene Klein (G8NK) who founded the London Wireless Club in 1913.

Nostalgia

Gerald Marcuse (G2NM), Basil Davis (G2BZ), Ralph Royle (G2WJ), Bill Corsham (G2UV), Ken Alford (G2DX), Bill Pope (G3HT) and Horace Cullen (G5KH) were among those who revived nostalgic memories of the early days of Amateur Radio by recalling incidents gay and sad. Silent Keys were remembered at 9 o'clock.

R.A.O.T.A.

A suggestion, made during the evening by John Clarricoats, O.B.E. (G6CL), that a Radio Amateur Old Timers' Association should be formed, met with spontaneous approval, as did a further proposal that the Association should inaugurate a Benevolent Fund to help old timers who are ill or incapacitated and in need of financial assistance. Before the dinner ended more than £50 had been donated. Since then the total has increased to £105.

Membership of R.A.O.T.A. is to be restricted to those who were present at the dinner (or had sent an apology) and to such other persons as are recommended from time to time by the founder members. Those eligible for membership must be persons who have either held an Amateur Transmitting licence issued by the U.K. Postmaster-General continuously, including the war years, since January 1, 1933, or who were licensed prior to that date but subsequently allowed their licence to lapse temporarily on going abroad or for some equally valid reason.

Guest of Honour

In proposing a toast to the Guest of Honour, Mr. Newnham referred to the fact that Dr. Smith-Rose had been a member of the London Wireless Club in 1913, and of its successor the Wireless Society of London. Dr. Smith-Rose had honoured the Society by accepting nomination for the office of President for 1959.

Dr. Smith-Rose expressed his pleasure at meeting so many old timers in such congenial surroundings.

The Spirit of Amateur Radio

Before the company broke up to examine the many souvenirs that had been brought along, Arthur Milne (G2MI) spoke of the influence for good which Amateur Radio has on world affairs.

Acknowledgements

Thanks are recorded to Eric Martin (G6MN) who donated the special Old Timer place-cards and to Bentley & Co. (Printers) Ltd. for the programmes.

Roll Call

The following attended the dinner: G2AK, 2BZ, 2CX, 2DC, 2DX, 2FM, 2FV, 2HP, 2HQ, 2IG, 2MI, 2MR, 2NH, 2NM, 2NY, 2PX, 2QB, 2TP, 2UV, 2WJ, 2YL, G3HT, G4FX, 4RD, G5BV, 5BZ, 5CD, 5CS, 5GR, 5JU, 5KH, 5LC, 5LJ, 5MA, 5ML, 5QA, 5RS, 5RV, 5UM, 5VM, 5VS, 5WP, 5XB, 5YY, G6CL, 6CW, 6FI, 6FO, 6FU, 6GR, 6HR, 6HX, 6IO, 6LI, 6LJ, 6LL, 6MN, 6NZ, 6OO, 6OT, 6OX, 6PA, 6QB, 6RB, 6SC, 6UB, 6US, 6UT, 6WN, 6XL, 8KC, Dr. R. L. Smith-Rose, Miss May Gadsden (Assistant Secretary, R.S.G.B. since 1929), Mr. Horace Freeman (Advertisement Manager, R.S.G.B. since 1925).

The dinner was organised by G6CL in a private capacity with the help of Miss Gadsden.

* * *

Mr. Clarricoats will be pleased to hear from any old timer who wishes to join R.A.O.T.A. The life membership subscription is one guinea which will be used to cover postages and general expenses. Donations to the Benevolent Fund will be gratefully acknowledged. Information concerning old timers who may be in need of help should be sent in confidence either to Mr. Clarricoats (16 Ashridge Gardens, London, N.13), or to Mr. Milne (29 Kechill Gardens, Bromley, Kent). They have agreed to administer the Fund.

Royal Horticultural Society Old Hall
Vincent Square,
London, S.W.1

Wednesday to Saturday,
November 26 to 29, 1958
11 a.m. to 9 p.m. *Admission 2/-*

Official opening at 12 noon on November 26 by:
AIR MARSHAL SIR RAYMUND G. HART, K.B.E., C.B., M.C., M.I.E.E.
Controller of Engineering & Equipment, Air Ministry

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Kits of parts, New Receivers,
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Tape Recorders, Hi-Fi and Stereo
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List of Exhibitors

Allied Distributing Corporation Ltd.
Admiralty
British Amateur Television Club
British National Radio School
Clare Instrument Co.
Cossor Radio and Television Ltd.
Data Publications Ltd. ("Radio Constructor")
Daystrom Ltd. (Heathkits)
Enthoven Solders Ltd.
Home Radio (Mitcham) Ltd.
I.G.Y. Group
Iliffe Press Ltd. ("Wireless World" and "Electronic & Radio Engineer")
Jason Motor & Electronic Sales Co.
K.W. Electronics Ltd.
London Electric Wire Co. & Smith's Ltd.
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Radio Society of Great Britain
Range Electronics Co.
Relda Radio Ltd.
Royal Air Force
Short Wave Magazine Ltd.
Standard Telephones & Cables Ltd.
Taylor Electrical Instruments Ltd.
Telegraph Construction and Maintenance Co. Ltd.
Teletron Ltd.
Territorial Army and Army Emergency Reserve
Troughton and Young Ltd.
Trusound Products Co.
Whiteley Electrical Radio Co. Ltd.

A Preview of some of the Exhibits

VISITORS to this year's R.S.G.B. Radio Hobbies Exhibition will be able to see a number of new products for the first time as well as many well-known complete equipments and fine examples of the home-constructor's art. A feature of the show will be an increased number of practical demonstrations.

The trend towards more and more kits for more and more types of equipment will be even more pronounced this year with several new exhibitors showing their wares. **K.W. Electronics**, who introduced the Vanguard kit last year, are breaking fresh ground with a new communications receiver in "build-it-yourself" form. This receiver is designed around the Geloso "front end" unit and incorporates some novel features. Another new kit in the K.W. Electronics range is a 150 watt r.f. amplifier, complete with modulator, intended to be driven by a Vanguard or similar transmitter. Mosley "Trapmaster" beams and vertical aerials and R.E.E. 2m transmitters and converters will also be on show.

Among the many **Jasonkits** on the Jason Co.'s stand will be a new range of test instruments, including an oscilloscope, wobbulator, audio power meter and multirange valve voltmeter. A topical item will be a 3 watt dual amplifier for stereophonic sound. The lining up of f.m. converters for visitors will be a special feature.

Cossor will be showing audio amplifiers, v.h.f. f.m. and oscilloscope kits while **Clare Instrument Co.** will be exhibiting an a.c./d.c. multirange meter kit.

Premier Radio will be showing a complete range of "do-it-yourself" kits for making radio receivers, record players, stereo and hi-fi equipment.

Daystrom Ltd. will be introducing **Heathkits** to the British market for the first time. Items to be shown include the DX1.0 and DX40 transmitters, test gear, a

transistorized portable and the S88 hi-fi stereophonic sound equipment.

Aerial parts of all descriptions will be shown by the **Richard Maurice Equipment Co.** together with "Q5R9" television and rotary beams.

Turning to ready-built gear, the **Minimitter Co.** will be showing for the first time the MR38 receiver which covers the high frequency amateur bands as well as general coverage. Other completely new equipment on the stand will be the M.C.8 converter, the Minimitter mobile transmitter with transistorized power supply and whip aerials, the Minibeam G4ZU beam and a new telescopic mast.

Racal Engineering's exhibits will include the RA17 receiver which has no bandswitching, the new TRA.55 s.s.b. transmitter and the S.A. 20 digital frequency meter.

Eddystone receivers will be shown on the **Home Radio** stand together with Mosley aerials, Premax soldering irons, Avo, Pullin and Grayshaw test gear, hi-fi equipment, tape decks and home-constructor's kits.

Range Electronics will be demonstrating the alignment of i.f. and discriminator circuits in f.m. receivers and the tracing of distortion in audio amplifiers with the "Trecoscope" oscilloscope. On the same stand, Trusound stereo amplifiers and transistor receivers will also be shown.

Relda Radio will be showing a wide range of components, oscilloscopes, Relda transformers and Collins TCS equipment, as well as kits for building f.m. tuners and audio amplifiers.

Mullard will be making a special feature of audio, communications and measuring equipment for the amateur. New designs include 2 and 6 watt stereo amplifiers and a 15 watt transistorized modulator. The Mullard Educational Service will exhibit an audio oscillator and an oscilloscope for use in technical colleges and grammar schools.

Teletron, exhibiting for the first time, will be showing coils of all descriptions for many applications, ferrite rod aerials, miniature dust cored r.f. chokes, pocket type transistor superhet and t.r.f. receivers.

Standard Telephones and Cables will display capacitors, silicon and selenium contact cooled rectifiers and Brimar valves of many types. Of particular interest on this stand will be a crystal controlled clock which indicates the time by means of a "Nodistron" display tube.

Taylor Instruments' display will include a new pocket size 20 range meter with a sensitivity of 20,000 ohms per volt. Another new instrument, the 100A, has a sensitivity of 100,000 ohms per volt. The use of the Taylor Model 32A oscilloscope will be demonstrated.

Stentorian hi-fi loudspeakers will be a feature of the **Whiteley Electrical** stand together with the WB8S stereo amplifier. Monaural equipment on show will include hi-fi amplifiers and the Stentorian f.m. tuner Mk. II. The W.B. range of components and a 300 milliwatt printed circuit transistor amplifier will be other exhibits.

Metalwork of every description will be shown by **Philpott's,** while high-fidelity equipment in a domestic setting (in modern and period cabinets), will be seen on **Troughton and Young's** stand.

Wire is, strangely enough, the lifeline of wire*less* and the display of bare and insulated wires for radio use by **London Electric Wire Co. and Smith's** will therefore be of more than academic interest. Solder, too, is another basic requirement in radio and **Enthoven Solders** will be showing many different types including Superspeed Aluminium solder which aroused so much interest at last year's Exhibition.

The **Allied Distributing Corporation** will be introducing the "Victor" soldering tool to amateurs which is stated to heat the metal direct.

The **British National Radio School's** stand will be devoted to Morse records and practice kits, and examples of the School's courses in radio and telecommunications.

Data Publications will feature a display of equipment recently described in the *Radio Constructor* and books in the Data series. A new DX Zone Map is to be introduced by the **Short Wave Magazine** in addition to technical publications for the amateur. **Wireless World** will be featuring a transistor audio amplifier, a photocell-powered receiver and a conversion of the ARR3 receiver for domestic f.m. use. On the same stand will be displayed *Electronic and Radio Engineer* and Iliffe technical publications.

Service Stands

The **Royal Navy's** stand will show transmitting and receiving equipment used at Reserve Wireless Training Centres while the **Army** will demonstrate the dismantling and assembly of a teleprinter in addition to radio transmitters and receivers. The Army stand will be manned by operators of G3LUN.

The **Royal Air Force** stand will display equipment used by the R.A.F. Amateur Radio Society for plotting *Sputnik II,* together with examples of home-built amateur equipment including an s.s.b. transmitter and a high power 2m rig. One of those manning the stand will be Sgt. "Taffy" Williams (ex-VP8BO).

The Amateur Stands

Home constructed equipment will, of course, be the dominant feature on all the **R.S.G.B.** stands. In the Home Constructors' section there will be a wide selection to see, such as a transistorized mobile power supply, a double conversion communications receiver, a mobile transmitter, test gear, mobile aerials, converters, h.f. transmitters and transistorized equipment, to mention only some of the items accepted for display up to the time this preview was written. In the Books Section, new editions of the *R.S.G.B. Amateur Radio Call Book,* and *A Guide to Amateur Radio* (enlarged to 72 pages) will be on sale together with build-it-yourself leaflets, reprints of BULLETIN articles and a wide range of American publications for the amateur including the A.R.R.L. *Radio Amateur's Handbook, Antenna Book* and the *CQ Mobile Handbook.*

The contribution being made by members taking part in the R.S.G.B. I.G.Y. programme will be shown on the **I.G.Y.** stand. Interesting items displayed will include equipment for checking v.h.f. propagation and recordings of signals from earth satellites. On the **V.H.F./U.H.F.** stand, manned by members of the London U.H.F. Group, equipment for 72, 144, 420 and 1250 Mc/s will be on display. Demonstrations of a 3cm test bench will be a special attraction.

The **British Amateur Television Club,** which is affiliated to the R.S.G.B., will again be showing many examples of Amateur TV gear—cameras, caption scanners, pulse generators, sound and vision transmitters and converters for receiving amateur transmissions on domestic TV sets.

* * *

In this short preview, an attempt has been made to give members some idea of the many interesting exhibits to be seen. It is hoped that sufficient has been said to encourage many more to visit the Radio Hobbies Exhibition this year and help set yet another record for this Show of Shows for the radio enthusiast. Already radio clubs and schools have indicated that they are making up parties to visit the R.H.E.—it is an idea well worth copying.

HOME CONSTRUCTORS' SECTION

Offers of equipment for display at this year's R.S.G.B. Radio Hobbies Exhibition must reach the Exhibition Committee at R.S.G.B. Headquarters not later than November 17th. Equipment received without prior acceptance by the Committee cannot be displayed.

I.G.Y. News

By G. M. C. STONE (G3FZL)*

R.S.G.B. I.G.Y. Co-ordinator

STUDY of results collected during 1957 has established a pattern of the occurrence of auroral propagation in the 144 Mc/s band. Prior to this no co-ordinated amateur observations have been made in Europe and hence comparison can only be made with the results obtained by radar echo methods. However, since the observations have continued throughout 1958, comparisons may now be made between the two years. A plot is shown in Fig. 1 of the occurrence

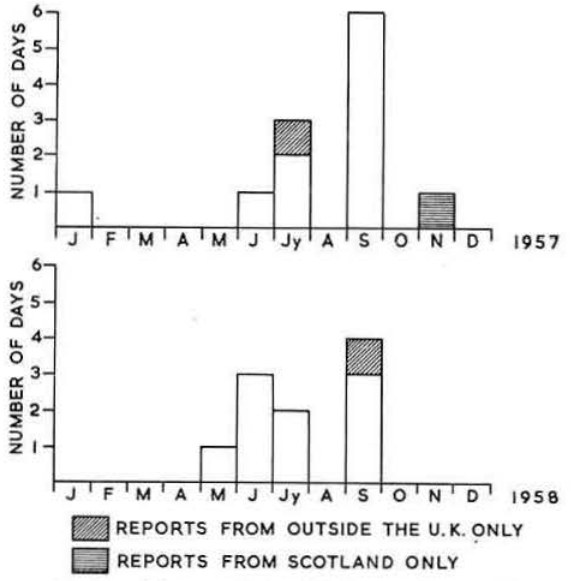

Fig. 1. Number of days on which 144 Mc/s auroral propagation was observed in Western Europe. An aurora lasting beyond midnight has been counted as occurring on two days. The chart is based on reports received from Sweden, Denmark, Western Germany, Eire and the United Kingdom.

of auroral propagation based upon results obtained from both R.S.G.B. I.G.Y. observers and the examination of reports in Western European amateur magazines, especially *Das DL-QTC*. The results show that there are two peaks: one in late June and the other during September. Contrary to expectation (see R.S.G.B. BULLETIN March 1958) the Spring equinox does not show any auroral activity. The reason for this is not known and is a subject for further consideration. The diagram also shows that it is unlikely that there will be many further auroral propagation reports in 1958.

One further point of interest is that, in general, the big auroral openings of 1957 followed the declaration of Special World Intervals at times when solar activity was known to be exceptionally high. However, two of the big auroral openings in 1958 occurred when no unusual solar activity had been observed. This had, in fact, been expected (see "Auroral Propagation," J. F. Shepherd, GM3EGW, R.S.G.B. BULLETIN December 1957), and suggests that there will still be a number of auroral openings in 1959, although well past sun-spot maximum at that time.

To provide a really comprehensive survey of auroral propagation in the 144 Mc/s band, it is necessary to continue observations throughout a complete 11 year solar cycle, and for this reason, amongst others, it is considered that the work started during the I.G.Y. should continue as a permanent study.

Trans-Atlantic Tests on 144 Mc/s

The tests to try to span the Atlantic on 144 Mc/s are still in progress. G2NY (Preston) is maintaining a schedule with W2CXY (Chatham, N.J.) but so far no results have been obtained. G2NY is running 1 kW and the aerial is a 6-over-6-over-6-over-6 slot fed Yagi array. W2CXY has also been testing with PE1PL, DL4WW and G5UF. Simultaneous transmissions are made on 144·095 Mc/s and 144·010 Mc/s. W2CXY is running 1 kW on 144 Mc/s and his aerial comprises four 24 ft. long Yagis fed in phase. The season of good tropospheric conditions is now at an end, but since it is not certain just what mode of propagation will be used to span the Atlantic, the tests will continue for the present.

Long Range Tropospheric Propagation

A serious study of long range tropospheric propagation is now being made. It has long been known that ranges in excess of 500 miles have been achieved on 144 Mc/s under abnormal conditions of propagation. Although such occurrences are exciting, a very much more interesting field of study is to examine the results obtained under all conditions over long distance paths of the order of 200–350 miles. For several years PE1PL has been carrying out this work and has been maintaining daily schedules with G2NY (Preston), G6FO (Maids Moreton, Bucks.), G2HCG (Northampton) and others. G2NY is in fact an old hand at such work, also maintaining several other schedules, in particular with GM3EGW (Dunfermline).

These schedules have recently been extended and around 23.00 G.M.T. each day the following stations are participating: GM2FHH (Aberdeen), GM3EGW (Dunfermline), G2NY (Preston), G3BA (Sutton Coldfield), G3HBW (Bushey Heath, Herts.) and G3FZL (Forest Hill, London, S.E.). Results are being collected at present and it is, as yet, much too early to draw conclusions. However, some very interesting results are becoming apparent. G3HBW has been consistently receiving signals from GM3EGW (two-way contact has usually been established also). The distance in this case is around 320 miles. GM3EGW uses 80 watts input to an 829 p.a. (power output about 40 watts) and a 6-over-6 slot fed Yagi beam. G3HBW is using a 5-over-5 stacked Yagi beam and a receiver having an estimated noise factor of about 4·0db. G3HBW has calculated the signal strength to be expected over such a path by tropospheric scatter propagation and has found that results obtained to date show signal strengths 3–6db in excess of that expected. Signals have also been received at G3FZL

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(350 miles) but not as consistently as at G3HBW, but even so, far more often than previously expected. It is proposed to continue these tests on a long term basis.

The lesson to be derived from such work is that far greater average ranges can be obtained on the 144 Mc/s band provided that very good narrow band receivers, high gain aerials and c.w. techniques are used. Although high power helps, it is by no means essential unless exceptionally long ranges, say over 350 miles, are being investigated.

Meteor Scatter

The success that G3HBW and others have recently achieved by using meteor scatter was reported in the September BULLETIN. This is a new field of work in Europe. Much has been learnt of this mode of propagation from American amateurs such as W2CXY, who has had contacts at ranges of up to 1,350 miles. The difficulty in Europe is to find suitably equipped stations far enough away since meteor scatter is an ionospheric propagation phenomena and exhibits a skip distance of the same order as sporadic " E " propagation. For this reason it is hoped that stations in areas such as Cyprus, Gibraltar and others may take an interest in meteor scatter work and thus open up new possibilities for long range communication in the 144 Mc/s band. Since the majority of signals received by meteor scatter are extremely weak, much depends on the skill of the operator and the quality of the equipment employed. Therefore the participation in long range tropospheric propagations schedules is an excellent method of self-training for meteor scatter work.

Rockets and Satellites

A World Data Centre for Rockets and Satellites is now operating at the Radio Research Station of the Department of Scientific and Industrial Research at Slough. This is the third of three centres established under the International Geophysical Year arrangements for centralisation of this type of information. Previously there have been Rocket and Satellite Data Centres only in Moscow and Washington, but it was agreed at the recent Moscow meeting of the Special Committees for the International Geophysical Year to accept a British offer of a third centre.

There are many different bodies in the U.K. concerned with the collection of data regarding satellites. The work carried out by the Cavendish Laboratory, Cambridge, the Radio Research Station at Slough, Jodrell Bank and at various Government establishments is well known. British amateurs are assisting within their limited resources by making recordings of telemetry signals and by studying long range propagation. All this data will now be collected by the Slough Data Centre and exchanged with similar centres in the U.S.A. and U.S.S.R. The data will be available for inspection and use by workers in the respective scientific subjects under arrangements which apply to all I.G.Y. World Data Centres.

Proceedings of the Royal Society

A discussion was held at the Royal Society on November 29, 1957 when a number of papers were presented concerning radio observations of the first two Russian Satellites. Included in this discussion was a paper presented by J. Heywood of the joint work carried out by the British Astronomical Association and the R.S.G.B. A full account of this discussion is to be published shortly in Volume 248, Part No. 1252 of the *Proceedings of the Royal Society Series A*. The cost of a single part of this publication is 18s. plus 1s. postage and packing. It is advisable to place an early order since the demand is certain to be great and stocks will be exhausted rapidly.

After the I.G.Y.

The I.G.Y. is due to finish on December 31 this year. A vast amount of data has been collected during the 18 months which will take many years to analyse. The return from the R.S.G.B. I.G.Y. programme alone now comprises many thousands of readings.

Some aspects of the R.S.G.B. programme have been adequately covered. However, much of the work has only just started. Sound foundations have been laid for a continuing propagation research programme, the efficient running of which depends upon a central co-ordinating

An example of the special certificate awarded to I.G.Y. observers for consistent reporting.

organization and the continued support of individual observers. Plans are being discussed within the R.S.G.B. for the continuation of the I.G.Y. work. Registered observers or others who wish to participate in a continuing programme are requested to write to the R.S.G.B. I.G.Y. Co-ordinators with their suggestions for future work. The fields in which it is felt that work should continue are ionospheric propagation (especially that concerned with satellites) and v.h.f./u.h.f. tropospheric, meteor scatter and auroral propagation.

In the past much of the work of radio amateurs has not been adequately documented. Such a continuing programme would provide data so that a permanent detailed record of Amateur Radio work would be available.

Non-resonant Television Aerials

THE TVI/BCI Committee recently considered the implications of the increasing use of non-resonant television aerials, particularly of the indoor type designed to stand on top of the receiver cabinet. The Committee is satisfied that the Post Office's recommendations to viewers contained in the pamphlet *Good Wireless and Television Reception* adequately cover the situation. These recommendations tell the viewer, *inter alia*, that " It is even more important for television than for sound broadcasting to have a good aerial in the right place. If you are getting interference with an indoor aerial, you should ask your dealer to demonstrate the effect of an outdoor variety. . . ."

The pamphlet is available on request from local Post Offices.

FOUR METRES AND DOWN

By F. G. LAMBETH (G2AIW)*

Best Opening Ever on Two Metres

DURING the last days of October, conditions on 2m were the best since the band was released in 1948. A high pressure system reaching 1043 millibars developed on October 23 and from then until October 29 conditions were exceptional, with signals from many parts of Europe coming through at strengths up to well over S9.

On October 27, OK1VR/P was worked by G5YV, G3HBW and GI3GXP—the latter at nearly 1,000 miles. This is almost certain to set up a new European record for the band. OK1VR/P was at Snezka, 120km. north-east of Prague. His frequency is 144·00 Mc/s.

G5MA (Great Bookham, Surrey) contacted SM5ABA, SM6ANR and was heard calling SM4BIU and SM5BDO. The same evening, G3KEQ (Sanderstead, Surrey) worked SM4BIU, SM5BRT and SM6ANR while G5YV made contact with SP6CT/P. G6LI and G3CCH also worked the SP. G6NB raised DM2ABK in East Germany, while G3FZL worked SM7ZN amongst others the same day.

On October 29, G5KG, G3WS, G5MA, G3HBW and G3FZL all worked a number of Norwegian stations including LA8MC, LA9T and LA4VC as well as many more continentals.

The band first showed signs of a great opening on October 24 and 25, and appeared to be wide open over a long stretch from Northern England to south of Bordeaux, with wide fingers to Belgium and westward to Wales.

GW8UH (Cardiff) heard both ON and F stations and G5DW is reported to have worked an ON. When things like this happen, conditions really are good! In fact the West Country rarely hears the Continent. Stations on the South Coast had a good time working continentals on the 24th. A major event, however, was the appearance of **F8CT** (Arcachon, near Bordeaux) sometimes on phone, sometimes c.w. who is only about a 100 miles from the Spanish border. He worked several stations in the Home Counties, including G3LTF and G3HBW (G2AIW made contact but the QSO was inconclusive as F8CT was fading out by then) in the early hours of October 26. **F9JY** (Cherbourg) was also in evidence. On the evening of the 26th F8XT (Gironde area) and F3AC (Nantes) were both worked by G3HBW who also had a fine c.w. QSO with DL3FM on the 25th. During the period **G2DDD** (Littlehampton) was heard working a succession of stations in Lincolnshire, Nottingham and similar Midlands areas, another pointer to conditions—that doesn't happen very often either!

G5MA (Great Bookham) worked F8CT on October 25 and F8XT on the 26th in daylight and heard F3LP (Le Havre). The sked QSO with GD3UB was excellent. A good QSO was also had with DL3FM on the 24th and GI3GXP was raised to swell the total. These different QSOs emphasize the large area involved in the opening. Lancashire stations were also well in evidence. DX on 70cm, in which G3JWQ (Ripley Derby) was concerned was also very encouraging.

By October 27, this opening had spread to Denmark and Central Germany. OZ3NH (Aarhus), DL3VJ and DL3YBA (near Hanover), were strong signals in the Home Counties and were worked by many. F8XT (near Bordeaux) was again a very powerful signal and was worked by G2AIW with the beam to the *east*! Later the same evening the band was full of signals from F, PA, ON and DL with stations in the West Country and Wales again in the picture. F3LP was heard in contact with GW8UH. Funnily enough, however, some of the PAs and ON4s did not seem so strong in London as they obviously were to stations further afield. Altogether a most satisfying Activity Night.

On October 24, **G3FZL** and G3HBW worked LX1SI. During the following weekend G3FZL heard stations in 11 countries on 2m—GC, GD, GI, GW, GM, G, OZ, ON4, PA0, DL and F. On October 27, G3FZL had to contend with severe QRM during his evening sked with GM3EGW—DL3YBA, GW2FVZ (Anglesey) and G3HA were all on the same frequency as GM3EGW. The same evening there were two short aurorae; during the later one, G3FZL received GM2FHH at RST 554 at about 23.30 G.M.T. GW4LU/M in the Welsh mountains was heard working continentals and G6FO was in contact with DL3YBA. G3FZL reports that he has never known conditions to be so good and QRM was very severe—more use of c.w. would have resulted in more contacts being made by the 200 odd stations audible.

News from I.A.R.U. Societies

An early result of the writer's appointment as Honorary Secretary of the Region I I.A.R.U. V.H.F. Committee is that a fair amount of information is being received from Continental Societies on their local v.h.f./u.h.f. activities. Reports have come in from places as far afield as Poland and Norway and some of these are especially interesting as they throw a new light from unusual directions on auroral and tropospheric happenings, to say nothing of meteor scatter!

In view of the undoubted general interest, we shall, as far as space permits, give coverage to these news items, as they tend to show that when conditions are favourable there are still possibilities of unusual QSOs—something which always whets the appetite of most v.h.f. amateurs. How far has the concept of " quasi-optical propagation " on 2m and 70cm now receded into the far background? Very few now place any credence on this idea, which was firmly believed by many in the early days. When we learn, as we did last month, that a Polish station has heard a Scottish transmission, the race is on again; it is surely only a matter of time before the first QSO will be achieved. This also indicates that it is by no means outside the bounds of possibility that Russian v.h.f. stations may soon come into the picture as far as Great Britain is concerned. We only appear to need aurora at the right angle! It is true that we can hardly hope to achieve the results noted by trans-equatorial scatter, but we still have plenty to work for in the geophysical conditions available to us. It is to be hoped therefore that the faithful will keep " on watch," and we shall be very glad to hear of their successes, which we are sure will come in due time, perhaps in the near future. (All of this was written before 2m opened with a bang at the end of October—EDITOR.)

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

C.w. Contests

There has been a little criticism of the proposal to run a c.w. only contest in 1959 but the greatest part (over 90 per cent) of the correspondence has been in favour. Accordingly, events must decide whether this proposal will succeed or no. The supporters of the idea will doubtless do their utmost to ensure a happy outcome. We are, however, quite a bit concerned about the paucity of entries in the European V.H.F. Contest from the G countries. Although better than last year's, the total entry still leaves much to be desired. What is the reason? We should like to know from those who did not enter, as we must get to the bottom of this mystery. The continental entry seems to have been well maintained. Why are British stations lagging? Remember that although conditions were not all that good, some stations were able to make around a 100 QSOs, so that the activity was there! Why not the entries? Constructive comments are invited.

Earlier Two Metre News

Prior to the big opening on October 24, **B.R.S. 20162** (Selsdon) found reception very variable and rather more consistently better than for some time on this band. A curious evening was that of September 30 when, with a local barometer reading of 974, G3JWQ, G5YV, G5KG and G3GSO were coming in with very little fading. Continentals have been audible on several occasions, the best signal being that of PA0CML, who worked 10 Gs one evening. Altogether, 160 stations in 24 counties and four countries were heard during the month. **A.1491** (Palmers Green) wishes to make it clear that his suggestion for a yearly contest was meant to imply a simple " Number of QSOs " contest and not necessarily a QRP contest; the idea being that low powered stations in v.h.f. populated areas would have as reasonable a chance of scoring as many points as high powered stations " in the wilds." A.1491 has now heard 20 counties. A very long list of stations heard since August 16 shows what can be done with a s.e.o. converter, a 4-element Yagi in the shack at a QTH 50 ft. a.s.l. in a built-up area, and a very keen pair of ears! Stations heard include F8MX, G2FJR, G2FNW, G5YV, and G8MW, some of which have been on c.w. A.1491 is looking forward to more surprises during the c.w. contest in January.

B.R.S. 20133 (Melton Mowbray) sends a report which he classes as not-so-good-as-last-month. The trouble now seems to be activity, which has slumped to the usual winter-apathy level. All the same, some of the calls in the list are pretty good going! The country score is now 9. Out of that very detailed Field Day report (60 sent) only 10 have reciprocated—a careful job like that was worth a better fate. '20133 (as was A.1491) is in agreement about G5YV's suggestion for an incentive prize. We will examine this matter further soon, when a little more " evidence " is to hand.

G5DW (Ashcott, Bridgwater) had quite an interesting month, which could have been better if the activity had been there. From September 24-28 conditions were very good and reasonably stable. On October 9 conditions were again very good. These observations apply to the N/S path; listening to the east brought very little except for G3FZL and G3HBW, both of whom, obviously beaming north, were steady readable signals at about S4. Conditions later became rather patchy with deep fading, which was, however, of very brief duration at fairly long intervals. G5DW considers G6SN's suggestion about publicity for portable trips is a good one, but wonders how many people can forecast so far ahead. The answer to this is of course to advise the dates as soon as they are definitely known. They will also be quoted in the GB2RS News Bulletin on 2m at the appropriate time. So please let us have your dates as soon as you fix them—everyone wants to help a rare county portable (for mutual reasons) but it is necessary to have an idea where that exotic portable is going to be sited, and when!

DL3FM notes in a letter to G2AIW that he hears G5YV very strongly every night lately, irrespective of conditions, at a distance of approximately 400 miles. DL3FM is using a 417A converter, the noise factor of which is under 3db. The aerial is a 10-element Yagi, 60 ft. above ground. The transmitter is running 260 watts input.

G3JGJ (Paignton) experienced the quietest month since going to Paignton—only six stations were worked or heard—G3HBW, G4DC, G6XM, GC2FZC, GW3MFY and GW4CG. Some of the skeds have been discontinued for the time being, including that with GC2FZC, although this still operates on Sunday mornings around 10.00 G.M.T. G3JGJ will be looking for QSOs from all stations on Sundays from 10.00 G.M.T. and at various other times; other days whenever possible from 18.00 G.M.T.

PA0BL reports that during the early evening of October 9 there was an opening between Netherlands West Coast stations and England. PA0CML and PA0BL were active and the following stations came through — G3KEQ, G3LTF/A, G3VI, G3AIQ; other phone signals were heard. If more used c.w. it would give Netherlands amateurs more chance to work them, says PA0BL.

G3HBW (Bushey) has continued his skeds with **GM3EGW** who, so far, has always heard his signals. On October 23, G3HBW worked DL3VJ—conditions were good at the time but activity low. However, the usual GI, GD and Northern England stations were in evidence as usual.

Two Metre News From Scotland

GM3EGW (Dunfermline) found September very interesting with good GDX cropping up at odd times among the aurorae! . . . when no one was looking. After the auroral excitement the first DX heard was G5MA on September 7, 8 and 9. G3BA has been a good regular signal, but the most interesting signal was that of G3HBW. After working him by aurora on September 25, GM3EGW heard him every night up to October 4 and had four further QSOs. G3FZL is just a little behind with four QSOs (tropospheric) and one (auroral). **GM2FHH** (Aberdeen) has a sked with G3BA for scatter propagation, and there has been a fair amount of success. Skeds are wanted between 21.00/24.00 G.M.T. on Saturdays and Sundays, also any other time Sundays. The frequencies used are 144·040, 144·1 and 145·75 Mc/s.

GM6WL (Glasgow) notes only moderate activity on 2m in West Scotland, mostly local working. The usual call-signs have been heard. GM3DIQ has installed an automatic CQ sender which sounds very nice. GM3DIQ was able to raise GI5AJ during the forenoon of October 12. Finally, GM6WL's contacts with GI5AJ are still going pretty well, in sometimes poorish conditions.

F8GB operating F3LF/P during this year's European V.H.F. Contest.

Two Metre News from Wales

GW3MFY (Bridgend) says the period has been quiet, especially with the onset of the very wet spell of weather. On one or two days, however, conditions were good, and it was GW3MFY's impression that very few stations were on to take advantage of these conditions. The best days were September 26, October 9 and 14. The G3JGJ sked has had to be called off for the time being and GW3MFY would welcome another sked with anyone interested. On September 26, G3HYH in the north was heard peaking to S4, working G3IRS, but repeated calls brought no reply. G2NY was also called. G3KEQ was worked several times when no other signals were coming in from the London area. On September 27, G3FZL was worked for the first time 579 both ways, also " out of the blue." G3LTF was called on September 29 and October 5—no reply—a very elusive station says GW3MFY! The same phenomenon on G3FZL and G3HBW, noted by G5DW, was also noticed at Bridgend. While they have been working GM3EGW, presumably with beams north, their signals have been consistent in South Wales. No other signals were heard at the same times, which would either indicate that G3FZL and G3HBW have terrific side lobes or that there is far less activity in the London area than most people think. Signals from the north were also in evidence on October 9 but CQs were fruitless. There have been several QSOs with GW4CG (Porthcawl) in the early evening around 19.30 when things have been otherwise quiet. GW4CG may attract some attention when his QRO rig is ready. Regarding G5YV's suggestion GW3MFY suggests a prize for the top station in each country. There are, for instance many stations in Wales with equipment and this might encourage more than sporadic activity.

Seventy Centimetres

A heartfelt plea from **G2XV** (Cambridge) says " I do need a sked with anybody in the counties of Gloucestershire and Dorset, please! " What offers?

From Scotland, **GM6WL** (Glasgow) reports further portable progress: on September 20 he went to famous Cairn o' Mount, Kincardineshire (1,480 ft.) and was received by GM3NG (Maiden Hill, 1,000 ft., Tarbrax) at 589 over a distance of 86 miles. This is at the south-western end of the Pentland Hills. GM3DDE (Corstorphine) also received the signals 569 at 72 miles and GM3GUO (with GM3INK assisting) had a QSO with GM6WL from a portable site at Sherriffmuir, near Dunblane (1,000 ft.). With GM3NG at Tarbrax were G3BA and GM6KH. They were only equipped for reception; otherwise there could have been a splendid QSO from these special sites. On September 21, GM6WL went down the Clyde to Cardross, and had nice QSOs with GM3GUO and GM3GAB at their home QTHs. Tests have been going on steadily for a month since the initial contact which began on September 10 with GI3FWF, and this indefatigable enthusiast has received GM6WL every time the latter has been on, in all sorts of conditions! Sometimes they are down to 339, but are frequently 589, even when the barometer is down to 982 mb with miserable and rainy weather! GM6WL is not receiving GI3FWF so well, nevertheless reception has been made five times during the period under review, which is considered fair, as on 70cm GM6WL, gets some horrible harmonics from crude TV receiver converters, of the type which have an oscillator around 144 Mc/s for Band III conversion. These harmonics (about T3) are very loud and spread and drift all over the band. It may be necessary to get GI3FWF to QSY to 437 Mc/s to avoid these pests. GM6WL was delighted to have a visit from G3KPT last month.

Overseas Notes

Denmark. E.D.R. have sent a letter asking for reports from those who have heard OZ7IGY, which operates daily from 12.00 to 24.00 C.E.T. with an output 60 watts into a 10-element Yagi. The frequency is 144·006 Mc/s. The station also operates on 432·018 Mc/s. Reports should state time, strength and QSB, and should be addressed to E.D.R., Box 79, Copenhagen.

Sweden. SM6BTT (Gothenburg) has sent a note of his results during the Perseid meteor shower, prefaced with previous history of the tests. In 1957 (October 18/23) tests were made with OE6AP, but were fruitless. During May 3/4, 1958, however, although SM6BTT had no results, the first bursts from OE6AP were heard by SM4BIU who, with other Swedish amateurs, had been invited to participate. On June 8, HB9RG, had two bursts (S7) during which the calls " SM6 and HB9 " were heard and one 30 second burst (S3) with both calls. On August 10/14 " pings " were received from HB9RG while on August 11, G3HBW and HB9RG were heard. On the 12th the figure " 5 " was heard from G3HBW and many " pings " and bursts from HB9RG, who also produced pings and bursts on the 13th, as well as part call-sign at varying strength from S1/2. The total was 44 " pings " and 21 bursts. Nothing was heard of OE6AP (who was poorly placed this time, at Graz) or F9AJ (whose exact frequency was unknown). It is hoped that the first meteor scatter QSO will happen around December 10/14. The preliminary work has been well worth while, and all the participants are on the " qui vive " for next time. HB9RG and EA3IX will both be standing by, in addition to the others. SM6BTT also wants other skeds, after 01.00 G.M.T.

SM6-2917 (Malsryd), who is a member of R.S.G.B., reports hearing by aurora G5YV, GM2FHH and GM3EGW on June 29, G5YV and GM2FHH on July 8, and G5MA, GM2FHH and GM3LAV on September 4-5. Via tropo GM2FHH and 3HLH/A have been heard. G, GM and HB have been heard by meteor scatter and seven other countries by tropo.

SM5MN (Linkoping) has sent in a circuit of an interesting two band p.a. for 2m and 70cm developed by SM5AY and SM5AOL. This very easily manipulated arrangement is shown in Fig. 1 because it seems to be the answer to many people's problems of quick band change, and certainly avoids the necessity for two transmitters or p.a's. The valve used is a QQE06/40 (QQV06/40), and it is driven by a normal 144 Mc/s exciter. Its grid circuit is normal except the switchable grid leak (the valve is used as a tripler on 432 Mc/s). The anode circuit is a normal ¼ wave line on 144 Mc/s with the tuning condenser almost fully in. On 432 Mc/s, the line from the anodes to the tuning capacitor (included) acts as a ½ wave circuit, and the rest of the line as a ¼ wave shorted stub. In this case, the capacitor should be almost fully out.

The exciter should have adjustable output (a potentiometer in the screen of a 5763 or a 2E26 will do) according to the bias requirement for the QQE06/40. The aerial link is coupled to the shorted end of the line. On 432 Mc/s it is thus coupled to the stub portion of the line, but nevertheless it is working normally. No detailed information about the link is given here, because some juggling with this hairpin is required with respect to the feed line used (52 or 75 ohm coax, 150 or 300 ohm ribbon, or 400 ohm open line).

The position of the tuning capacitor *is* critical. Its two stator sections should be soldered to the line in only one point exactly 92mm from the anode connectors.

The advantages of this system are obvious: better output on 144 Mc/s due to a high Q circuit, an excellent tripler to 432 Mc/s without the usual drawbacks of lots of extra equipment, cables and wires to and from extra power supply etc.

France. An enjoyable personal QSO with F3LF (Paris) brought a report of his DX-Expedition on top of the " Aiguille du Midi " (French Alps) 12,500 ft. during the European V.H.F. Contest on September 6/7. The portable

rig operated by F3LF with F8GB and F2IP, was running at 15 watts into a QQE03/20 with a 4 element beam and an old converter. In all 59 QSOs were made with stations in DL, I, LX, PA, HB, M1 (San Marino) and F. The best DX was PA0TA/P (Thiel), 638km. A QSO with 11BRN/M1 is the first 2m contact between France and San Marino. No QSO was made with G owing to very poor conditions in our direction.

From *PRP News* we note that the aurorae of September 3/4 were also very much in evidence in North America, especially that of the 4th with continuous coverage in some areas and the "middle break" in others. Reports spread from Alabama, Georgia and Mississippi in the south to Iowa, Missouri and Minnesota in the west. W0EMS was heard by W2ORI.

F3LF/P was on the Aiguille du Midi on September 6-7. In this picture, left to right, are F2IP, F3LF and F8GB.

Six Metres

B.R.S. 20133 (Melton Mowbray) is now listening on this band with great hopes! **G4LX** (Newcastle-on-Tyne) informs us that the transatlantic path opened up on October 14, and at 13.15 G.M.T. he worked W1GKE. Stations heard were W1HOY, W1LGE, K2PCG and W3VIR.

EI2W (Dublin) now has a second frequency on 50·072 Mc/s and is on every morning at 08.30 to 09.30 G.M.T. for British and European contacts and anything else which may show up! EI2W transmits also on 50·016 Mc/s.

From the September 1958 circular letter of the Radio Society of East Africa it is learnt that there have been some interesting happenings on 6m recently. On August 28 VQ4AA had a fluttery S7 phone contact with ZE2JV. ZS3G (Windhoek, S.W. Africa) later came into this QSO. ZS3G was again worked the following evening, and again a day later, also ZS3Z. ZS3G often hears CT1CO, but complains that this station never appears to listen for replies.

LA9T (Moss, Oslo) listens and transmits every morning from 07.00 to 07.30 G.M.T. on 50·040 Mc/s and has listened specially on 52·5 Mc/s since February 1958. During frequent meteoric bursts carriers have been heard on this spot. If they were c.w. LA9T thinks he could have identified some of them.

As this issue went to press, **G2BVN** reported that the path to North America had again opened and a number of cross-band contacts from 10 metres had been made.

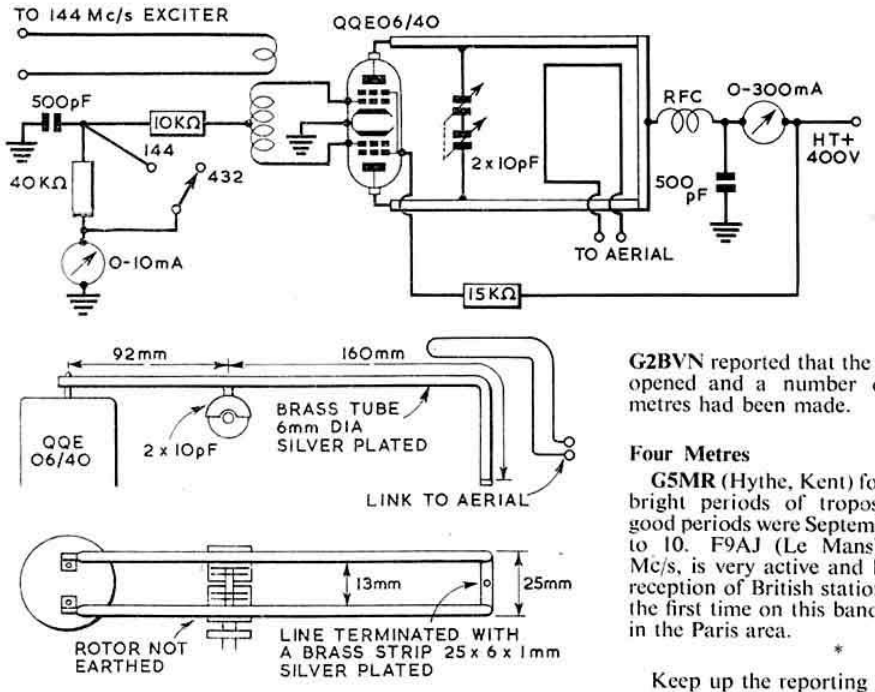


Fig. 1. Circuit diagram of the two-band p.a. for 144 and 433 Mc/s designed by SM5AY and SM5AOL.

Four Metres

G5MR (Hythe, Kent) found variable conditions with some bright periods of tropospheric propagation; particularly good periods were September 24, 25, 27 and 28 and October 8 to 10. F9AJ (Le Mans), approximate frequency 72·625 Mc/s, is very active and has now modified his receiver for reception of British stations on 70 Mc/s. Stations heard for the first time on this band have been F3QH and F9II, both in the Paris area.

* * *

Keep up the reporting please—we depend on you!

Reports for December issue, latest November 18 please. Au revoir till then.

Worked and Heard on V.H.F.

Two Metres

EI2W (Dublin) September 6-7
Worked: G3ATZ, 3JAZ, 3JWQ, 3JZG, 3KMT/P, 5YV, 6XM, 8SB/P, GI3AXD, GW2HIY, 3GWA/P.

B.R.S.19162 (Dewsbury, Yorks) August 16—September 15
Heard: G2AIW, 2ANT, 2BVW, 2FJR, 2FMO, 2FNW, 2HCG, 2JF, 2XV, 3BA, 3CGQ, 3DJJ, 3EVV, 3EYV, 3FAN, 3FZL, 3FZL/P, 3GGR, 3GHI, 3GKH, 3GSO, 3HBW, 3HRH, 3HXS, 3HZK, 3IOE, 3IKV/A, 3IRS, 3IWJ, 3JGY, 3JMA, 3JXN, 3JZG, 3KEQ, 3KEQ/P, 3KQF, 3KUH/P, 3LAY, 3LHA, 3LTF, 3MPS, 4DC, 4LX, 4PS, 5DF, 5GN, 5HB, 5KG, 5KW, 5MA, 5SK, 5UM, 6JY, 6LI, 6NB, 6XM, 6YP, 8AL, 8NM, 8VZ, GM3EGW, 2FHH, 3HLH/A, OZ9AC, PA0TP, PE1PL.

B.R.S.20133 (Melton Mowbray) August 16—September 16
Heard: EI2W, F8MX/A, G2ANT, 2ATK, 2BVW, 2CRL, 2CVV, 2DCI, 2DTO/P, 2DMN, 2FJR, 2FNW, 2FNW/P, 2FMO, 2HCG, 2HCG/M, 2HGR, 2NY, 2XV, 3ABA, 3APY, 3APY/M, 3AYT/M, 3BA, 3BNL, 3BU, 3CCH, 3CCF/P, 3CGQ, 3DKF, 3DVK, 3DVK/P, 3EEO/A, 3EKX, 3ENS, 3EVV, 3FAN, 3FIB, 3FZL, 3GFD, 3GGR/P, 3GSO, 3HA, 3HBW, 3HXN, 3HXS, 3HZK, 3HZK/M, 3HYH, 3IKV, 3ILX, 3IRS, 3JGY, 3JMA, 3JMA/M, 3JWQ, 3JXN, 3JZG, 3KEQ, 3KEQ/P, 3KMT/P, 3KPT, 3KQF, 3KUH, 3KUH/P, 3LHA, 3LHW, 3LLE, 3LOK, 3LSA, 3LFT, 3MED, 3MNQ, 3MPS, 3NT, 4JJ/A, 4MK, 5BF, 5CP, 5CP/M, 5DF, 5GN, 5HB, 5JU, 5KG, 5KW, 5MA, 5ML, 5ML/M, 5PP, 5YV, 6JS, 6JY, 6LI, 6NB, 6XM, 6XT, 6XX, 6YU, 8CZ, 8SB/P, 8VN, 8VZ, GB2RS, 3IGY, GD3UB, ON4BZ, PA0EZ, 0QC, PE1PL.

B.R.S.20133 (Melton Mowbray) September 10-October 10
Heard: F8MX/A, G2ATK, 2BVW, 2CRL, 2DMN, 2FJR, 2FNW, 2HCG, 2HGR, 2NY, 2XV, 3ABA, 3APY, 3APY/M, 3BU, 3DKF, 3DVK, 3EKX, 3EVV, 3FAN, 3FIB, 3FR, 3FUW, 3GFD, 3GSO, 3HA, 3HBW, 3HWC, 3HXS, 3HYH, 3HZK, 3ILX, 3JGY, 3JMA, 3JWQ, 3JWQ/M, 3JXN, 3JZG, 3KEF, 3KEQ, 3KPT, 3KQF, 3KUH, 3LHA, 3LLE, 3LSA, 3LTF, 3MED, 3MNQ, 3NT, 4MK, 5DF, 5GN, 5HB, 5KG, 5KW, 5MA, 5ML/M, 5PP, 5SK, 5YV, 6NB, 6XM, 6XT, 6XX, 6YP, 8CZ, 8VZ, GB2RS, 3IGY, GD3UB, GI3GXP, ON4BZ, PE1PL.

B.R.S. 20162 (Selsdon) September 11-13
Heard: F9QW, G2AHP, 2AIQ, 2AIW, 2BVW, 2DTO, 2DZH, 2FM, 2FNW, 2HDY, 2JF, 2JM, 2QY, 2RD, 2ABA, 3ANT, 3AYC, 3BII, 3DKF, 3EJO, 3EKJ, 3EKX, 3ENY, 3EVV, 3EYV, 3FAN, 3FJ/A, 3FP, 3RFF, 3FZL, 3GHI, 3GOZ, 3GQK/M, 3HAZ, 3HGE/M, 3HRH, 3HTC, 3HXS, 3HZK, 3IIR, 3IRW, 3IUL, 3JMA, 3JMS, 3JR, 3JVF/A, 3JWQ, 3JXN, 3JYT, 3JZG, 3KEQ, 3KHA, 3KQC, 3KRR, 3LCH, 3LHA, 3LTF, 3LTF/A, 3LYD/A, 3 MED, 3MEO, 3MEV, 3MNQ, 3MNR, 3MPS, 4DC, 4JJ/A, 4KD, 5DF, 5KG, 5KW, 5LK, 5MA, 5PP, 5NF, 5YV, 6LL, 6NB, 6NF, 6NF/M, 6NW, 6YP, 6YP/M, 8AL, 8DR, 8VZ, ON4ZH, PA0LQ, 0WAR.

B.R.S.20162 (Selsdon, Surrey) September 14-October 13
Heard: F8MX, G2AHL/M, 2ANS, 2ANT, 2ATK/M, 2AUD, 2BWN, 2CD, 2DMN, 2DTO/A, 2DTO/M, 2DUS/M, 2DZH, 2FCA, 2FM, 2FNW, 2HCG, 2HDJ, 2HDY, 2JF, 2NY, 2QY, 2RD, 2UJ, 2WJ, 2XV, 3AAZ, 3ABB, 3AEX, 3ANB, 3AYC, 3BA, 3BII, 3BYY, 3CGQ, 3CNF, 3CO, 3CWB, 3DF, 3DJJ, 3DOR, 3DVK, 3EKJ, 3ENY, 3EVV, 3EYV, 3FAN, 3FCQ, 3FIJ, 3FJ/A, 3FP, 3FQS, 3FUL, 3FZL, 3GDR, 3GFD, 3GFN, 3GHI, 3GHO, 3GKH, 3GNR, 3GOZ, 3GQK/M, 3GSO, 3GZJ, 3GZJ/M, 3HAZ, 3HBW, 3HGE/M, 3HRH, 3HSE, 3HSE/P, 3HWR/A, 3HXS, 3HZJ, 3HZK, 3IIR/M, 3INU, 3IRS, 3IUL, 3IYX, 3JFR, 3JMA, 3JMS, 3JNI, 3JQN, 3JR, 3JWQ, 3JYT, 3JZG, 3KEQ, 3KHA, 3LKI, 3KPT, 3KQC, 3KQF, 3KQR, 3KRR, 3LAY, 3LCH, 3LCK, 3LGJ, 3LHA, 3LHA/M, 3LOK, 3LTF, 3LTF/A, 3LVO, 3LYD/A, 3LZP, 3MED, 3MEO, 3MEV, 3MLS, 3MNQ, 3MNR, 3MPS, 3PV, 3VI, 4AU, 4DC, 4IB, 4PS, 4RB, 5DF, 5DT, 5DW, 5KG, 5KW, 5LK, 5MA, 5MR, 5NF, 5OX, 5TP, 5UM, 5YH, 5YV, 6AG, 6JP, 6LL, 6NB, 6NF, 6NF/M, 6OU, 6OX, 6WU, 6XM, 6XX, 6YP/M, 8AL, 8DR, 8LN, 8VZ, GB2RS, 3IGY, ON4ZH, PA0CML, 0LQ, 0WAR.

B.R.S. 20284 (Prestatyn, Flintshire) August 1—September 12
Heard: EI2W, EI6A, G2FCL, 2HCJ, 2HGR, 2NY, 3AOS/M/GW, 3CCF/P, 3HWC, 3IKV, 3IWJ, 3JAH, 3KUH/P, 3KYT, 5BN/A, 5CP/M/GW, 5TH, 5YV, 8SB/P, GB2RS (G5YV), GD3UB, GI3GXP, 5AJ, GW2HIY, 3HRH/A.

B.R.S. 21476 (Penarth, Glam.) August-September
Heard: G2ADZ, 2HDR, 2JM, 3AOS/M, 3BA, 3GTN, 3HXN, 3IRS, 5DW, 6OX/M, GC2FZC, GW3DDY, 3HAW, 3MFY, 8UH.

G3JGJ (Paignton) August 19—September 17
Worked: G2ADZ, 2RY, 3BHN, 3FZL, 3HBW, 3HTA, 3ION/A, 3ICO, 3KEQ, 3KHA, 3LTA, 3ION/A, 3ICO, 3KEQ, 3KHA, 3LTF, 4DC, 5BM, 5DF, 5MA, 5OB, GC2FZC, 3KAV, GW3MFY, 8SU. *Heard:* F8MX, G2AHP, 2XV, 3FIH.

G3JR (Barnes) August 31—September 17
Worked: G3DVK, 3JWQ, 3KQF, 3MNG. *Heard:* F9JY, G2NY, GM2FHH, 3EGW, GI3GXP, ON4BZ, 4DW, 4TQ, 4UD, 4ZH, PA0FB, 4LQ, 4WAR.

G3MEV (Maidenhead) August—September 4
Worked: F8MX, G2AHY, 2DTO/M, 3ASU, 3BII, 3FQS, 3HBW, 3JXN/P, 3KRR, 3KSR, 3MPS, 4PS, 5KW, 8VZ. *Heard:* G2NM, 2CPX, 2DMN, 3HCU, 2HZJ/P, 3KEQ, 3KHA, 5DS, 5MA, 6XM, GB2RS, GB3IGY.

G5YV (Leeds) September 4-5 (*Aurora*)
Worked: DL3YBA, 6EZA, DM2ABK, GW3MFY, PA0MZ, OZ3M, SM6BTT, 7BCX, 7BZX. *Heard:* DJ1VK, DL1FF, 3SN, 6QS, G2XV, 3FZL, 3KEQ, 5MA, GI5AJ, GM2FHH, 3EGW, 3LAV, GW8SU, HB1RG, ON4BZ, 4TQ, PA0NL, SM6BTT, 7BAE, 7YO, 7ZN.

G8VZ (Princes Risboro') August 23—September 14
Worked: G2NY, 2ADZ, 2DMN, 2FJR, 2FNW, 2NGR, 3BVU/P, 3DKF, 3DVK, 3ENY, 3HRH, 3ION/P, 3JWQ, 3JZG, 3KHA, 3KMT/P, 3KPT, 3KUH, 3LHA, 3LOK, 3MED, 3MNQ, 5DW, 5YV, 6XM, GW2HIY, 3MFY, 8UH.

GI5AJ (Bangor N.I.)
Heard and/or worked by aurora September 4-5. G2AIW, 3CCH, 3HBW, 4DC, 5DS, 5MA, GM3EGW, PA0EZA.

GM2FHH (Aberdeen) *worked via aurora* September 3-5
Worked: DL1FF, 6QS, G2AIW, 3FZL, 3LDC, 3HBW, 5MA, GI5AJ, LA4RD, 7AE, OZ3NH, PA0MZ, SMGBTT.

GM3BOC/A (Brora, Sutherland) August 31—September 5
Worked: G5YV, GM2FHH, 3NG, 3EGW, 3HLH/A, 3LAV, 4HR, 6SR, 6XW. *Heard:* G2NY, GM3DDE. September 4/5 (*Aurora*). *Worked:* G3JZG, 5MA. *Heard:* G2NY, G3FZL, 3HBW, ON4BZ.

GM3LAV (Edinburgh) August 10—September 10
Worked: GM2FHH, 3BOC/A, 3DDE, 3EGW, 3ENJ, 3FGJ, 3HLH, 3HLH/A, 3KPD, 3KYI, 3UM, 4HR, 5VG, 6SR, 6XW. *Heard:* GM3NG. *Stations worked via aurora on September 4:* G3CCH, 3HBW, 3HZK, 2NY. *Heard via aurora:* DL3YBA, EI6A, GM2FHH, 3BOC/A, ON4TQ, OZ3NH.

GM3UM/P. September 6-7
Worked: G2NY, 5YV, 6LI, GM3DDE, 3DIQ, 3EGW, 3ENJ, 3HLH/A, 3KYL/P, 4HR, 6SR. *Heard:* G3BNL, 3CCH, 6JY, 6XM.

GW3MFY (Bridgend) September 1-17
Worked: G3JZG. *Heard:* G2AHP, 2AIW, 2ANT, 2NY, 2XV, 3ABA, 3DOR, 3DVK, 3FEX, 3FZL, 3GKH, 3HCU, 3LTF, 5YV, GM3EGW.

SM6BTT (Gothenburg) August 28—September 7
Worked: (all stations over 200 miles away): DL1FF, 3IY, 3YBA, 6QS, 7FU, 9ARA, G5YV, GM2FHH, OZ3M, 4AJ, 6RI, SP3FD, 5AU, SM3WB, 4NK, 5ABA, 5AEZ, 5AOL, 5BDQ, 5BPI, 5BRT, 5IP, 5RT, 5SI, 5UU. *Heard:* DJ2DC, 2DL, 2ISN, 3SJ, GM3LAV, OH1NL and Dresden TV.

G5CP/M (Chesterfield District, N. Derbys) July 6.
Worked: G2CRL, 2DCI, 2DUS/M, 2HQ, 2JF, 3AMB, 3APY/P, 3ATM/P, 3AYT/M, 3BNL/P, 3CCH, 3DIV/P, 3DVK/P, 3EEO/P, 3SKX, 3ENS, 3ERD/P, 3ESW, 3FKO/P, 3GFD, 3GGR/P, 3GHT, 3GNR/P, 3GOP/P, 3HA, 3IRS, 3JMA, 3JQN/P, 3JZG/P, 3JWQ/P, 3KSR/P, 3KTM/P, 3LLE, 3LTF, 3MAR/P, 3MNQ, 4DC, 4JJ/A, 5YV, 6FO, 6TD/P, 6XM/P, 8SB/P, **GW3:GA**/P, GW3MED/P.

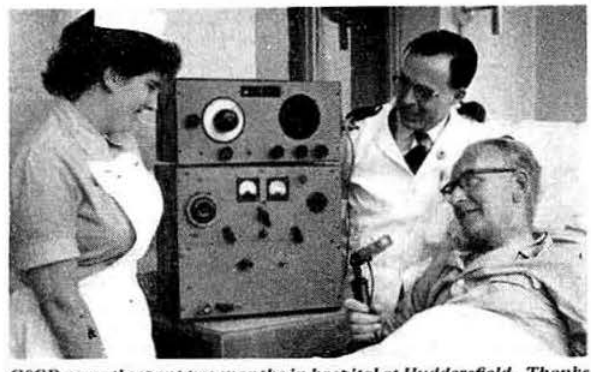
G8VZ (Princes Risborough) June 16-August 16
Worked: EI2W, G2DMN, 2HCJ/P, 2XV, 3BNL/P, 3DIV/P, 3DKF, 3ENY, 3GGR/P, 3GNR/P, 3HWC, 3HWS/P, 3HYH, 3IRS, 3IWJ, 3JAZ, 3JGJ,3JWQ, 3JZG, 3KHA, 3LHA, 3MAR/P, 4JJ/A, 5BM, 5YV, 6DT/P, 6XM/A, 8SB/P, GC3EBK, GD3UB, GI3GXP, GW2HIY, 3JGA/P, 3MED/P, 5SA/P, 8SC/P.

GW3MFY (Bridgend, Glam.) July 12 to August 11.
Worked: F8MX, G2ADZ, 2HDR, 3AOS/M, 3EHY, 3FIH, 3FP, 3HBW, 3JGJ, 3KEQ, 3KHA, 3KPT, 3LHA/M (Nr. Paignton) 3NR, 4DC, 5DW, 5MA, 5ML/M, 6SN/M (N. Devon) GC2FZC, GW2HCJ/P (Carmarthen) 4GC, 8SC/P (Mon.), 8SU, 8UH. *Heard:* G2NY, 3FCQ, FZL, 3HCU, 3JZG, 3ITF, 3MPS, 6NB, 6KM, 8VZ.

GW3MFY/P (6 miles N.W. Brigdend, Glam.) July 21
Worked: G3AOS/M (N. Devon), 3APY/M (Portland Bill), 3BDL, 3FIH, 3IRS, 3LHA (Nr. Paignton), 6SN/M (N. Devon).

A.1491 (Palmers Green, London, N.13), August 16-October 16
Heard: F3LP, 8MX/A, G2CD, 2FM, 2JF, 2MR, 2RD, 2UJ, 2WJ, 2XV, 2YC, 2ABD, 2AHL/P, 2AHP, 2AIW, 2ANT, 2BDX, 2BWN, 2CZS, 2DTO, 2DTO/M, 2DTO/P, 2DUS, 2FCA, 2FJR, 2FMJ, 2FNW, 2HDY, 3CO, 3DF, 3FD, 3FD/P, 3FP, 3JR, 3AEX, 3AYC, 3BBR/P, 3BJC, 3BYY, 3CGQ, 3CNF, 3DOR, 3EKX, 3EOH, 3EVV, 3EYV, 3FCQ, 3FIJ, 3FZL, 3FZL/A, 3DGR, 3GHI, 3GOZ, 3GQK/M, 3GSE, 3GZJ, 3GZJ/M, 3HAZ, 3HBW, 3HCU, 3HGE/M, 3HRH, 3HWR, 3HZK, 3IIR/M, 3IIT, 3IRS, 3IRW, 3IUL, 3JFR, 3JMA, 3JMS, 3JQN, 3JWQ, 3JYT, 3KDG, 3KEQ, 3KEQ/P, 3KGC/A, 3KQC, 3KQR, 3LCH, 3LCH/P, 3LCK, 3LOK, 3LTF, 3LTF/A, 3LVO, 3LYD/A, 3LZP, 3MEO, 3MLS, 3MNR, 3MPS, 4DC, 4IB, 4JJ/A, 4KD, 4PS, 5DS, 5DT, 5KG, 5KW, 5LK, 5MA, 5OX, 5TP, 5UM, 5YV, 6JI, 6JP, 6LL, 6NB, 6NF, 6NF/M, 6WU, 6XM, 6YP, 6YP/M, 8AL, 8DR, 8LM/P, 8MW, 8SK, GB2RS, 3IGY.

G5DW (Ashcott Bridgwater) September 15-October 15
Worked: G2CIW, 2DMN, 2NY, 2RY, 3EJO, 3ICO, 3IER, 3JGJ, 3LAY, 3MED, 3MNQ, 8MZ, GW2HIY. *Heard:* G3FZL, 3HBW, 5YV, 6LI, 8VZ



G8CD recently spent two months in hospital at Huddersfield. Thanks to the co-operation of G3JWY, the male sister on the ward, it was possible to install a small transmitter by the bedside. In conjunction with an aerial erected by G3CHE and G3HNU, G8CD was able to operate on Top Band and 80m. In this picture G3JWY is on the right.

Society News and Proceedings

Society Trophies

SOCIETY trophies for the current year have been awarded by the Council to the following:

R.O.T.A.B.: Mr. S. Leslie Hill (G8KS) in recognition of his consistent work with Amateur Radio stations in the Falkland Islands and Antarctica over a period of several years.

Wortley Talbot: Mr. A. L. Mynett (G3HBW) in recognition of his outstanding experimental work on the v.h.f. and u.h.f. amateur bands.

Founder's: Mr. G. M. C. Stone (G3FZL) in recognition of his distinguished services to the Society as an I.G.Y. Co-ordinator.

Calcutta Key: Mr. George Partridge (G3CED) in recognition of his outstanding service to the cause of international friendship through the medium of Amateur Radio.

B.E.R.U. Senior Rose Bowl: Mr. R. G. Henwick (ZS6DL), winner of the 1958 B.E.R.U. Contest (High Power Section).

B.E.R.U. Junior Rose Bowl: Mr. J. C. van Wyk (ZS6R), winner of the 1958 B.E.R.U. Contest (Low Power Section).

B.E.R.U. Receiving Rose Bowl: Mr. W. E. Wilkinson (B.R.S. 20317), winner of the B.E.R.U. Contest (Receiving Section).

Col. Thomas Rose Bowl: Mr. F. J. U. Ritson (G5RI), leading U.K. entrant in the B.E.R.U. Contest (High Power Section).

N.F.D. Shield and Miniature Replica: Gravesend Radio Society.

N.F.D. Shield Miniature Replicas: 1·8 Mc/s, Oxford and District Radio Society. 3·5 Mc/s, Stamford and District Group. 7, 14, 21 Mc/s, Gravesend Radio Society. 28 Mc/s, Slough Group.

Scottish N.F.D. Trophy: Edinburgh and Lothians Group.

Bristol Trophy: Coventry Group.

Somerset: Mr. I. T. Cashmore (G3BMY), winner of the First 1·8 Mc/s Contest, 1958.

Mitchell-Milling: Mr. P. W. Winsford (G4DC), winner of the 144 Mc/s Open Contest 1958.

1950 Council: Mr. E. L. Mollart (B.R.S. 10977), winner of the D/F National Final, 1958.

Edgware: Dorking and District Radio Society, winner of the Affiliated Societies' Contest 1958.

Houston-Fergus: Mr. D. Alexander (G3KLH/P), winner of the Low Power Field Day, 1958.

Braaten: Mr. D. W. Cox (G3HJJ), leading English R.S.G.B. member station in the 1958 A.R.R.L. DX Telegraphy Contest.

Milne: Mr. C. F. Sherrit (GM3EOJ), leading R.S.G.B. U.K. member station other than English in the 1958 A.R.R.L. DX Telegraphy Contest.

Whitworth: Mr. D. A. G. Edwards (G3DO), winner of the 1957 R.S.G.B. 21/28 Mc/s Telephony Contest.

Metcalfe: Mr. M. Harrington (B.R.S. 20249) who submitted the best check log from a non-licensed British Isles member for the 1957 R.S.G.B. 21/28 Mc/s Telephony Contest.

Maitland Trophy: Mr. J. W. Mathieson (GM3EHI), the Scottish contestant making the highest aggregate score in the Second 1·8 Mc/s Contest 1957 and the First 1·8 Mc/s Contest 1958.

Ostermeyer Trophy: Mr. J. M. Railton (G8AB) whose miniature high power transmitter was considered to be the best piece of home-constructed equipment described in Volume 33 of the Society's journal.

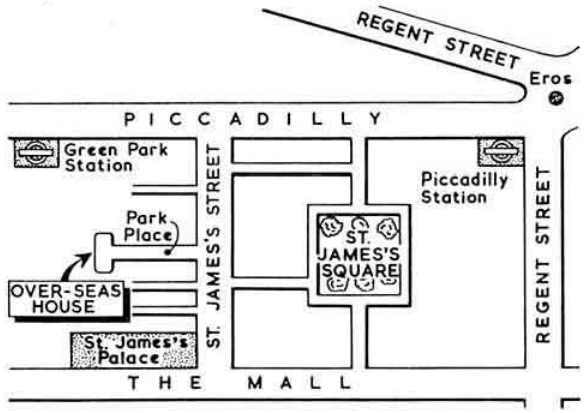
The **Desmond** and **1930 Committee** Trophies will be awarded after the entries for the Second 1·8 Mc/s and Low Power contests have been judged.

Miniature trophies have been awarded to Messrs. P. J. Pollard (G3DIV/P) and F. A. Griffiths (GW3MED/P), winners of the First and Second 144 Mc/s Field Days 1958 respectively, and to Mr. D. N. Biltcliffe (G6NB), winner of the 420 Mc/s Open Contest 1958.

A.G.M. Venue

THE Annual General Meeting of the Society will be held in the St. Andrew's Hall of Over-Seas House (Headquarters of the Over-Seas League), Park Place, St. James's Street, London, S.W.1, on Friday, December 12, 1958, commencing at 6.30 p.m. Buffet tea will be served from 6 p.m.

A sketch map showing the location of Over-Seas House is reproduced below.



Over-Seas House is about five minutes' walk from Green Park and Piccadilly Underground Stations.

Ballot

MR. D. METCALF (G3GHQ) and Mr. L. Southwell (G3JLS) having both been nominated for the office of Hampshire County Representative (which office will become vacant on December 31, 1958), a ballot now becomes necessary.

Corporate Members resident in Hampshire (which includes the Isle of Wight) are invited to record a vote *on a postcard* in favour of one of the candidates and to send the card, properly stamped, to the General Secretary, R.S.G.B., New Ruskin House, Little Russell Street, London, W.C.1, to arrive not later than November 30, 1958.

A list of C.Rs. who were nominated without opposition will appear in the December issue of the BULLETIN.

Radio Hobbies Exhibition—Final Date for Acceptance of Exhibits

IN order to allow adequate time for the preparation of caption cards and display arrangements, the Exhibition Committee can only accept *offers* of equipment for the Society's stands at this year's Radio Hobbies Exhibition up to November 17, 1958.

Equipment sent in without prior acceptance by the Committee will be returned to members unopened and at sender's risk.

Résumé of the Minutes of the Proceedings at a Meeting of the Council of the Radio Society of Great Britain, held at New Ruskin House, Little Russell Street, London, W.C.1, on Monday, September 22, 1958, at 6 p.m.

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

Apologies for absence were submitted on behalf of Messrs. H. A. Bartlett and J. H. Hum.

Absent: Messrs. R. H. Hammans and H. W. Mitchell.

* * *

Annual Accounts

The Honorary Treasurer submitted the Audited Accounts for the year ended June 30, 1958.

Resolved (i) that the Audited Accounts as submitted by the Honorary Treasurer be approved for printing and subsequent presentation to the Members at the Annual General Meeting to be held on December 12, 1958.

(ii) that a contingent liability of £500 be provided for in the accounts in respect of work carried out on *The Amateur Radio Handbook* up to June 30, 1958.

Reports of Committees

The Minutes of Meetings of the Contests, Exhibition and R.A.E.N. Committees were submitted as Reports.

Resolved to receive the reports and to accept the recommendations contained therein.

The recommendations of the Contests Committee dealt with various Society Contests including N.F.D. and with the programme of events for 1959.

Resolved to accept the recommendation of the Region 1 V.H.F. Committee that the 144 Mc/s Field Day to be held on May 3, 1959, shall be a Telegraphy Contest only.

The Exhibition Committee reported that the sum of £432/5/7 was taken on the Society's stand at the Earls Court Radio Show. More than 60 new members were enrolled and more than 700 members signed the visitor's book.

Matters relating to the Radio Hobbies Exhibition were discussed and various decisions taken.

* * *

Membership

Resolved (i) to elect 126 Corporate Members and 37 Associates.

The Secretary reported that 86 of the 696 members whose subscription was due on June 1, 1958, became three months overdue on August 31, 1958, and that 16 of the 86 had written to resign.

It was agreed that the Secretary could now cease the practice of submitting to the Council details of lapsed members. It was further agreed that the practice should be revived in the event of the number of applications for membership showing a marked falling off.

Ordinary Administrative Radio Conference—Geneva 1959.

Consideration was given to a letter from the G.P.O. in which it was explained that it may be possible for a representative of the Society to be attached to the United Kingdom delegation to the O.A.R.C., Geneva, 1959.

Resolved to advise the G.P.O. that the Society wishes to submit the name of Mr. L. E. Newnham as their representative in the U.K. delegation to the O.A.R.C., Geneva, 1959.

Reciprocal Licensing Arrangements

Consideration was given to a letter from the G.P.O. in which it was stated that the United Kingdom Administration is unable to agree to the issue of amateur transmitting licences to foreign nationals.

Resolved to take no further action on the question of reciprocal licensing arrangements.

National Convention

Resolved to invite the Region 4 Representative (Dr. E. S. G. K. Vance) to explore the possibilities of holding an O.R.M. in Nottingham during the autumn of 1959.

Society's Journal

It was reported that Mr. A. E. Watts, G6UN (a Past President of the Society) had offered to donate to the Society his bound volumes of the Society's Journal.

The President had written to Mr. Watts accepting, and thanking him for, the gift.

Region 2 Official Meeting

The Secretary reported upon the Region 2 Official Meeting held the previous day in Bridlington.

Resolved that a letter be sent to the Mayor and Corporation of Bridlington thanking them for allowing the meeting to be held in the Spa Royal Hall at no cost to the Society.

R.S.G.B. Amateur Radio Call Book

It was reported that for business and health reasons Mr. W. J. H. Kempton (G8LN) had asked to be relieved of his duties as Call Book Registrar.

The Secretary explained that Mr. Kempton's decision had come at a most difficult time as it had been planned to publish a new edition of the Call Book in November 1958. Mr. Kempton had intimated that he would not be able to check the galley proofs.

Amateur Radio Handbook

It was reported that seven chapters were now in print or with the printers.

TVI/BCI Committee

It was agreed to approve the texts of three letters which had been drafted by the TVI/BCI Committee. The first letter (to the G.P.O.) dealt with radiation from Band III Television Converters. The other two letters concerned a difficulty which had arisen in Edinburgh where an amateur had been approached for the cost of fitting a filter to a neighbour's television set.

The meeting terminated at 9.5 p.m.

First 144 Mc/s Field Day 1958

MEMBERS will have noticed that in the results of the above event the entry of the station with the highest number of points was declared invalid.

In order that there shall be no misunderstanding, it must be pointed out that this action was taken by the Contests Committee because of an irregularity in the entry sent in by this station. In fairness to the other competitors who had adhered to the rules it was necessary for this irregularity to be dealt with and unfortunately the only way to do so was to invalidate the entry.

It should be emphasized, however, that it was only this irregularity in the entry submitted by Mr. Seymour (G3GNS) that prevented the entry being accepted for the contest.

—D. A. F.

Worked All London Town Award

GRAFTON Radio Society propose to issue a special certificate to be known as W.A.L.T. to those who submit proof of having worked Amateur Radio stations in at least 65 of the 118 London Postal Districts. Endorsements will be given for each additional 15 confirmations. Contacts to count must have been made since January 1, 1958. Further details of the W.A.L.T. can be obtained from the Awards Manager, Grafton Radio Society, Montem School, London, N.7.

QST Subscriptions

A.R.R.L. have given notice that as from January 1, 1959, the overseas annual subscription rate for *QST* will be increased from 36/- to 43/6d.

No changes in the prices of the 1959 *Radio Amateurs' Handbook* or the *Antenna Handbook* are contemplated.

U.S. 11 Metre Band Withdrawn

U.S. AMATEURS are no longer allowed to use frequencies in the band 26,960-27,230 kc/s. Up to September 11, 1958 the Amateur Service shared the band with Industrial, Scientific and Medical Services.

City and Guilds of London Institute

AS from December 1, 1958, the Institute's address will be 76 Portland Place, London, W.1. Telephone: LANgham 3050.

R.S.G.B. 21/28 Mc/s TELEPHONY CONTEST

NOVEMBER 22-23, 1958

For rules, see page 184, October issue.

Rules for the Twenty-second B.E.R.U. Contest

January 17-18, 1959

1. **Sections.** The contest is divided into two sections, namely: (a) High Power—maximum licensed power; (b) Low Power—maximum input 25 watts.
2. **When.** The contest (both sections) will start at 00.01 G.M.T. on Saturday, January 17, and end at 23.59 G.M.T. on Sunday, January 18, 1959.
3. **Eligible Entrants.** The contest is open to all fully paid-up members of the R.S.G.B. within the United Kingdom and to all British subjects outside the U.K. but within the British Commonwealth and British Mandated Territories. All entrants agree to be bound by the rules of the contest.
4. **Operator.** Only the entrant will be permitted to operate the station for the duration of the contest.
5. **Entries.** Entries must be set out, as shown in the example, on **ONE SIDE ONLY** of foolscap or quarto paper. **Entries must be postmarked not later than February 1, 1959,** and must be addressed to the Contests Committee, Radio Society of Great Britain, New Ruskin House, 28/30 Little Russell Street, London, W.C.1, England.

B.E.R.U. CONTEST, JANUARY 17–18, 1959

Claimed Score.....

Section : (High or Low Power).....

Name..... Call-sign.....

Address .....

Transmitter.....Power input.....watts

Receiver..... Aerial(s).....

DECLARATION: I declare that this station was operated strictly in accordance with the rules and spirit of the contest, and I agree that the decision of the Council of the R.S.G.B. shall be final in all cases of dispute. I certify that the maximum input to the final stage of the transmitter was.....watts.

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

Failure to sign the declaration may involve disqualification of the entry.

Date	Band Mc/s	Time GMT	Call-sign of station worked	My report on his signals	His report on my signals	Points claimed	Bonus Points	Leave blank
17	14	0005	G3XXX	569001	559002	5	20	
17	14	0009	VK2ZZZ	579002	569034	5	20	
17	14	0012	GM3YYY	569003	579012	5	—	
17	21	0730	GW8XXX	589004	589054	5	—	
Total (Points Claimed + Bonus Points) 20 + 40 = 60								

6. **Bands.** Operation is restricted to the following bands: 3·5, 7, 14, 21 and 28 Mc/s. Transmissions must be of type A1 (pure c.w.) only, and frequent tone reports of T8 or less may result in disqualification.
7. **Licence Conditions and Power Input.** Entrants must operate within the terms of their licences. The input to the valve or valves delivering power to the aerial must not exceed 25 watts in the Low Power section.
8. **Contacts.** Contacts may be made with any station using a British Commonwealth call-sign except within the entrant's own call area. British Isles stations may not work each other for points. Contacts with unlicensed stations will not count for points. The decision as to whether or not a contact is valid will rest with the R.S.G.B. Contests Committee. Only one contact on each band with a specific station will count for points. Duplicate contacts should be logged, but no points claimed.
9. **Scoring.** Each completed contact will score 5 points. In addition a bonus of 20 may be claimed for the first contact with each new Commonwealth call area (as defined in the Appendix) on each band. All British Isles stations (G, GC, GD, GI, GM and GW) count as only one call area.
10. **Contest Exchanges.** Serial numbers must be exchanged and acknowledged before a contact can count for points. The serial number of six figures will be made up of the RST report plus three figures **starting with 001 for the first contact** and increasing by one for each successive contact, e.g. 559001 for the first and 439002 for the second contact, etc.
11. **Awards.** At the discretion of the Council, a trophy or miniature will be awarded to the winner of each section, and certificates will be awarded to the first three entrants in each section. In addition a certificate will be awarded to the leading entrant in each call area regardless of the number of entrants in his call area provided that his score exceeds 1,500 points in the High Power section or 750 points in the Low Power section. A certificate will be awarded in each call area in which there are ten or more entrants to the runner-up, provided his score exceeds 1,500 points in the High Power section or 750 points in the Low Power section.

RECEIVING SECTION

1. **Logs.** To count for points the log must show, in columns, (a) Date, (b) Band, (c) Time G.M.T., (d) Station heard, (e) Serial number sent, (f) Station being worked, (g) Points claimed, (h) Bonus pionts claimed. CQ or TEST calls will not count for points.
2. **Scoring.** Each log entry will score points in the same way as contacts in the transmitting contest (see Rule 9 earlier).
3. The same station may be logged only once on each band.
4. **Entries.** Logs must be addressed and postmarked as for entries in the transmitting sections.
5. All entries must contain the following declaration:
   I declare that this station was operated strictly in accordance with the rules and spirit of the contest, and I agree that the decision of the Council of the R.S.G.B. shall be final in all cases of dispute.

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

Failure to sign the declaration may involve disqualification of the entry.

6. **Awards.** At the discretion of the Council, a trophy or miniature will be awarded to the winner and a certificate of merit to the runner-up.

Appendix

The following call areas are recognised for the purposes of scoring in the B.E.R.U. Contest:—

G, GC, GD, GI, GM, GW—as one call area.
MP4 (Bahrein).
MP4 (Qatar).
MP4 (Trucial Oman).
VE1
VE2
VE3
VE4
VE5
VE6
VE7
VE8
VK0 (Australian Antarctica).
VK0 (Heard Island).
VK0 (Macquarrie Island).
VK1
VK2
VK3
VK4
VK5
VK6
VK7
VK9 (Admiralty Island).
VK9 (Cocos Island)
VK9 (Norfolk Island).
VK9 (Papua).
VK9 (New Guinea and Bismarck Island).
VO
VP1
VP2 (Anguilla).
VP2 (Antigua and Barbuda).
VP2 (British Virgin Islands).
VP2 (Dominica).
VP2 (Grenada and Dependencies).
VP2 (Montserrat).
VP2 (St. Kitts and Nevis).
VP2 (St. Lucia).
VP2 (St. Vincent & Dependencies).
VP3
VP4
VP5 (Jamaica).
VP5 (Cayman Islands).
VP5 (Turks & Caicos Islands).
VP6
VP7
VP8 (Falkland Islands).
VP8 (Grahamland).
VP8 (Sandwich Islands).
VP8 (South Georgia).
VP8 (South Orkney Islands).
VP8 (South Shetland Islands).
VP9
VQ1
VQ2
VQ3
VQ4
VQ5
VQ6
VQ7 (Aldabra Island).
VQ8 (Chagos).
VQ8 (Agalega).
VQ8 (Rodriques).
VQ8 (St. Brandon).
VQ8 (Mauritius).
VQ9
VR1 (Gilbert & Ellice Islands).
VR1 (British Phoenix Islands).
VR2
VR3 (Christmas Island).
VR3 (Fanning Island).
VR4
VR5
VR6
VS1
VS2
VS4
VS5
VS6
VS9 (Aden).
VS9 (Maldive Islands).
VS9 (Muscat and Oman).
VU2
VU5 (Andaman and Nicobar Islands)
ZB1
ZB2
ZC3
ZC4
ZC5
ZD1
ZD2
ZD3
ZD6
ZD7
ZD8
ZD9 (Gough Island).
ZD9 (Tristan da Cunha).
ZE
ZK1 (Cook Islands).
ZK2
ZL1
ZL2
ZL3
ZL4
ZL5 (N.Z. Antarctica).
ZM6
ZS1
ZS2
ZS2 (Marion Island)
ZS3
ZS4
ZS5
ZS6
ZS7
ZS8
ZS9
AP
4S7
9G1
9K2

Tests and Contests

Contests Diary

1958

November 15-16	-	Second 70 Mc/s Contest[1]
November 22-23	-	21-28 Mc/s Telephony Contest[1]
November 29-30	-	*CQ* World Wide DX Contest (C.W. Section)[2]

1959

January 17-18	-	B.E.R.U. Contest
January 24	-	144 Mc/s C.W. Contest
February 7-8	-	Affiliated Societies' Contest
February 21-22	-	First (Short) 1·8 Mc/s Contest
March 7-8	-	144 Mc/s Open Contest[3]
March 21-22	-	1250 Mc/s Tests
April 11-12	-	Low Power Contest
April 26	-	D/F Qualifying Event
May 3	-	First 144 Mc/s Field Day (c.w. only)[3]
May 10	-	D/F Qualifying Event
May 24	-	420 Mc/s Contest
June 6-7	-	National Field Day
June 20-21	-	First 70 Mc/s Contest
June 28	-	D/F Qualifying Event
July 5	-	Second 144 Mc/s Field Day[3]
July 12	-	D/F Qualifying Event
September 5-6	-	National V.H.F. Contest and European V.H.F. Contest[3]
September 20	-	Low Power Field Day
September 27	-	R.A.E.N.
November 7-8	-	Second 1·8 Mc/s Contest
November 21-22	-	R.S.G.B. Telephone Contest

[1] For details, see page 184, R.S.G.B. *Bulletin*, October, 1958
[2] For details, see page 131, R.S.G.B. *Bulletin*, September, 1958.
[3] These contests are arranged to take place during the periods suggested by the Region 1 V.H.F. Committee.

Low Power Field Day 1958

THOSE taking part in this year's Low Power Field Day, held on September 14, were practically the same as last year. The weather was good (for which the Contests Committee was thanked!). The report on last year's event gave a hint that some competitors wanted 1·8 Mc/s included and the change was criticized by some and welcomed by others. Some members felt publication of the rules was too late.

The 100 point mark has now been passed but the general total was about the average of the previous event. Eleven contestants took part but no check logs were received, which was rather unusual. Most entrants want more stations to be active on c.w. and more interest in low power work. It is difficult to evolve any scheme to promote interest in low power work: it seems to arise spontaneously in a few individuals. There was a time, in the days of the 10 watt licence, when many more would have been normally equipped for low power work but now new stations vie with " old timers " in the use of high power. Some even start on v.h.f. and u.h.f.

The winner, David Alexander (G3KLH/P), made 112 points with 36 contacts, all but one on 3·5 Mc/s, the odd one being on 1·8 Mc/s. The transmitter used ran 3 watts input while the receiver was a 4 valve superhet. The aerial was 132 ft. long and 40 ft. high. G3KLH/P was the only contestant to work an overseas station.

John J. Yeend (G3CGD/P), last year's winner, came second with 64 points made on 3·5 and 7 Mc/s. He used less than 1 watt input, a switched 40/80 metre aerial and a t.r.f. receiver. One station had six contacts on 1·8 Mc/s although several others also made a number of contacts on the band.

Power inputs ranged from 0·5 to 4 watts while most competitors kept just within the 20 lb. of equipment allowed.

Maybe those interested in this valuable contest could increase the entry by spreading their ideas. The more competitors, the better the contest and the more fun for everybody.

Posn.	Call-sign	Contacts	Points
1	G3KLH/P	36	112
2	G3CGD/P	16	64
3	G3HTI/P	15	54
4	G3BZM/P	19	51
5	G3ISU/P	11	43
6	G3BY/P	14	42
7	G8NN/P	13	41
8	GW3GHC/P	11	35
9	G3DTA/P	13	34
10	G6GH/P	6	22
11	G3CWL/P	4	16

(The Editor will be pleased to consider for publication descriptions of low power field day equipment.)

Silent Keys

A. B. BOSWELL (G3DA)

It is with sorrow that we have to record the death, as the result of an accident, of Mr. A. B. Boswell (G3DA), which occurred on October 16, 1958. He was knocked down by a motor car in Bedford and received fatal injuries.

" Bos " began his radio career in the Royal Air Force (Signals Branch) and subsequently joined the Ministry of Civil Aviation, becoming Chief Signals Officer for the North-West of England with his headquarters at Ringway Airport. He was a keen v.h.f. man and had several " firsts " to his credit particularly on two metres. During the war he was actively engaged on special communications. Always ready to help the newcomer to Amateur Radio with both advice and practical assistance, his passing will leave a gap which will be felt for a very long time.

To his widow and family we extend our deepest sympathy in their great loss.—C. R. P.

JOHN SOUTH (ZC4PM/G3JQZ)

We record with deep sorrow the death, at the hands of a Cypriot terrorist, of John South (ZC4PM) whose home was in Bournemouth, Hants. John was shot six times in the back from a passing car whilst shopping in Larnaca, Cyprus, on October 2, 1958. Seven months earlier he had married an English girl in Larnaca. The funeral service was conducted by the same Padre in the presence of much the same congregation, with John's best man acting as pall-bearer. The interment, in the presence of representatives of the Governor and the Services, was in the military cemetery in Nicosia. John was not a member of the Security Forces, and his job was in no way connected with the Cyprus Government. He was of course unarmed.

Our sympathies are extended to his young wife, who returned to England a few months ago, and to the other members of his family. He was 29 years of age.—N. H. S.

A. C. YATES (G3FMY)

It is with deep regret that we record the death, suddenly, on September 26, of Mr. A. C. (Fred) Yates (G3FMY) of Whetstone, London, N.20 in his 64th year.

Although Fred's callsign appeared to indicate that he was not an old timer he did, in fact, receive his first transmitting licence in 1922. He took great pride in home construction, and all the equipment he built bore the hallmark of the craftsman. He was a government official by profession.

He will be sadly missed not only by the local amateurs and the friends he made over the air, but also by members of the London Members' Luncheon Club of which he was a Founder.

To his widow, son and two daughters we extend our deepest sympathy.—J. D. K.

R.A.E.N. Notes and News

By E. ARNOLD MATTHEWS (G3FZW)*

THIS month R.A.E.N. completes five years of existence and it is pleasant to realize that progress has far exceeded our original hopes. Credit for this must go to group officers and members whose patient work and quiet enthusiasm over long periods has assured the Committee of the essential framework without which progress would have been impossible.

At first, groups were concerned with activity in their own localities only, and it was some time before activity was considered on county-wide scale. This was a natural development which arose from the individual groups' mutual liaison. In some areas such planning was firmly established by the time R.A.E.N./B.R.C.S. co-operation was commenced. County groups then began to liase with each other, generally as a matter of convenience rather than in response to user services.

Last month details were received of a request for co-operation made to the Buckinghamshire County Controller, F. H. Dewick (G3HIU) by the county police. This will involve the active co-operation, not only of Buckinghamshire members, but also of those in parts of Northamptonshire, Oxfordshire and Berkshire. In all of these areas the Network is rather weak in numbers and the help of amateurs living there will be welcomed. It has been said by some that they cannot see any possible need arising for the employment of R.A.E.N. in the area. Let us make it quite clear that the Civil Authority has asked for aid and has given us clearly defined tasks. This is a most interesting project, with many problems, technical and non-technical, to be solved and calls, for the first time, for officially recognized inter-county liaison.

Around the Groups

From **Hampshire**, an interesting report has been received from the newly appointed **Southampton** A.C., G3GOP who states that the County police are desirous of R.A.E.N. co-operation—provided that the group can demonstrate a satisfactory standard of communication between Winchester and the Isle of Wight. Tests and exercises are being carried out, mobile equipment for 144 Mc/s being built (12 crystals for the group frequency have been ordered) as well as 28 Mc/s walkie-talkies, and it seems that police requirements will be more than fully met in the near future. The group is also in contact with the county St.J.A.B.

Norfolk group participated in a 42-hour exercise held by the police at the end of October. Apologies are made to G3HSG, G3MWV and G3JIE, whose call-signs were omitted from last month's report. **Birmingham** group, having completed call-out plans, are now testing them at odd times to see how they work. The **Cornwall** controller, G3AET, having recruited many new members, will be holding a group meeting prior to inaugurating test transmissions.

Suffolk C.C., G2CPL, reports that he had an informal meeting with local amateurs at Bury St. Edmunds, and it appears that a station, consisting of a transmitter provided by A. C. Gee (G2UK) and a receiver and wavemeter provided by K. H. Pearce (G2BVM) has been installed in B.R.C.S. H.Q. Thanks are due to both members for their kind action. An officers' meeting was held in Diss on October 5, when liaison within the county was discussed.

Members are realizing that there are advantages in obtaining a club call-sign for R.A.E.N. purposes and Leicester and Rutland as well as London have already done so. Worcester group may follow suit.

Notts and **Derby** Group report much increased activity and have arranged a rota system for the weekly net, one third of the members joining in each week for three Sundays and all joining in on the fourth Sunday. The group now gives coverage from Burton-on-Trent to Doncaster. Whilst they were demonstrating at a recent B.R.C.S. Rally at Nottingham, members received a visit from a Chief Superintendent of Derbyshire police. **Stirling** C.C., GM4QV, reports that the Scottish Branch of B.R.C.S. are very interested in the Network. It is proposed to instal a station at their Glasgow H.Q. soon.

R.A.E.N. Rally

Conditions seem to have been very variable during this year's event. The new test phrases appear to have caused little difficulty, although we regret to record that some members sent their "reinforcements to a dance" with a vengeance! Officers requiring ideas for group activity could do worse than to organize some exercises requiring the passing of messages containing words requiring 100 per cent accuracy in transmission for their sense to be preserved. To quote one example: there appeared to be much confusion between "incidents" and "incidence." Entries were as numerous as last year, but there has been a welcome increase in the number of listeners' logs.

Personnel

The following have resigned as Area Controllers: E. W. Bettles (G3KXE), Romford; R. W. O. Gardner (G3CGE), Southampton.

The following have been appointed Area Controllers: B. B. Wilson (G3LXG), 18 Holdenby Drive, Park End, Middlesbrough, Yorks; S. R. Tuckley (G3GOP), 7 Creighton Road, Mill Brook, Southampton; C. J. Curtis (G3AGN), 58 Queens Road, Felixstowe, Suffolk; K. H. Pearce (G2BVM), "Bathavon," Fornham Road, Great Barton, Bury St. Edmunds, Suffolk.

The address of the Bingley A.C. (D. M. Pratt, G3KEP) is now "Glenluce," Lyndale Road, Eldwick, Bingley, Yorks.

The Television Annual for 1959

CONTRIBUTORS to the 1959 *Television Annual* include Sir John Barbirolli, Vera Lynn, Frankie Vaughan, A. J. P. Taylor, Ted Ray, Michael Miles and Woodrow Wyatt.

Produced on art paper, which enables full justice to be done to the large number of fine photographs, this is the only annual which covers the whole field of B.B.C. and I.T.A. television. Available, price 10/6d. (by post 11/3d.), from R.S.G.B. Headquarters.

G2ACT/M works ZL3JO

ON October 14, 1958, at 10.50 G.M.T., G2ACT/M (Barrow-in-Furness) worked ZL3JO on 28 Mc/s. It is believed the contact is the first between a British mobile and a New Zealand station.

G2ACT used a transmitter running 35 watts input (6AG7 c.o., 807 p.a., modulated by two 6L6s in class AB1), a quarter wave whip and a "Simplicity" converter feeding into a modified Command receiver.

LONDON MEMBERS' LUNCHEON CLUB
will meet at the Bedford Corner Hotel, Bayley Street, Tottenham Court Road,
at 12.30 p.m. on Friday, November 21 and December 19, 1958
Telephone table reservations to HOL 7373 prior to day of luncheon.
Visiting amateurs especially welcome.

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* *1 Shortbutts Lane, Lichfield, Staffs.*

Amateur Television

By JOHN TANNER*

THERE has been considerable Amateur Television activity in recent months all over the country. Several new stations made their first transmissions and many demonstrations have been given, both in private and to the public. However, the most important event has been the Fourth Convention of the British Amateur Television Club on September 6 at The Conway Hall, London.

B.A.T.C. Convention

Visitors from places far and near came to the Convention to meet friends new and old and to see the different items of equipment on show. Cameras for black and white and for full colour were on show, as well as a wide range of other equipment including pulse generators, flying spot scanners, transmitters and converters for 430 Mc/s and microwaves, transistorized gear and everything else associated with Amateur Television. The cameras were of three different types: image orthicon, iconoscope and vidicon. Of these the image orthicon, the iconoscope and two of the seven vidicon cameras were in operation. Besides the live pictures provided by the cameras there were several sources of other pictures. Two Test Card " C " monoscopes and several flying spot scanners were in operation most of the day. This wide range of picture sources gave the visitor a good idea of just what was involved to set up a complete amateur station, starting from the set-up costing about £5 to a more elaborate station. The simplest flying spot scanner displayed consisted of two television receivers and a 931A photo-multiplier with its video amplifier. This self contained unit was in operation most of the day.

G3KOK/T came out with a surprise by demonstrating, besides his image orthicon camera channel, 430 Mc/s vision transmitter and converters, a complete 405 line interlaced sync. generator timer unit on small printed circuit boards using transistors. The whole unit, including the printed boards, was home made and ran without trouble for the whole day off a 9 volt grid bias battery.

Members of the High Wycombe Group presented their equipment in a most attractive manner and spent many hours trying to persuade their camera to operate but although this was not successful the show of equipment caused considerable interest.

Michael Cox of Wembley had a most impressive array of equipment on show which included a monoscope camera, iconoscope camera and all the associated equipment mounted on a 19 in. rack. The 5527 iconoscope was of special interest as there are very few of these tubes left and no more are being made. Besides the television gear a stereophonic sound system was also in operation. The Cambridge Group came to the Convention in " Matilda," the old London taxi cab converted into a " roving eye " and although not operational, all the gear was shown working in the hall. Besides " Matilda's " gear, two new staticon cameras were shown in course of construction.

As usual Ivan Howard (G2DUS/T) put on a fine display with his well known vidicon chain and Test Card " C " monoscope. The pictures were distributed at r.f. to a 17 in. monitor and it was interesting to compare the sensitivity with Grant Dixon's colour camera which needed about four times as much light to produce a good colour picture. Besides the camera, Mr. Dixon (Chairman of the B.A.T.C.) brought his complete station which consisted of camera, test pattern generator, pulse generator (working on 150 lines, 50 fields), vision mixer, waveform monitor and 5 in. colour picture monitor. All operated very well but the highlight of the colour gear was G3MFT/T's 14 in. field sequential colour monitor. This caused considerable interest because previously nothing as large as a 14 in. tube had been used. The monitor used a large colour drum rotating at 1,000 r.p.m. and caused quite a sensation when operated outside its cabinet!

The Convention was a great success—made even more so by the arrival of the B.B.C. " Panorama " film unit. Many hundreds of feet of film were shot and a few minutes of this shown during the first programme of the new series. However, the film was only a secondary item as the B.B.C. invited " Matilda " and three members of the Cambridge Group to appear on the programme, during which pictures were transmitted direct from " Matilda's " camera, which had previously been tied in technically with the B.B.C. system.

The next Convention will probably be in 1960.

Amateur TV in Wales

The first GW/T two-way contact was made recently when GW3FDZ/T and GW3JGA/T exchanged pictures between Prestatyn and a hotel near Llandudno. Both the 430 Mc/s transmitters used 832As as power triplers, GW3JGA/T running 16 watts and GW3FDZ/T 18 watts. The pictures were captions from flying spot scanners and both stations ran a full 405 line interlaced system. The aerials used were both 30 ft. high, a 6-over-6 slot at GW3FDZ/T and a corner reflector at GW3JGA/T. Using a G3KOK-type converter at both stations, working into commercial receivers, pictures were exchanged two-way over a distance of 18 miles. Unfortunately GW3FDZ/T has now left the area and GW3JGA/T is looking for other enthusiasts willing to carry out tests.

Chelmsford Group

A new field in Amateur Television has been opened in Chelmsford following the building of a studio. This is now operational and is fitted with a separate control room (almost soundproofed), full production facilities such as effects generators for inlay and overlay, wipes and other effects, normal vision and sound mixers and picture monitors. Already test transmissions have been made and it is hoped to transmit regularly in the near future. The studio has already been used in conjunction with an amateur dramatic company and some interesting and useful work is planned for the future.

* *Dormers, Aspley Guise, Bletchley, Bucks*

E.M.I. Institutes

THE Directors of Electric and Musical Industries Ltd. have decided to close the E.M.I. College of Electronics with effect from July 1959. E.M.I. Institutes Ltd., who have been responsible for the activities of this College, have also had interests in the correspondence course field. These have been taken over by the Cleaver-Hume Press, Ltd., as from September 1, 1958. In this connection, the Cleaver-Hume Press Ltd., has permission to use the name " E.M.I. Institutes " for a limited period in respect of existing courses formerly provided by E.M.I. Institutes Ltd.

CQ Magazine Editor to Visit Europe

WAYNE GREEN (W2NSD), Editor of *CQ*, is paying a visit to Europe shortly. Radio clubs who would like him to visit them are invited to write to Mr. Green, c/o American Express, Paris, France.

Stereophonic Recording

IT is regretted that the two frequency response curves used to illustrate Part II of Mr. Judd's article " Stereophonic Recording " (October 1958 issue) were reversed. Fig. 7 should be associated with the caption of Fig. 2 (page 158) and Fig. 2 with the caption of Fig. 7 (page 161).

Radio Amateurs' Examination

May 1958

THE question paper set by the City and Guilds of London Institute for the Radio Amateurs' Examination on May 9, 1958, was as follows:

Eight questions in all are to be attempted, as under:

Both questions in Part 1 (which are compulsory) and six others from Part 2.

Part 1

1. Licence conditions. State the requirements in respect of the following:
(*a*) The use of call signs and notification of location;
(*b*) Non-interference;
(*c*) Re-transmission of recorded messages;
(*d*) Operators and access to apparatus;
(*e*) The kinds of messages which are prohibited.
(*15 marks*)

2. Explain how the following types of interference can be abated:
(*a*) At the transmitter:
(i) Harmonics;
(ii) Key clicks and thumps.
(*b*) At the receiver:
(i) Image response. (*15 marks*)

Part 2

3. Explain the meaning of:
(*a*) Self inductance;
(*b*) Mutual inductance.
Define the unit of inductance. (*10 marks*)

4. An alternating current of 20 volts at a frequency of 1 Mc/s is applied to a circuit consisting of a capacitance of 100 picofarads in series with a non-inductive resistor of 10 ohms.
(*a*) What value of inductance in series is required to tune the circuit to resonance?
(*b*) At resonance, what is the current in the circuit?
(*10 marks*)

5. Explain with the aid of a diagram the action of any circuit commonly used for the detection of amplitude-modulated signals. (*10 marks*)

6. Explain briefly why superheterodyne receivers are:
(*a*) more selective, and
(*b*) more sensitive than TRF receivers.
Explain what is meant by an image signal and give an example. (*10 marks*)

7. Describe by means of a circuit diagram a method of applying amplitude modulation to the power amplifier stage of a transmitter.
Indicate by means of a sketch the modulation envelope of an amplitude-modulated wave.
(i) Modulated with a sine wave to 50 per cent.
(ii) Modulated with a sine wave to 100 per cent.
(iii) Modulated with a sine wave over 100 per cent.
(*10 marks*)

8. State the relation between frequency and wavelength.
What are the frequencies corresponding to wavelengths of 500m and 10cm?
State the ranges of amateur frequencies which are more suitable for
(*a*) local transmissions;
(*b*) distant transmissions.
(*10 marks*)

9. Why are standing waves undesirable in a transmitter-aerial feeder system? How would you detect their presence and minimize them?
(*10 marks*)

10. Draw the circuit diagram of a heterodyne wavemeter and explain how the instrument may be used for the accurate checking of frequency.
(*10 marks*)

Examiners' Report

The following general report was given by the Examiners on the papers as a whole and is not necessarily applicable to the work of individual schools or candidates.

	1958		1957		1956	
Home						
Candidates	716	100%	562	100%	518	100%
Passed	518	72·4%	377	67·1%	458	88·4%
Failed	198	27·6%	185	32·9%	60	11·6%
Overseas						
Candidates	5	100%	8	100%	8	100%
Passed	3	60%	4	50%	5	62·5%
Failed	2	40%	4	50%	3	37·5%

The general standard of the candidates' work was fairly good, and showed an improvement on 1957, but there was evidence that some had given insufficient attention to the compulsory Part 1 (covering licence conditions and interference). A comment on each question follows:

Question 1

(*a*) Although the majority of candidates answered this part fairly well, many of the answers showed a lack of knowledge of the licence conditions. For example, many of the candidates gave incorrect answers as to the use of the addition to the call-sign of the suffix " /A " and " particulars of the address or location." Incorrect answers were also given as to the maximum period allowed for a " temporary alternative address or location."

(*b*) and (*c*) These parts were fairly well treated by the majority of the candidates.

(*d*) This part was generally not well done.

(*e*) The majority of candidates answered this part satisfactorily.

Question 2

(*a*) (i) Instead of being treated in detail, this part was answered in a short and very general manner by a large number of the candidates. In referring to filters, types were not stated nor were any explanations given by diagrams or otherwise as to the parts of the circuit into which the filters were to be fitted.

(*a*) (ii) In this part key click interference was satisfactorily dealt with by most of the candidates, but many failed to mention the use of a low frequency inductor in the keying circuit to reduce key thump interference.

(*b*) (i) This part was generally not well answered.

Question 3

Fairly well answered by most of the candidates. A fair number, however, were confused in defining the unit of inductance.

Question 4

Satisfactorily answered by most of the candidates. Of the two parts, part (*a*) offered less difficulty to the candidates than part (*b*).

Questions 5, 6, 7 and 9

Fairly well answered by the majority of the candidates.

Question 8

Answered satisfactorily by most.

Question 10

Only a comparatively small number of candidates attempted this question and of those who did, only a small number gave a satisfactory answer.

Regional and Club News

Acton, Brentford and Chiswick Radio Club.—Recent events have included a junk sale and a talk by G5LQ on low power contest work. On November 18, G4LS will be giving a talk entitled " Hints and tips for the Constructing Amateur." Morse practice classes are held every Tuesday at 7.30 p.m. in the Club Room, 66 High Road, Chiswick, London, W.4.

Bradford Amateur Radio Society.—On November 18, H. Makin (G3FDC) will talk on " Communications Receiver Design and Construction." A social evening has been arranged for December 2 and a talk on " Resistor/Capacitor Bridges " by A. R. Bailey (G3IBN) for December 16. Meetings are held at Cambridge House, 66 Little Horton Lane, and commence at 7.30 p.m. *Hon. Secretary:* D. M. Pratt (G3KEP).

Bristol.—About 80 members were present at the September meeting when Council Member Frank Hicks-Arnold (G6MB) delivered a lecture, illustrated with films and slides, on " Printed Circuits." " Transmitter Suppression to Minimize TVI " was the subject of the talk by P. W. Crouch (G3GBK) and M. A. Pearce of the G.P.O. Regional Headquarters Radio Branch at the October meeting. About 70 members were present when, with the aid of a transmitter loaned by G3CHW, the lecturers demonstrated the effectiveness of various forms of harmonic suppression. A skittle match against the Bristol Centre of the Television Society on October 10 was won by the R.S.G.B. *Hon. Secretary:* D. F. Davies (G3RQ), 51 Theresa Avenue, Bishopston, Bristol 7.

British Two-Call Club.—Details of membership of this club, which is restricted to those having held two or more British Commonwealth call-signs (the U.K. is counted as one area), may be obtained from the *Hon. Secretary:* G. V. Haylock (G2DHV), 63 Lewisham Hill, London, S.E.13.

Cornish Radio and Television Club.—At the October meeting at the Y.M.C.A., Falmouth, Mr. Boaz of the Marconi Co. gave a lecture on " Echo Sounding." Echo sounders, automatic keying mechanisms, life boat transmitters and the latest Marconi " Atlanta " receiver were displayed. At the meeting to be held at the same venue on December 3, there will be a talk on " High Fidelity Reproduction." *Hon. Secretary:* J. Brown (G3LPB), Marlborough Farm, Falmouth.

Crystal Palace and District Radio Club.—At the meeting on October 18, Frank Bennister (G3COX) lectured on the erection of aerials and masts. At Windemere House, Westow Street, S.E.19, on November 15 at 8 p.m. C. E. Newton (G2FKZ) will discuss Mobile/Portable Power Supplies. *Hon. Secretary:* G. M. C. Stone (G3FZL), 10 Liphook Crescent, Forest Hill, London, S.E.23.

East Kent Radio Society.—The club station G3LTY will be going to Molash for the *Short Wave Magazine* Contest on November 15/16 and 22/23. G2JF has commenced a monthly series of lectures on " Know-how." R.A.E. and Morse classes are being conducted by G3MD, G3LIG and G3MDT. *Hon. Secretary:* D. N. T. Williams (G3MDO), " Llandogo," Bridge, near Canterbury.

Glasgow.—Tickets for a cinema show on November 28, in lieu of the usual meeting at the Y.M.C.A. Institute, may be obtained from the *Area Representative:* T. Hughes (GM3EDZ), 53 Ancroft Street, Glasgow, N.W.

Grafton Radio Society.—The Society will be operating G3AFT/A from its stand at the Islington Town Hall Handicrafts Exhibition from November 17 to 22. QRM is expected to increase considerably in the North London area after the next R.A.E.—more than 70 candidates having enrolled for the Society's current R.A.E. courses! No further applications can be considered. *Hon. Secretary:* A. W. H. Wennell (G2CJN), 145 Uxendon Hill, Wembley Park, Middlesex.

Halifax & District Amateur Radio Society.—" Receiver Construction " was the subject of a talk by the Chairman, H. Makin (G3FDC), at the meeting on October 8. The Hon. Secretary, A. Robinson (G3MDW), has received a " thanks badge " from the Halifax Boy Scouts Association for his part in organizing GB3MDW in connection with the Jamboree-on-the-Air held last May.

Lincoln Short Wave Club.—Meetings are held at the Technical College, Cathedral Street, at 7.30 p.m. on alternate Wednesdays, the next being on November 26. Details of local activities may be obtained from the *Hon. Secretary:* F. B. Travis (G3BCA), 202 Monks Road, Lincoln.

Liverpool and District Amateur Radio Society.—At the A.G.M. held recently the following were elected: *Chairman*—A. D. H. Looney (G3LIU); *Hon. Treasurer*—R. Kenyon; *Hon. Secretary*—D. Wardle (G3EWZ); *Committee Members*—J. Hardcastle (G3JIR), G. Twist (G3LWH), H. James (G3MCN), S. Burton; *Publicity Officer*—B. Meaden (G3BHT); *Contest Manager*—R. Halhead (G3KOR); *Hon. Auditors*—H. Simpson (G8DI) and R. MacGillivery (G3DOK). The A.S.R. is C. Fox (G3HII).

London Shortwave Club.—This club is being reformed and meetings will be held on Friday evenings at Battersea Men's Institute. Courses at the Institute (at Honeywell School) are available in elementary radio, advanced radio and for the R.A.E. A full programme of lectures and demonstrations is being arranged and there will be an active club station. Special attention will be paid to the requirements of beginners and short-wave listeners wishing to obtain amateur licences. Further information may be obtained from K. R. Piper (G3LOO), 2 Catherina Terrace, Stockwell, London, S.W.8.

Lothians Radio Society.—On November 20 at 7.30 p.m., (GM3UM) will give a talk on " Getting Started " at 25 Charlotte Square, Edinburgh. The local A.A. secretary is to speak on the Association's radio communications system on December 4 at the same address. *Hon. Secretary:* L. Lumsden, 33 Hillview Drive, Edinburgh 12.

Newbury and District Amateur Radio Society.—The Annual Hamfest held on October 19 was a great success, about 75 people attending. The talk-in station, G3IPR/A, was kept busy with mobile visitors. The programme included films, competitions, a raffle and a conjuring performance by Alec Bowshere. Details of meetings, which are held on the last Friday in each month, may be obtained from the *Hon. Secretary:* J. A. Gale (G3LLK), " Wild Hedges," Crookham Common, near Newbury.

Nottingham Amateur Radio Club.—Meetings are held on Tuesdays and Thursdays at Sherwood Community Centre, Woodthorpe House, Mansfield Road, commencing at 7.15 p.m. and G3EKW is generally active on Top Band. The h.f. transmitter for 20, 40 and 80m is suffering from teething troubles but it is hoped to have it on the air soon. Lectures on " Transistors " and " Two Metres " are arranged for November 25 and December 16 respectively. Facilities for constructional work are available together with Morse practice. Prospective members are cordially invited to attend meetings. *Hon. Secretary:* E. C. Weatherall, 276 Perry Road, Sherwood, Nottingham.

Slade Radio Society.—The A.G.M. will be held at The Church House, High Street, Erdington, Birmingham 23, on November 21. Other special arrangements include a Hi-Fi and Stereo Demonstration by Altobass Ltd. of Leicester on December 5 and " Fun and Games " arranged by L. H. Blackwell and G. L. Turner on December 19. Morse classes are held on Tuesdays and Thursdays. All meetings commence at 7.45 p.m. Facilities are available for constructional work. *Hon. Secretary:* C. N. Smart, 110 Woolmore Road, Erdington, Birmingham 23.

South Manchester Radio Club.—At the A.G.M. the following officers were elected: *Chairman*—D. Provan (G3LQQ); *Vice-Chairman* and *Hon. Secretary*—C. M. Denny (G6DN), 18 Willoughby Avenue, Didsbury, Manchester 20; *Hon. Treasurer*—

Gravesend Amateur Radio Society's team which won National Field Day, 1958. Seven of the group have just passed the R.A.E. Back row (left to right), G3KBH, G3HLF, G6BQ, G3JLB, G3IEW, G3LWS, G6VC, G3MWU, G3MVS. Front row, G3DCV, G3MXJ and G3FST.

N. Ashton (G3DQU). Meetings are held on Fridays at Ladybarn House, 17 Mauldeth Road. On December 5 the lecturer will be G. Bracewell (G3EGK). The club station has a 150 watt transmitter and it is intended to provide workshop facilities, and Morse instruction in addition to other activities. Visitors are always welcome.

Southgate, Finchley and Enfield.—A special shortwave listeners section has been formed in this area and the organizer, J. Harris (G3LWM), 64 Stainton Road, Enfield, will be pleased to hear from those interested. Help is offered in connection with radio problems and receiver servicing. A set listening period competition is to be arranged provided more than 10 entries are received.

Ravensbourne Amateur Radio Club.—Meetings are held on Wednesdays at Malory Secondary School, Launcelot Road, Downham, Bromley, where the club station G3HEV is active. Radio and TV instruction is offered and a Morse tuition can be arranged if required. *Hon. Secretary:* J. Wilshaw (G3MPX), 4 Station Road, Bromley.

South Shields and District Amateur Radio Club.—At the A.G.M. the following were elected: *President*—Capt. E. Clarke (G8AO); *Vice-President*—Mr. Glenwright; *Chairman*—W. Smith (G5WZ); *Hon. Secretary*—K. Sketheway (B.R.S. 20185), 51 Baret Road, Walkergate, Newcastle-on-Tyne 6; *Hon. Treasurer*—J. Tyzack (G3ELP); *Committee Members*—D. Forster (G3KZZ); O. Jackson (G3LKZ) and H. Martin, G3JDO (A.S.R.). A shield, presented by the Vice-President has been awarded for the first time to J. Corston (G2BCY), the winner of the club's Constructional Competition.

Stamford and District.—On November 28, Sam Small is to give a talk on transistors at G3FUR's QTH. The Christmas Party is arranged for December 20.

Torbay Amateur Radio Society.—Premises have been obtained for a new club headquarters where it will be possible to arrange for constructional practice, repair work facilities and R.A.E. instruction. At the October meeting, W. Sydenham (G5SY) gave a talk on " Transmission and Reception of U.H.F. Signals." *Hon. Secretary:* G. A. Western (G3LFL), 118 Salisbury Avenue, Barton, Torquay.

Welwyn Garden City.—At the Group's Annual Dinner on October 9 the toast of " The R.S.G.B." was proposed by Stanley Harrison, J.P. (G3EPK). In his response, Council Member Jack Hum (G5UM) emphasized the importance of a strong national society to represent the Amateur Radio movement adequately at the I.T.U. meeting in Geneva in 1959. The T.R., Gerald Gibbs (G3AAZ), in reviewing the year's activities highlighted the meetings at which G6CL and G6MB delivered lectures. In the " lucky number " draw performed by a guest, Miss Jill Ambrose, B.Sc., one of the two first prizes of a brand new QQVO6-40A went to her uncle, " Uncle Mike."

Representation

THE following are additions to the list of Town Representatives published in the December 1957 issue:

Region 7—London South.

Croydon Area. R. G. Hislop (B.R.S. 20162), 40 Barnehurst Gardens, Selsdon, Surrey.

Region 12—Angus.

Forfar. W. Robertson (GM6RI), Schoolhouse, Tannadice.

Vacancy

Mr. A. W. Warner (G3FZC) has resigned as representative for Guildford and Woking. Nominations for his successor should be made in the prescribed form and sent to reach the General Sectetary by not later than December 31, 1958.

* * *

Affiliated Society Representatives

ALDERSHOT AND DISTRICT AMATEUR RADIO SOCIETY: R. Sawkins (G3ADS), 21 Newcombe Road, Farnham, Surrey.

YEOVIL AMATEUR RADIO CLUB (G3CMH)

B. J. CLARK (G3BEC), 107 Eastland Road, Yeovil, Som.

* * *

Affiliated Societies

THE Honorary Secretary of the Admiralty Electronics Society is now Mr. R. G. Brown, Glenacre, The Hollow, Dunkerton, Somerset.

Les Allen Bereaved

His many friends in the Society will be sorry to learn that Les Allen (G3MZ) of Sidcup, Kent was recently bereaved by the death of his wife. Mrs. Allen was well known to many members of the Society.

HAPPY OCCASION

The Annual Dinner of the Midland Amateur Radio Society took place last month at The Roe Buck, Erdington. In this picture the General Secretary of the R.S.G.B. (John Clarricoats, G6CL) is seen with Alec Higgins, G8GF (R.S.G.B. Region 3 Representative), Maurice Brett, G3HBE (President, M.A.R.S.), Bert Chater, G2LU (President, Coventry Amateur Radio Society) and Charles Young, G2AK (President, Slade Radio Society). The ladies are Mrs. Chater, Mrs. Higgins, Mrs. Brett and Mrs. Young. There was an attendance of 80 members and friends. Tom Douglas, G3BA, acted as Toast Master.

(Photo by The Holloway Studio)

Forthcoming Events

Details for inclusion in this feature *must* reach the appropriate Regional Representatives *not later than the 18th of the month* preceding publication. T.R.s and club secretaries are reminded that the information submitted *must* include the date, time and venue of the meeting, and, wherever possible, details of the lecture or other event being arranged. Regional Representtives are requested to set out copy in the style used below.

REGION 1

Bury (B.R.S.).—December 9, 8 p.m. George Hotel, Kay Gardens. (Annual General Meeting and Junk Sale).

Liverpool (L. & D.A.R.S.).—Tuesdays, 8 p.m. Gladstone Mission Hall, Queens Drive, Stoneycroft.

Manchester (M. & D.R.S.).—December 1, 7.30 p.m., Brunswick Hotel, Piccadilly (A.G.M.).

Preston (P.A.R.S.).—November 26 (Visit to MCA Control Centre at Barton Hall); December 10 (Film Strip Lecture); 7.30 p.m., Fruiterer's Club, High Street. (No meeting on December 24).

Stockport (S.R.S.).—November 19, 8 p.m. The Blossoms Hotel, Buxton Road. (" D.C. Amplifiers ").

Wirral (W.A.R.S.).—November 21, December 5, 19, 7.45 p.m. No. 4, Hamilton Square, Birkenhead.

REGION 2

Sheffield (S.A.R.C.).—December 10, 8 p.m. (Exhibition of home made equipment), Albreda Works, Lydgate Lane.

REGION 3

Birmingham (M.A.R.S.).—November 18, 7.30 p.m., Midland Institute, Paradise Street, Birmingham (Lecture/Demonstration). December 4, 7.30 p.m., Midland Institute, Paradise Street, Birmingham (TV Group Lecture/Demonstration). **(Slade).**—November 21, 7.45 p.m., The Church House, High Street, Erdington (Annual General Meeting). December 5, 7.45 p.m., The Church House, High Street, Erdington (" Hifi " Demonstration including Stereophonic). **(South).**—November 28, 7.30 p.m., Birmingham University (details of venue from G3JAO) (" Oscilloscopes and Test Gear.")

Coventry.—November 28, 7.30 p.m., Vine Street School, Coventry (Formal Meeting). **(C.A.R.S.).**—November 17, 7.30 p.m. (Talk by G6WH). November 24, 7.30 p.m. (Social Evening). December 8, 7.30 p.m. (Open Meeting). December 15, 7.30 p.m. (Junk Sale), 9 Queens Road, Coventry.

Stourbridge & District.—November 20, 8 p.m., " White Horse," Amblecote (Informal); December 2, 8 p.m., Brotherhood Hall, Scotts Road, Stourbridge (" Hifi " Demonstration by A. K. Davies).

REGION 4

Derby (D. & D.A.R.S.).—November 19 (" For the Beginner "); November 26 (Open Evening); December 3 (Auction Sale, surplus items); December 10 (Film Show); December 17 (Open Evening).

REGION 5

Cambridge (C. & D.A.R.C.).—November 28, 7.45 p.m., " Jolly Waterman," Chesterton Road, Cambridge (" Elementary Transistor Circuits," T. B. Towers). **(C.U.W.S.).**—November 25, 8.15 p.m., Room U3, Caius College (" Inventors Quorum "); December 2, 8.15 p.m., Room B8, St. John's College (Four Mullard transistor films).

REGION 7

Acton, Brentford & Chiswick.—November 18, (" Hints and Tips " by G4LS); December 17 (" Operating Procedure for Beginners," by G6RC), 7.30 p.m., A.E.U. Rooms, 66 High Road, Chiswick.

Ealing.—Sundays, 11 a.m., A.B.C. Restaurant, Ealing Broadway, W.5.

East London.—November 16, 2.30 p.m., Lambourne Road, Town Hall, Ilford, (" The Amateur & I.G.Y," G. M. C. Stone, G3FZL).

East Molesey (T.V.A.R.T.S.).—December 3, Carnarvon Castle Hotel, Hampton Court (Carnarvon Trophy Evening).

Guildford & Woking.—November 28, 7.30 p.m., " The Cannon," Portsmouth Road, Guildford.

Harlow & District.—Tuesdays, 7.30 p.m., rear of G. E. Read (G3ERN).

Holloway (G.R.S.).—Monday and Wednesdays (R.A.E. and Morse), Fridays (Club), 7 p.m., Montem School (ex-Isledon School), Hornsey Road, N.7; November 17-22, Islington Town Hall (G3AFT Stand, Handicrafts Exhibition).

Ilford.—Thursdays, 8 p.m., G2BRH, 579 High Road, Ilford (Lectures, Talks and Demonstrations).

Kingston.—Lecture alternate Thursdays, Theory and Morse classes weekly, 8 p.m., 5 Penrhyn Road, Kingston, Surrey.

Norwood & South London.—First Tuesday in month (R.A.E. and Morse classes), 7.30 p.m., Windemere House, Westow Street, Crystal Palace.

Romford (R.D.A.R.S.).—Tuesdays 8.15 p.m., November 18 (Annual Dinner); November 25 (Tape Quiz); December 9 (" Semi-Conductors," by B. W. Le Grys), RAFA House, 18 Carlton Road, Romford, Essex.

Sutton & Cheam (S. & C.R.S.).—November 18, 8 p.m., " The Harrow," Cheam Village, Surrey (F. H. Berry " Alternators and Associated Control Equipment).

South Kensington (Civil Service R.S.).—December 8, 6 p.m., Science Museum, S.W.7 (Film Show).

REGION 9

Bath.—December 15, 7.30 p.m., 12 James Street West.

Bristol.—November 21 (" Safety and Protective Devices in Power Supplies," H. J. Gratton, G6GN); December 5 (" Telemetry," E. J. Harris), 7.15 p.m., Carwardine's Restaurant, Baldwin Street.

Torquay (T.A.R.S.).—December 13, 7.30 p.m., Y.M.C.A., Castle Road (Open Night and Christmas Draw).

Weston-super-Mare.—December 10, 7.30 p.m. (" Heathkit Gear," H. Andrews, G5DV), Albert Hotel, Sea Front.

Yeovil (Y.A.R.C.).—November 19, 26, December 3, 10, 17, 7.30 p.m., Clubroom, British Legion, Grove House, Preston Road.

REGION 13

Edinburgh (L.R.S.).—November 20 (" Getting Started "); December 4 (" Radio Organization of the A.A."); December 18 (" Electronics in Industry "), 7.30 p.m., 25 Charlotte Square, Edinburgh.

REGION 14

Falkirk.—November 21, 7.30 p.m., Temperance Cafe.

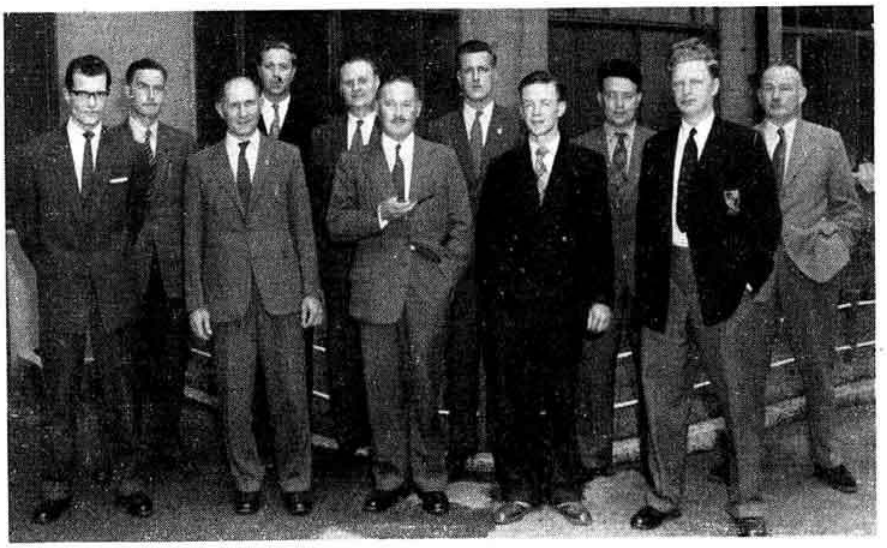
Prestwick.—Third Sunday in each month, 7.30 p.m., Royal Hotel, 132 Main Street.

REGION 15

Belfast.—November 24, 7.30 p.m., 73 Lisburn Road (N.F.D. Film).

REGION 17

Portsmouth (P. & D.R.S.).—November 18 (Junk Sale); November 25, December 2, 9, 7.30 p.m., over Scarr's, 184 Albert Road, Southsea.



This picture was taken during one of the visits to the Mitcham Works of The Mullard Radio Valve Co. Ltd. which are arranged for radio amateurs periodically. From left to right, Messrs. G. Burford (Mullard Ltd.), N. E. Moore (Clifton Radio Society), L. C. Carter and D. Robinson, G3FMT (Kingston & District Amateur Radio Society), John A. Rouse, G2AHL (R.S.G.B. Headquarters), J. A. Kane (Watford & District Amateur Radio Society), J. Douglas Kay, G3AAE (Barnet & District Amateur Radio Society), G. Stark (Watford & District Radio Society), D. Balland and G. T. Vale (Cray Valley Radio Club) and R. Webb (Mullard Ltd.).

New Members

THE following were elected to membership at recent meetings of the Council.

Corporate Members, Home (Licensed)

G2DCU †Dr. Leslie Turgill, 11a West Heath Drive, London, N.W.11.
G2FHM J. A. Sadler, 4 High Street, Wainfleet.
G3AQB †W. Stephenson, Post Office, Belford.
G3BWZ Lt.-Col. A. W. Barron, Officers Mess, Depot Regt., R. Signals, Saighton Camp, Chester.
G3CXS F. D. G. Couper, 11 Briardale Gardens, London, N.W.3.
G3DJU A. M. Lowson, 104 Manor Park, Houghton Regis, Dunstable, Beds.
G3EGD †S. G. Harmer, 19 Cameron Drive, Waltham Cross, Herts.
G3EIW †R. L. Halls, 46 High Street, Wells, Som.
G3ERA J. Wood, 42 High Street, Steyning.
G3FXG A. Benyon, 27 Old Town, Clapham Common, London, S.W.4.
G3GFM A. N. Lawes, 11 Meadvale Road, East Croydon, Surrey.
G3GKH M. D. Johnson, 20 Church End Lane, Tilehurst, Reading.
G3IBK T. R. W. Trowbridge, 20 Marquis Close, Wembley, Middx.
G3ILM L. A. Mills, 25 Whitehall Close, Chigwell Row, Essex.
G3ILS †L. Smith, 80 Bowyer Road, Alum Rock, Birmingham 8.
G3JXT †A. E. Deakin, 10 Loak Road, Albrighton, Nr. Wolverhampton, Staffs.
G3LEZ K. A. Lane, 19 Ashton Gardens, Chadwell Heath, Essex.
G3LON G. F. Neal, 136 Lewes Road, Brighton.
G3LSL D. I. Lunn, 29 Brooklands Road, Hazel Grove, Stockport, Ches.
G3LUI R. E. Hunter, 49 Crescent Road, Brentwood, Essex.
G3LWT P. W. Buck, 54 Ashford Road, Ilford, Bournemouth, Hants.
G3MEY LRO. J. Lawrence, B7 Mess, R.N.A.S. Coldrose, Nr. Helston, Cornwall.
G3MGS C. D. Stephens, 10 Green Lane, Chislehurst, Kent.
G3MKE W. J. Smith, 49 Greencroft Road, Heston, Hounslow, Middx.
G3MLA 5046593 LAC J. C. Woodhouse, Box 125a Royal Air Force, Butzweilerhof, B.F.P.O. 19.
G3MLJ F. P. Rowell, 27 Monson Street, Lincoln.
G3MPC A. Wills, 21 Manor Road, Rushden.
G3MPH N. G. Sykes, 14 Villiers Road, Southsea.
G3MUA P. J. Lawlor, 33 St. Andrew's Drive, Stanmore, Middx.
G3MUO G. F. Gott, 87 Church Road, Skegness.
G3MVI D. A. F. Heather, 14 Wood Road, Shepperton, Middx.
G3MVS L. C. Bodycombe, 21 Grieves Road, Northfleet, Gravesend, Kent.
G3MWD D. W. Davies, 11 Derwent Way, Chelmsford, Essex.
G3MXD J. H. Lewis, Birchholme Manor, Corbyglen, Grantham, Lincs.
G3MXP J. A. Palfrey, The Anchorage, Yarborough Road, Keelby, Grimsby, Lincs.
G3MXR J. Wood, 1 Beaumont Terrace, Gosforth, Newcastle-on-Tyne 3.
G3NAC J. M. Hern, No. 9, O.M.Q., R.A.F. Yatesbury, Nr. Calne, Wilts.
G8TK †A. L. Browning, 4 Cell Barnes Cottages, Tyttenhanger Lane, St. Albans, Herts.
GI3MCZ C. H. Low, c/o Portora Royal School, Enniskillen, Co. Antrim.
GM3MX T. Sorbie, 13a Argyle Street, Stonehouse, Lanarks.

Corporate Members (British Empire Receiving Station)

21955 J. C. Knight, Reona, Church Lane, Fawley.
21956 J. S. Ruth, 48 Seabrook Gardens, Crow Lane, Romford, Essex.
21957 L. Francis, 4 The Copse, Trefechan, Cefn Coed, Merthyr Tydfil, Glam.
21958 J. Paterson, 83 Merrick Drive, Dalmellington, Ayr, Scotland.
21959 L. E. Jackman, 28 Premier Avenue, Grays.
21960 B. R. Cannon, 10 Wren Gardens, Hornchurch, Essex.
21961 H. J. Stebbings, 33 Wilton Road, Reading.
21962 J. T. U. Hartop, 247 Holland Road, Clacton-on-Sea, Essex.
21963 R. J. G. Stevens, 12 Huxley Sayze, Great Cambridge Road, London, N.18.
21964 J. H. Franklin, 25 Manor Park Drive, Knutsford, Ches.
21965 C. J. Brown-Greaves, 211 Crescent Road, East Barnet, Herts.
21966 V. F. Collins, County Police, Normandy, Guildford, Surrey.
21967 S. Kearsley, 15 Hanover Street, West Hartlepool, Co. Durham.
21968 T. C. Tomlinson, Green Hill Cycle Stores, Four Marks, Alton, Hants.
21969 T. Howard, 3 Highlands Road, New Barnet.
21970 J. Wilkes, 223 Shirebrook Road, Sheffield 8, Yorks.
21971 D. J. Gilbert, 45 Queens Road, Gosport.
21972 W. Pearson, Timpson Cottage, 9 Long Lane, Limbrick, Nr. Chorley, Lancs.
21973 R. J. B. Hale, 174 Trysull Road, Merry Hill, Wolverhampton, Staffs.
21974 W. E. Sullivan, 165 Shaftesbury Road, Carshalton, Surrey.
21975 G. W. Smith, Kedleston, Borden Lane, Sittingbourne, Kent.
21976 B. J. Riley, 5 Cavendish Avenue, Erith.
21977 G. Ralph, 131 Hill Top, West Bromwich.
21978 H. V. Ferguson, 9 Hamilton Road, Bridlington, E. Yorks.
21979 J. Tyas, 2 Craven Street, Barnoldswick, via Colne, Lancs.
21980 G. C. Oxby, 12 Linstead Street, West Hampstead, London, N.W.6.
21981 A. F. G. Wright, 35 High Street, Clapham, Beds.
21982 *C. Scott, 40 Stanborough Avenue, Borehamwood, Herts.
21983 W. S. B. Whyte, 8 Printfield Walk, Woodside, Aberdeen.
21984 G. Truckel, 76 Cranbury Road, Eastleigh.
21985 E. G. Jones, 152 Garendon Road, Morden.
21986 R. M. Oliver, Hinemoa, New Zealand Avenue, St. Saviour, Jersey, Channel Isles.
21987 G. Dewhurst, 9 Nevern Square, Earls Court, London, S.W.5.
21988 V. P. Cherry, 383a Green Lanes, Palmers Green, London, N.13.
21989 J. E. Podd, 52 Camden Road, Ipswich.
21990 E. G. Biggerstaff, 39 Weall Green, Watford, Herts.
21991 I. C. Ewens, Malian, South Street, Faversham, Kent.
21992 J. C. H. Miller, 48 St. Andrews Drive, Stanmore, Middx.
21993 A. Thomson, 73 Brucefield Avenue, Dunfermline, Fife.
21994 D. R. Edwards, 108 Freer Road, Birchfields, Birmingham 6.
21995 D. S. Reid, 27 Rose Valley, Brentwood.
21996 J. A. Morey, 43 Lime Street, Wolverhampton.
21997 P. F. Brown, 20 Malden Road, Watford.
21998 N. W. Wooderson, 15 Cheney Street, Pinner, Middx.
21999 S. Shillaber, 46 Repton Road, Kenton.
22000 A. E. G. Court, 21b Brondesbury Villas, Kilburn, London, N.W.6.
22001 A. W. Mitchell, 36 Fellows Road, Hampstead, London, N.W.3.
22002 C. C. Green, 49 Downhills Way, Great Cambridge Road, London, N.17.
22003 E. Taylor, 8 Preston Street, Manchester 15, Lancs.
22004 B. A. R. M. Carter, 2 Welwyn Way, Hayes End, Hayes, Middx.
22005 W. J. H. Constance, 3 The Grove, Lower Green, Pembury, Kent.
22006 †G. A. Jessup, 8 Sycamore Crescent, Maidstone, Kent.
22007 D. I. Littlechild, 31 Shannon Avenue, Rayleigh, Essex.
22008 T. W. Nicholls, 24 Morgan Crescent, Theydon Bois, Essex.
22009 F/O M. J. A. Bryett, Officers Mess, R.A.F. Station, Stradishall, Newmarket, Suffolk.
22010 A. J. Beaman, 66 Talbot Road, East Ham, London, E.6.
22011 T. F. Christie, 5 Normans Buildings, Old Street, London, E.C.1.
22012 D. E. Moreman, 59 De Montfort Road, Lewes, Sussex.

Corporate Members, Overseas (Licensed)

CE12Y C. H. Hall, Templeton Hotel, 5 Templeton Place, London, S.W.5.
IICWZ M. Giganti, Viale Regina Margherita 30, Milano, Italy.
K2VNS J. H. Levy, 1675 West Ninth Street, Brooklyn 23, N.Y., U.S.A.
K9AVQ C. A. Huffman, 4520 Sherwood, Downers Grove, Ill., U.S.A.
ON4GK T. J. Nissen, Lantaarn hof 119, Deurne Sud, Antwerp, Belgium.
UA3BW A. Shadsky, Post Restante, Moscow K-9, U.S.S.R.
VQ2VG V. K. Russell-Gough, Box 21, Private Bag, Mine Club, Chingola, N. Rhodesia.
VQ2RB R. Barlow, 195 King George Avenue, Mufulira, N. Rhodesia.
W3RSR W. L. Bell, 525 Oakwood Avenue, Springdale, Pa., U.S.A.
W8CEG C. A. Tonne, Jr., 2337 North Bend Road, Cincinnatti 39, Ohio, U.S.A.
W8JXY C. W. Bolg, P.O. Box 123, South Zanesville, Ohio, U.S.A.
YV5FL C. C. Nouel, P.O. Box 6, Laguaira, Venezuela.
ZC4DR/G3IDR †R. D. Raby, R.A.F. Kormakiti, c/o R.A.F. Nicosia, B.F.P.O. 53.
ZC4FB J. A. S. Noble, Day Watch, R.A.F. Pergamos, B.F.P.O. 53.
ZC4PA P. A. Seldon, 24 Queen Street, Irthlingborough, Northants.
ZC4RP J. S. Butlin, 1921850, No. 7 Signals Unit, c/o R.A.F. Nicosia, Cyprus, B.F.P.O. 53
ZC4SB B. Bolton, Civilian Wing, 2 Wireless Regt., B.F.P.O. 53.

Corporate Members (British Empire Receiving Stations)

992 A. B. Connor, Basrah Petroleum Co., Basrah, Iraq.
993 M. F. Sendecky, 121 Pearson Avenue, Toronto 3, Ontario, Canada.
994 I. Dunbar, B.P. Telecommunications Dept., B.P. Refinery, Box 3003, Little Aden, Aden.
995 J. E. Wood, c/o Aeradio (Sudan) Ltd., P.O. Box 516, Khartoum, Sudan.
996 D. W. T. Porter, 4 Argyle Road, Kingston 10, Jamaica, B.W. Indies.

Corporate Members (Foreign Receiving Stations)

295 J. Erdosi, 10 Langley Avenue, Surbiton, Surrey.
296 R. O. Karlsson, Svalhult, Malsryd, Sweden.

Associates

1685 B. F. J. Davies, 16 Mulkern Road, Holloway, London, N.19.
1686 A. R. Stevenson, 13 Benton Road West, Ilford, Essex.
1687 C. F. Broomfield, 85 Arne Avenue, Parkstone, Poole, Dorset.
1688 P.S. Ives, 60 Roxwell Road, Chelmsford, Essex.
1689 M. W. Plaster, 26 Silver Street, Chard, Som.
1690 P. K. Hamblett, 234 Shenstone Avenue, Norton, Stourbridge, Worcs.
1691 J. D. Tufnall, 21 Northdale Road, Bakersfield, Nottingham.
1692 R. C. Binnington, 165 Hill Lane, Southampton.
1694 G. C. Suggate, 50 York Hill, Loughton.
1695 R. G. R. Hann, 84 York Road, Broadstone.
1696 I. G. Dufour, 2 The Fairway, Banbury, Oxon.
1697 M. S. Admans, 15 Dalkeith Road, West Dulwich, London, S.E.21.
1698 D. Purser, 44 Gloucester Crescent, Delapre, Northampton.
1699 C. Poundall, 104 Lexington Road, Derby.
1700 J. L. Moss, Linden Lea, Cotwall End Road, Sedgley u. Dudley, Worcs.
1701 R. J. Prater, 51 Markville Gardens, Caterham, Surrey.
1702 M. S. Bishop, 4 Goodwood Place, Southsea.

Correction

In the July issue, the call-sign of Mr. William A. Walker, 6848 Chandler Avenue, Pennsauken 5, New Jersey, U.S.A. should have read K2MIO.

† Denotes previously a Member.
* Denotes transfer from Associate Grade.

Slow Morse Practice Transmissions

G.M.T.	Call-sign	kc/s	Town
Sundays			
09.00	G3BHS	1810	Southampton
09.00	G3GYV	1900	Hartford, near Northwich
09.30	G3BKE	1900	Newcastle-on-Tyne
10.30	G3FFA	1935	Barnet
11.00	G3GZE	1840	Blackburn
11.00	G2FXA	1900	Stockton-on-Tees
11.30	G3JDO	1900	Hebburn-on-Tyne
12.00	G3LP	1850	Cheltenham
12.00	G15UR	1860	Belfast
15.00	G3LEQ	1990	Tunbridge Wells
15.00	G3LGK	1850	Ilkeston, Derby
20.00	G3MRA	1810	Southampton
20.30	G3HTA	1850	Exeter
21.00	G2FIX	1812	near Salisbury
Mondays			
17.30	G3MXI	1875	West Hallam, Derbys.
18.00	G3GZE	1840	Blackburn
18.30	G3NC	1825	Swindon
19.00	G3KTP	1850	Heanor, Derby
19.00	G3LMT	1850	Exeter
20.00	G3MDH	1860	Southampton
20.30	G3AGN	1875	Felixstowe
20.30	G3LSF	1900	Southport
21.00	G3BHS	1810	Southampton
Tuesdays			
17.30	G2AAM	1875	Swanwick, Derbys.
18.00	G3GZE	1840	Blackburn
18.30	G2FXA	1900	Stockton-on-Tees
20.00	G3JLS	1810	Southampton
20.00	G2FCI	1850	Exeter
21.00	G3BHS	1810	Southampton
21.00	G3EFA	1855	Southport
21.15	G2CPL	1875	Felixstowe
21.45	G2UK	1875	Lowestoft
Wednesdays			
17.30	G3MXI	1981	West Hallam, Derbys.
18.00	G3GZE	1840	Blackburn
19.00†	G3MCJ, G3FLK, G2FCI, G3HTA	1845	Exeter

G.M.T.	Call-sign	kc/s	Town
Wednesdays			
19.00	G3LZC	1830	Heanor, Derby
19.00	G3HUB/A	1902	Chelmsford
19.00	G8RQ	1850	Chesterfield
19.30	G3BIA	1900	Twickenham
20.00	G3IBI	1810	Southampton
21.00	G3BHS	1810	Southampton
22.00	G3JJC	1990	S.E. London
Thursdays			
17.30	G2AAM	1981	Swanwick, Derbys.
18.30	G3NC	1825	Swindon
19.00	G3LXL	1850	Nottingham
20.00	G3MCL	1810	Southampton
20.00†	G2ABR, G3FCY	1919	Hull, Yorks.
21.00	G3GWT, G3KTO		
20.30	G3GDZ	1910	Kingsbury, N.W.9
21.00	G3BHS	1810	Southampton
21.30	G3HMY	1850	Exeter
22.00	G3JIT	1990	S.E. London
Fridays			
20.00	*G3IXN, G3KSF	1810	Southampton
19.30	G3FUA	1850	Kilburn, Derby
19.30	G3MHR	1850	Swanwick, Derbys.
20.30	G3ICX	1915	Sutton Coldfield
20.30	G3KGU	1915	Theydon Bois, Essex
21.00	G3BHS	1810	Southampton
21.30	G3MGS	1970	Chislehurst
21.30†	G3KLZ, G3INW (or G3KSS)	1900	Bradford
22.00	G3KYU	1859	Bournemouth
Saturdays			
09.00	G3BHS	1810	Southampton
13.00	G2FXA	1900	Stockton-on-Tees
14.30	G3BIA	1900	Twickenham
20.00	G3MCL	1810	Southampton

† *Alternately.*
* *Slow Morse QSO.*

AUTO TRANSFORMER, 230/115 volts A.C., 50 cycles, 500 watts. Metwick in case. **75/-.** Carriage 5/-.
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R.F. UNITS, Type 26. 50 to 65 Mc/s, variable tuning, all valves **25/-,** post 3/-.
45 Mc/s PYE STRIP, complete with valves, **39/6.** P. & P. 5/6.
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SIGNAL GENERATOR TYPE 52A. Input 230 volt 50 cycles, complete with leads, dummy antenna. Brand new in transit case. 6 to 52 Mc/s. inclusive in 4 bands with calibration charts. Coarse and fine attenuators. Int. and ext. mod. Output 0·5 volt to 100 mv impedance 70 and 100~. **£10.** Carriage 15/-.
AMMETERS 0/3 Moving Coil D.C., 6 in. Flush Round with a fine open scale with divisions of 50 mA, B.S.S. 89, **90/-.**
VOLTMETERS, 0/300 Moving Iron, A.C., 6 in. Flush Round, **110/-.**
AMMETERS, 0/50 or 0/100 Moving Iron, A.C., 6 in. Flush Round, **90/-.**
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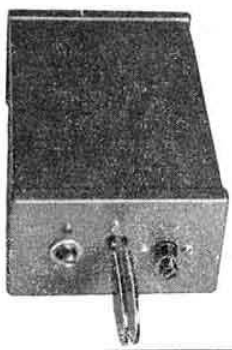

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(continued on page 256)

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