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R.S.G.B. BULLETIN

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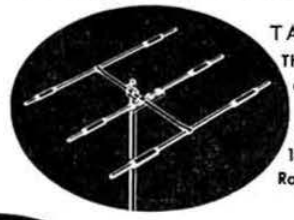

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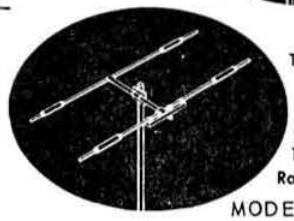

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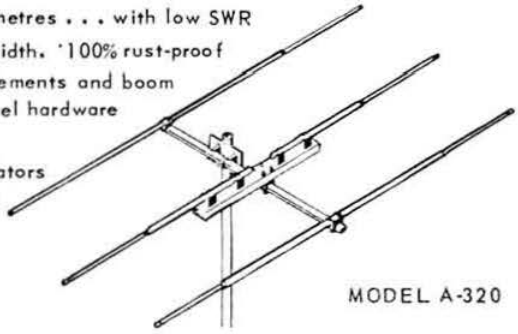

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Current Comment

discusses topics of the day

Unlicensed Operation

DURING the past few months the pages of the R.S.G.B. BULLETIN have carried reports of upwards of two dozen successful prosecutions by the G.P.O. against persons—many quite young—who have been found guilty of operating transmitting equipment without a licence. Those who have studied these reports will have noticed two things—first, that magistrates are, in general, imposing much heavier fines than hitherto; second, that equipment is nearly always forfeited.

One particularly disturbing feature of the current outbreak of unlicensed operation is the knowledge that a great deal of public money is being spent in apprehending offenders. It is impossible for the Society to hazard a guess as to the amount that has already been wasted this year in locating individual pirates and in breaking up gangs, but many hundreds of hours overtime must have been worked by skilled Post Office staff. The cost of these investigations is, presumably, a charge against the Amateur Service, so that although revenue from licences is increasing each year—it is now running at nearly £25,000—the cost of investigating cases of unlicensed operation must be making quite a dent into that source of Post Office income.

In one recent case three youths—all living in or near Wolverhampton—pleaded that they had operated without a licence because they did not think they could pass the Radio Amateurs' Examination and Post Office Morse Test. Another from the same town, put forward the excuse that he did not know a licence was necessary, whilst in Cambridge last month a solicitor defending a 17-year-old youth, pleaded that the defendant was under a very severe handicap because although he had high technical ability his writing and reading abilities were extremely low. He too did not know he could take an examination for a licence. In the first two cases the magistrates ordered the equipment to be forfeited, but in the latter case the presiding magistrate (a lady) extracted a promise from the youth that he would not use the equipment again until a licence is obtained.

The activities of the person who had persistently interfered with the R.S.G.B. News Bulletin Service ended when magistrates at Aldridge, Staffs, fined him £85 on three charges and imposed £8 8s. costs. Another court —at Worcester—shortly afterwards imposed fines on another offender amounting to £50 and £7 7s. costs.

Every licensed amateur should be disturbed at the increase in piracy because, unless it is stopped quickly, it will do great harm to the movement. As it is, all too often the national Press pick upon some aspect of a case and blow it up into an eye-catching story. How often have we read of the unlicensed *amateur* who has jeopardised aircraft or shipping? Always the offenders are referred to as amateurs. Although the Cambridge youth mentioned earlier was fined £7 and ordered to pay £3 3s. costs his exploits earned for him national Press headlines—" Boy who reads badly, builds transmitter."

There is too, the danger that operators of unlicensed stations—especially if they are teenagers—will be held up as clever people whose unauthorized activities should be treated lightly.

The R.S.G.B. exists to promote interest in radio science and throughout the length and breadth of the country there are hundreds of members who devote many hours every week to the task of training young and old to qualify for an Amateur (Sound) Licence.

Now surely is the time—at the beginning of a new autumn session—for all who aspire to operate honourably, to study diligently, so that by next summer they will have the satisfaction of being able to tell their friends that they have qualified for a transmitting licence.

J. C.

Exhibition Time

ON Wednesday, November 22, 1961, in the Old Hall of the Royal Horticultural Society, London, the Annual Radio Hobbies Exhibition sponsored by the R.S.G.B. will open its doors to members and non-members alike. Although the R.H.E. is the Number One date in the diary of most members, it is a fact that many hundreds of others have never yet seen the show. They do not know what they have been missing, for not only does the Exhibition provide opportunities of examining all that is new and best in the way of equipment, but it is a meeting place *par excellence*.

The Exhibition consistently attracts more than 10,000 visitors each year but the organizers would welcome many more and especially people from the provinces who can attend on the Wednesday, Thursday or Friday during daylight hours. During those periods visitors get the best chance of seeing everything in comfort, and of chatting for longer periods with the representatives of firms that are exhibiting. But if the weekdays hours of daylight are " out " visitors will find just as much to see in the evenings and on the Saturday with, of course, the greater chance of renewing old and making new friendships.

The R.H.E. has always been a " showcase of Amateur Radio "—from signs and portents the 1961 Exhibition will surpass all its predecessors.

See you there next month?

J. C.

A Mobile Unit for Two Metres

By C. W. DAVIDSON, Ph.D. (GM3LAV)*

THE unit described in this article was designed to provide a compact transmitter-receiver for mobile and portable operation on 2m. The transmitter and receiver r.f. sections are fairly conventional, while transistors are used in the modulator and the receiver i.f. and audio stages.

For a p.a. input of 20 watts an h.t. supply of 300 volts at 200mA is required. Using a transistor d.c. converter to provide the h.t. the total power consumption is 12·6 volts 6·5–8 amp. for phone transmission falling to approximately 3·2 amp. on reception.

It is unlikely that any reader will wish to copy the design exactly so complete details of the mechanical construction have not been included; however, the general layout can be seen from the accompanying photographs. The four sub-units are described in detail below.

* *G3LAV/M, c/o C.E.R.L., Kingston Road, Leatherhead, Surrey.*

The two metre transmitter-receiver. The p.a. tuning and loading controls are on the left with the receive/transmit, meter and phone/c.w. switches below. On the right of the receiver tuning dial are the a.f. gain control, a.v.c./b.f.o. and on/off switches and the r.f. gain control. The power input plug, loudspeaker, microphone and key sockets are at the side of the unit.

Transmitter R.F. Section

The r.f. stages of the transmitter (Fig. 1) are built on a separate 16 s.w.g. aluminium chassis measuring 4 in. × 10¾ in. × 1½ in. and are connected to the other sections by a miniature 8-way plug and socket.

One section of a QQV03-10 double tetrode (V1) is used as a Squier oscillator operating on the third overtone of an 8 Mc/s crystal. The other section of the valve operates as a frequency tripler to 72 Mc/s. A stabilized 150 volt supply is used for the oscillator and it was found necessary

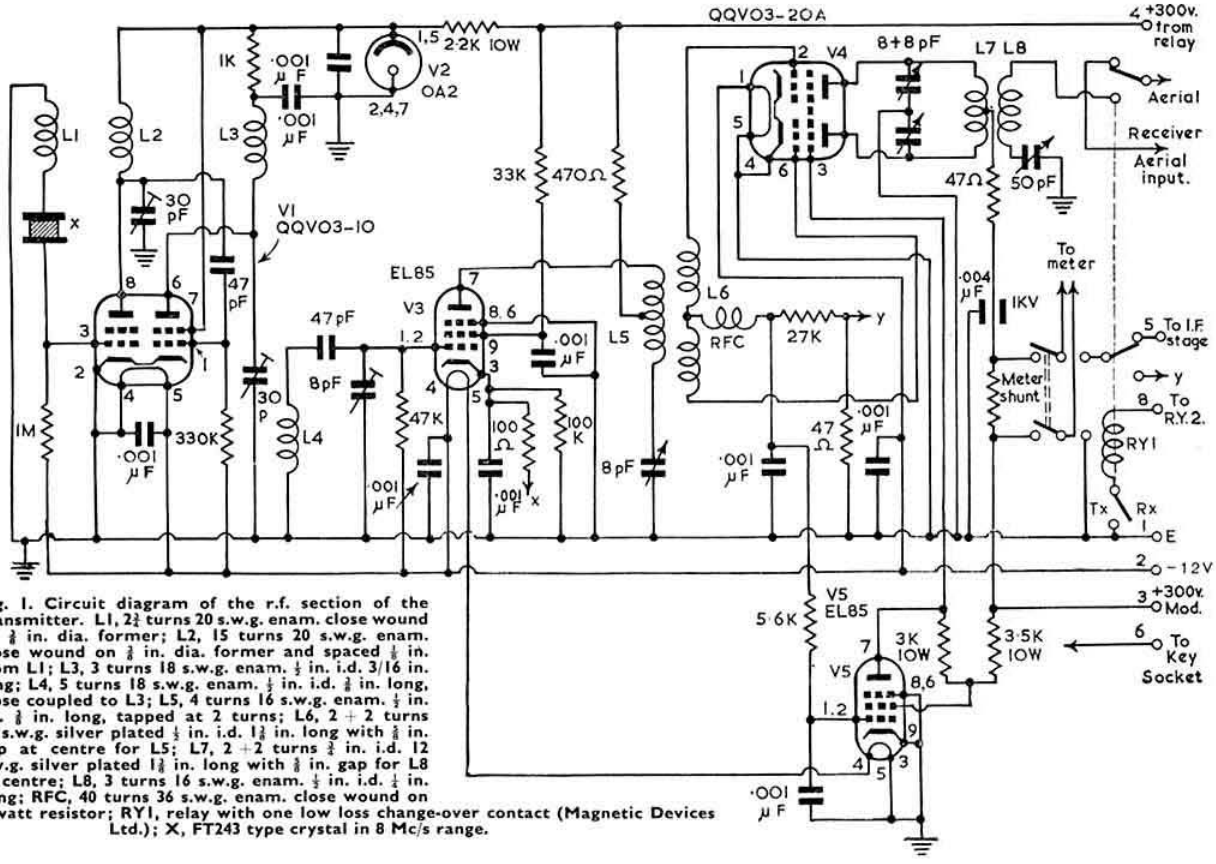


Fig. 1. Circuit diagram of the r.f. section of the transmitter. L1, 2¾ turns 20 s.w.g. enam. close wound on ¾ in. dia. former; L2, 15 turns 20 s.w.g. enam. close wound on ¾ in. dia. former and spaced ¼ in. from L1; L3, 3 turns 18 s.w.g. enam. ½ in. i.d. 3/16 in. long; L4, 5 turns 18 s.w.g. enam. ½ in. i.d. ¾ in. long, close coupled to L3; L5, 4 turns 16 s.w.g. enam. ½ in. i.d. ¾ in. long, tapped at 2 turns; L6, 2 + 2 turns 14 s.w.g. silver plated ½ in. i.d. 1¾ in. long with ¾ in. gap at centre for L5; L7, 2 + 2 turns ¾ in. i.d. 12 s.w.g. silver plated 1¾ in. long with ¾ in. gap for L8 at centre; L8, 3 turns 16 s.w.g. enam. ½ in. i.d. ¼ in. long; RFC, 40 turns 36 s.w.g. enam. close wound on 1 watt resistor; RY1, relay with one low loss change-over contact (Magnetic Devices Ltd.); X, FT243 type crystal in 8 Mc/s range.

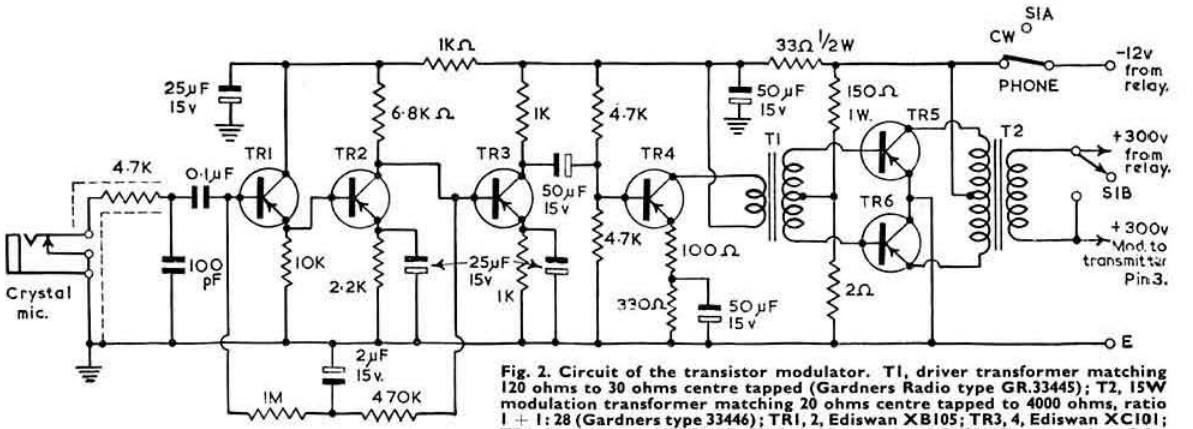


Fig. 2. Circuit of the transistor modulator. T1, driver transformer matching 120 ohms to 30 ohms centre tapped (Gardners Radio type GR.33445); T2, 15W modulation transformer matching 20 ohms centre tapped to 4000 ohms, ratio 1 + 1: 28 (Gardners type 33446); TR1, 2, Ediswan XB105; TR3, 4, Ediswan XC101; TR4, Newmarket V30/30NP; TR5, 6, Newmarket V30/30NP mounted on 3 in. square heat sink made of 16 s.w.g. aluminium.

to operate the tripler from this supply in order to reduce the grid drive to the following stage to a reasonable level. The grid resistors are connected to the 12 volt negative supply to provide protection in the event of oscillator failure. Adjustment of the oscillator feedback can be made by altering the spacing between L1 and L2. The QQV03-10 is internally neutralized for push-pull operation but this appears to have no significant effect on the operation of the circuit.

The anode circuit of the tripler is inductively coupled to the grid of an EL85(V3) operating as a frequency doubler to 144 Mc/s. The grid current of this stage should be approximately 1·2mA. For c.w. operation the cathode circuit of V3 is keyed.

The final stage is a QQV03-20A(V4) with a self-resonant grid circuit. The p.a. tank circuit is above the chassis adjacent to the valve anodes with the aerial change-over relay (RY1) alongside.

The EL85 can provide a grid drive current of approximately 1·5 mA, which is slightly less than the recommended value but has proved to be quite adequate. An increase in drive power could be obtained by replacing the EL85 with a QV03-12 (5763), but there would be a considerable increase in power consumption. The EL85 has the advantage that the heater consumption is only 6·3 volts 0·2 amp.

A second EL85(V5) is used as a clamp valve for the p.a. screen grid. To obtain a satisfactory clamping action the the screen grid of the EL85 is connected to a tap on the p.a. screen dropping resistor.

A double pole change-over relay (RY1) with one low-loss contact set performs the aerial change-over and also switches a 1mA meter from the receiver to the transmitter. Metering

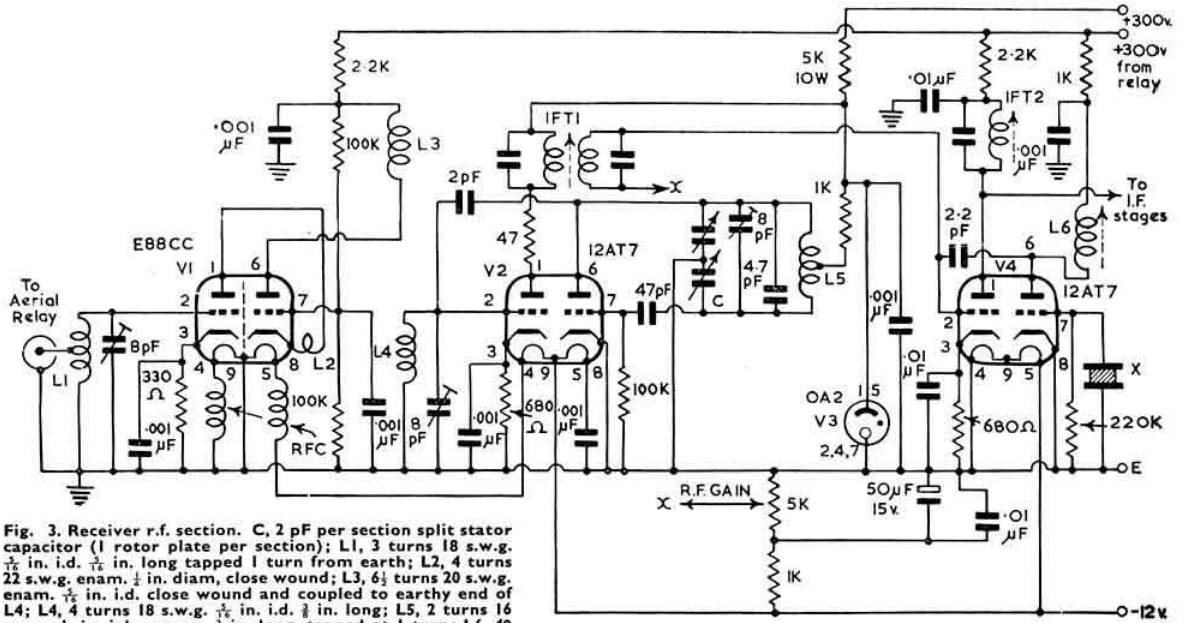


Fig. 3. Receiver r.f. section. C, 2 pF per section split stator capacitor (1 rotor plate per section); L1, 3 turns 18 s.w.g. $\frac{5}{16}$ in. i.d. $\frac{5}{16}$ in. long tapped 1 turn from earth; L2, 4 turns 22 s.w.g. enam. $\frac{1}{4}$ in. diam, close wound; L3, 6½ turns 20 s.w.g. enam. $\frac{5}{16}$ in. i.d. close wound and coupled to earthy end of L4; L4, 4 turns 18 s.w.g. $\frac{5}{16}$ in. i.d. $\frac{3}{8}$ in. long; L5, 2 turns 16 s.w.g. $\frac{5}{16}$ in. i.d. approx. $\frac{3}{8}$ in. long, tapped at 1 turn; L6, 40 turns 36 s.w.g. enam. close wound on $\frac{1}{4}$ in. diam. dust cored former; RFC, 25 + 25 turns 28 s.w.g. enam. bifilar wound on $\frac{1}{4}$ in. diam. former; IFT1, 5·2 Mc/s i.f. transformer (Eddystone); IFT2, one winding of standard 470 kc/s i.f. transformer; X, 5·675 Mc/s crystal type FT243. In V1 pin 9 is connected to the shield but not to the heater and in V2 pins 4 and 5 should be connected.

facilities are provided for the p.a. anode and grid currents during transmission. The meter operates as a signal strength indicator during reception.

The transmitter power consumption is 12·6 volts at 1·25 amp. and 300 volts at 170 mA.

Modulator

The modulator consists of a three-stage transistor amplifier, class A driver stage and class B push-pull output stage (Fig. 2). The quiescent input current is approximately 0·3 amp., rising to 2 amp., for an audio output of 12 watts.

A high input impedance is provided by the common-collector stage (TR1). The first three stages are directly coupled and to provide d.c. stabilization the bias for the first stage is derived from the collector of TR2.

Negative current feedback is applied to the driver stage (TR4) by the unbypassed emitter resistor. The value of the resistor was selected to give a suitable overall gain for the particular microphone in use (an Acos Type MIC 39-1).

The driver and modulation transformers were made to order and full details can be obtained from the manufacturer.

The output transistors are mounted on insulated 3 in. × 3 in. 16 s.w.g. aluminium heat sinks on either side of the driver transformer, while the other stages are mounted on a paxolin panel 4 in. × 2½ in. at the rear of the main chassis.

In order to avoid oscillation due to r.f. feedback to the modulator input the first four stages are completely screened. Particular care is necessary with the screening of the microphone input lead.

Alternative transistors which would be suitable, with slight modification of some resistor values are OC75, GET113 (TR1,2), OC72, GET114 (TR3), OC35, GET573 (TR4, 5, 6).

Receiver R.F. Section

This section (Fig. 3) of the receiver is built on a 16 s.w.g. aluminium sheet measuring 6 in. × 4 in. Although a crystal-controlled converter followed by a tuneable first i.f. would be ideal it was not considered to be practical in this case. In order to avoid harmonics of the local oscillator appearing in the range 144–146 Mc/s a high intermediate frequency would be necessary and several tuneable i.f. stages would then be required to give reasonable image rejection. To avoid this complication a simple self-excited oscillator and fixed i.f. amplifier have been used. A first i.f. of 5·2 Mc/s was chosen as commercial transformers are available for this frequency.

An E88CC cascode stage (V1) gives high r.f. gain combined with a reasonable noise factor. The aerial tapping point, grid tuning, and adjustment of the matching coil (L2) were made to obtain optimum noise factor.

A 12AT7 (V2) is used as the first mixer-oscillator and control of r.f. gain is obtained by varying the bias on the mixer grid. Oscillator injection is provided by a capacitance of about 2 pF connected between the oscillator anode and mixer grid. This consists of two short lengths of insulated flex twisted together and adjusted to give maximum sensitivity.

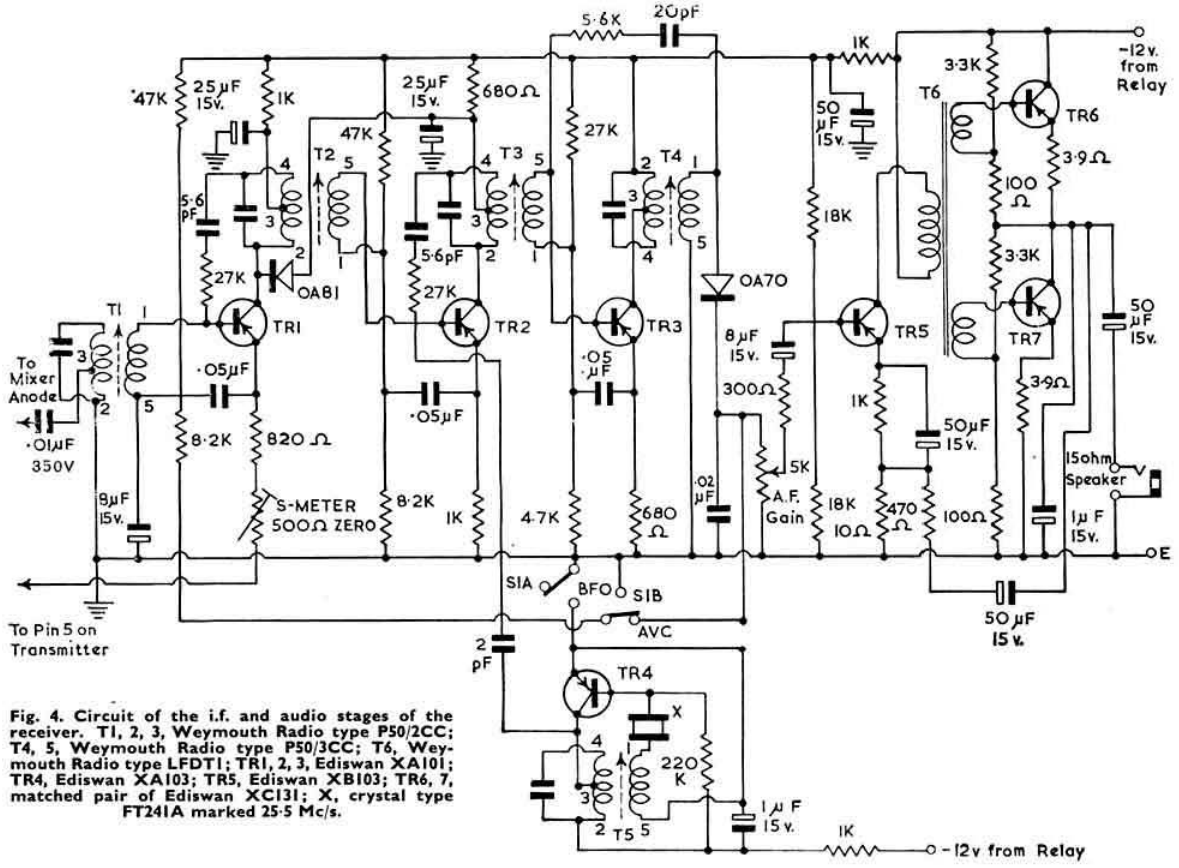


Fig. 4. Circuit of the i.f. and audio stages of the receiver. T1, 2, 3, Weymouth Radio type P50/2CC; T4, 5, Weymouth Radio type P50/3CC; T6, Weymouth Radio type LFDT1; TR1, 2, 3, Ediswan XA101; TR4, Ediswan XA103; TR5, Ediswan XB103; TR6, 7, matched pair of Ediswan XC131; X, crystal type FT241A marked 25·5 Mc/s.

Tuning of the mixer grid circuit has a small effect on oscillator frequency. The oscillator tuning capacitor (C) is mounted on top of the chassis with L5 above it. It is a 10 + 10 pF receiver type split-stator capacitor with most of the rotor plates removed leaving only one plate per section. The 8 pF preset capacitor (mounted below the chassis) and the dimensions of L5 can be adjusted to give suitable band-spread. The slow motion dial from an RF26 unit was found to be suitable for the oscillator tuning, although it was necessary to mount a ¼ in. bush on the front panel to support the spindle of the capacitor in order to eliminate backlash.

To reduce oscillator drift the first mixer-oscillator is permanently connected to a 150 volt stabilized h.t. supply. There is considerable drift immediately after switching on but after a few minutes it is quite acceptable.

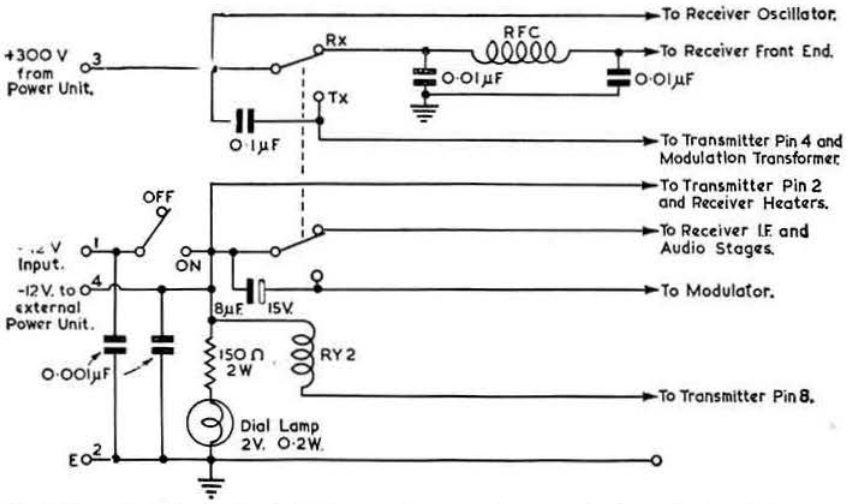
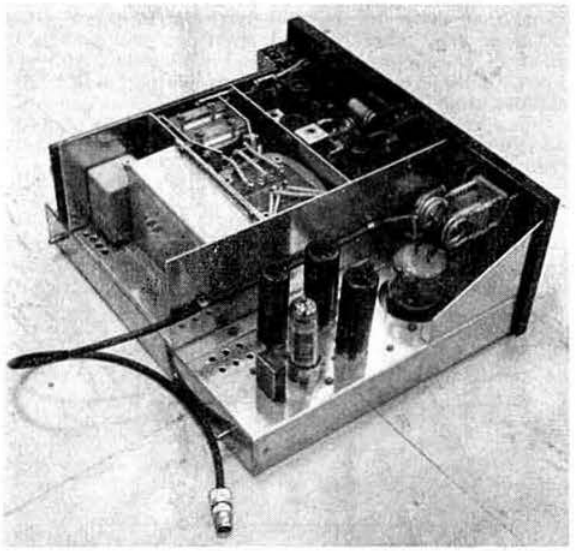


Fig. 5. Control circuits for the 144 Mc/s transmitter-receiver. The r.f. choke RFC is an Eddystone type 1010 and the relay RY2 a model 596E8 d.p.c.o. type manufactured by Magnetic Devices Ltd.

The second mixer-oscillator (V4) is another 12AT7 with which the 5·675 Mc/s crystal gives a second i.f. of 475 kc/s. The mixer output is capacity coupled to the first 475 kc/s i.f. stage.

Receiver I.F. and Audio Stages

Transistors are used in the remaining stages of the receiver, which are assembled on an 18 s.w.g. brass strip 3 in. high × 8½ in. long. The transistors and i.f. transformers are mounted along the centre of the strip and tag strips along the top and bottom. The component layout is very similar to the circuit diagram. A printed circuit would, of course, be ideal for this section of the receiver.



A general view of the unit showing details of the transmitter chassis. The aerial change-over relay RY1 is at the front of the chassis adjacent to the p.a. stage. The receiver r.f. section is at the top left with the modulator output stage immediately behind. The first four stages of the speech amplifier are in the screened compartment at the rear. The i.f. and audio stages of the receiver are mounted on the screen running from the front panel to the rear on the left.

In order to obtain sufficient sensitivity three neutralized i.f. stages are used (Fig. 4). A.g.c. is obtained by returning the base potentiometer of TR1 to the diode detector output. In addition, a reverse biased diode is connected to the collector of TR1. The effect of the normal a.g.c. is to reduce the collector current of the first stage, thus reducing the diode bias voltage. For large input signals the diode conducts, reducing the gain of the first stage and increasing the bandwidth. The 1 mA meter connected in the emitter circuit of this stage acts as a sensitive S meter while for c.w. reception a crystal controlled b.f.o. is included. An XA103 transistor was used for the b.f.o. as it was available at the time of construction but an XA101 could also be employed.

The push-pull transformerless output stage matches directly to a 15 ohm loudspeaker and provides approximately 750 mW audio output, sufficient to produce ample volume under all conditions. Alternatively several pairs of high impedance headphones can be connected in parallel across the output.

Most manufacturers produce suitable transistors for these stages, e.g. OC45, GET873 (TR1-4) OC71, GET114 (TR5), GET115 (TR6-7), although some changes in component values would be required if transistors other than the Ediswan types specified were used.

General Details

The receiver and modulator are mounted on a 16 s.w.g. aluminium chassis 8 in. × 10½ in. × 1½ in. and the complete unit is enclosed in a case of perforated 18 s.w.g. sheet steel. The overall dimensions are 12½ in. × 10½ in. × 5½ in. high.

Details of additional power supply switching arrangements are given in Fig. 5. One set of contacts of the d.p.c.o. relay (RY2) switches the h.t. between receiver and transmitter, while the other switches the 12 volt negative supply from the i.f. stages to the modulator. The receiver oscillator is permanently connected to the h.t. supply.

The 12 volt supply for an external h.t. power unit is taken from the ON-OFF switch. A rotary generator would be quite satisfactory but the improved efficiency and regulation of a transistor d.c. converter are a considerable advantage.

(Continued on page 163)

TECHNICAL TOPICS By PAT HAWKER (G3VA)

Semiconductor Devices · *The One-third Multiband Aerial* · *Half-wave Vertical*
Transistor 100 kc/s Oscillator · *Human Engineering* · *High-stability Oscillators*

THE transistor continues its triumphant march into every corner of electronics. By the early months of 1961 over 70 per cent of all broadcast receivers being sold in the United Kingdom were transistorized. Designs are appearing for transistor transmitters around the 10-15 watt mark (for example W5NEP's 15 watt 3·5 Mc/s fully transistorized telephony transmitter in *CQ* September or the 10 watt beacon transmitter for use up to 7 Mc/s in *Electronics* of August 11—the latter estimated to be only one-fifth the weight of an equivalent valve transmitter). Prices of the standard " entertainment " types of transistors continue to fall steadily.

Of particular interest to amateurs is the increasing use of high frequency MADT and alloy diffusion transistors. It seems likely that the present conventional r.f. transistors such as OC44, OC45 will eventually be largely superseded by alloy-diffusion types such as the AF117 (OC170), even for 470 kc/s i.f. stages. An important advantage of h.f. transistors at comparatively low frequencies is that the various forms of neutralization which have been necessary up to now can be dispensed with. Greater gains can be achieved and the " spread " in gain between different samples is claimed to be lower. It also becomes possible to design more efficient a.g.c. systems and there is a lower maximum leakage current. Already quite a few of the broadcast portables are using alloy-diffusion transistors in all r.f., mixer and i.f. stages and designers of amateur equipment will probably follow suit.

In passing, it is worth noting that most users now agree that transistors are less easily damaged by heat during soldering than some authorities suggest. On the other hand the danger of mechanical shock to the internal connections when chopping off excess leads is not always sufficiently emphasized. It is wise to use a pair of long nose pliers as a mechanical " shock sink " when doing this, along the lines usually suggested for a " heat sink," and even then to cut only one lead at a time.

But transistors are not the only type of semiconductor device of increasing importance to amateurs. We have already discussed silicon power rectifiers on several occasions, but some other devices deserve mention. Zener diodes have many possible applications. Briefly these are the semiconductor equivalent to our old friend the voltage regulator tube, but working at much lower potentials. They depend on the fact that if a silicon junction diode is biased to just beyond the turnover point the current flow will be limited only by a very low slope resistance. Zener diodes are available designed to provide voltage or current stabilizers from about 4 volts upwards. These can be used for improving the stability of transistor oscillators in much the same way as VR tubes in valve circuits, and other applications are coming along. For example, WA2ANU shows (in the August *CQ*) how a 1N2995 zener diode can be used to keep the voltage across a Morse key in a normal transmitter down to a safe level (though this particular zener diode costs over £2 even in the States). Methods of providing stabilized cathode bias for Class A, B or C power amplifiers by using a zener diode either alone or with a less expensive type in conjunction with a power transistor are discussed by W6IMY in the September *CQ*. In future, we shall certainly find zener diodes creeping into all sorts of circuits.

The silicon voltage variable capacitor is another component worth watching. These are basically normal *p-n* junction diodes but designed to provide a considerable change in capacitance with a change in reverse voltage (all germanium and silicon diodes possess this characteristic to some degree). One thus has a variable capacitor which can be tuned by changing only the d.c. potential applied across it. Eventually these are likely to have very many applications, particularly for mobile work (one interesting use in car radios is for " signal seeking " a.f.c. circuits which automatically tune the receiver across the band locking on to each station in turn). One amateur application is to provide a convenient means of remotely controlling a v.f.o.: see Fig. 1. This was described by W1ZPT in *CQ* February 1961—though unfortunately in most copies the printing seems to have gone a bit awry. Voltage variable capacitors are marketed in the United Kingdom by Hughes International (U.K.) Ltd.

Another semiconductor device of great potential importance in industrial electronics is the silicon controlled rectifier (s.c.r.) which should not be confused with the normal silicon diode rectifier. The s.c.r. is the semiconductor equivalent of the thyratron but with added advantages (low voltage drop, rapid switching action etc.). Basically it is a *p-n-p-n* device with a " gate " connection which like the grid of a thyratron valve loses control once the device is in the conducting state. The s.c.r. is thus used mainly as a form of electronic switch. Since the thyratron itself has very few applications of interest to the amateur, it might be supposed that this would apply also to the s.c.r. but it would seem from an article in *Electronic Engineering* (September, 1961) that these devices are preferable to power transistors in high power d.c.-a.c. invertors, and details are given of a unit providing up to 1 kW output with near sinewave characteristics. So we may yet see mobile QRO stations using them.

The above are but a few of the rapidly increasing " family " of semiconductor devices, but it is time to get back to " down to earth " topics such as aerials.

Aerial Miscellany

Perhaps one reason why so many different types of aerials have been developed by amateurs is that site problems vary so much. It is often necessary to consider and reject countless good aerial systems before finding one that exactly fits

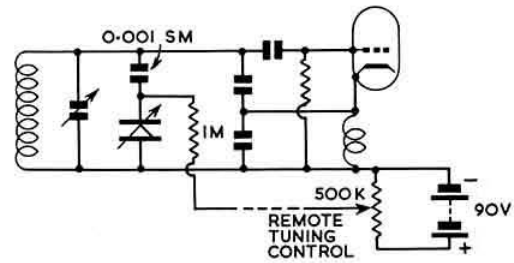


Fig. 1. W1ZPT's recommended method of adapting high-C Colpitts oscillator for remote d.c. tuning with aid of Hughes HC-7001 variable silicon capacitor.

all our particular requirements. Certainly there is no slowing down in new ideas—or in revivals of old ones.

For those with some spare 300 ohm cable, the " One-third Multiband " described by OH1NE (*CQ*, August) should be worth a try. Basically its operation depends upon the fact that at a point one-third along a 3·5 Mc/s quarter-wave open-ended stub section the impedance is close to 300 ohms and that the same point is also approximately one-third of a quarter-wave from a point of current maximum on 7, 14 and 28 Mc/s; and even on 21 Mc/s provides a workable match to 300 ohms. Details are given in Fig. 2 (a). A half-scale version is said to work on 7, 14, 21 and 28 Mc/s. OH1NE also suggests that the system could be used to feed a 33 ft. ground plane with a 29 ft. stub of 300 ohm line tapped one-third distance from the radiator and fed with 120 ohm co-ax.

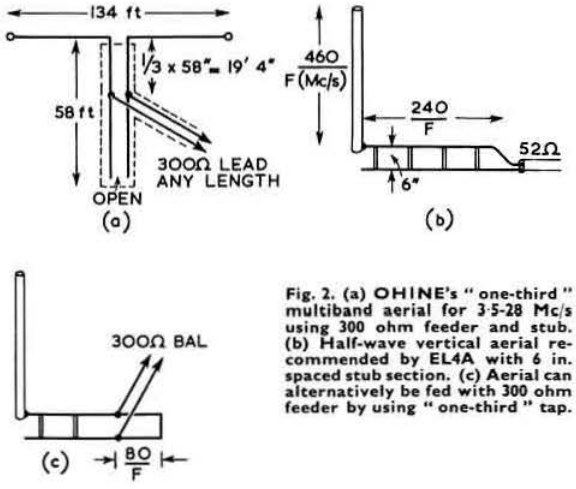


Fig. 2. (a) OH1NE's " one-third " multiband aerial for 3·5-28 Mc/s using 300 ohm feeder and stub. (b) Half-wave vertical aerial recommended by EL4A with 6 in. spaced stub section. (c) Aerial can alternatively be fed with 300 ohm feeder by using " one-third " tap.

Another vertical aerial with stub tuning (which can also make use of the one-third point) is recommended by EL4A. This is simply one form of the erstwhile popular half-wave vertical Zepp. In one version, see Fig. 2 (b), the end of the quarter-wave resonant feeder section is connected to an untuned transmission line of 52 ohm co-ax. When erecting the resonant point of the stub section alone, and subsequently the stub plus radiator, should be checked with a grid dip oscillator (short end of stub and couple this to g.d.o.) before connecting the co-ax. The other version, indicated in Fig. 2 (c), connects 300 ohm feeder at the one-third point; in this case it should be connected to the transmitter either through a balun or a tuning unit which serves the same purpose (for example, the one shown in *T.T.* December, 1960). This aerial was described in an article by K7GCO in *Western Radio Amateur* (May, 1958).

Many of us have at some time or another had to depend on indoor aerials. When sited low down in a large building results tend to be pretty poor, but a good loft or roof-space aerial can often give first-rate results. W2LCB (*CQ* August) gives some hints on " Indoor Antenna Farming " and in particular recommends the use of 300 ohm line type of folded dipoles which can easily be suspended from small hooks and eyes and rolled up when not in use.

For those who are fortunate enough to be able to put beams high up in the open air, there is always the constant worry that the structure may not withstand the next gale. Amateurs with a bent towards mechanical engineering will be interested in an article " Wind Forces Acting on Aerial Structures " in the current edition of the *Belling-Lee Bulletin* (obtainable free of charge from Belling & Lee Ltd., Gt. Cambridge Road, Enfield). This contains tables showing the effect of height and shape and explains, for example, why an aerial mounted only 10 ft. above ground on a cliff top may be subjected to greater wind forces than the same aerial mounted 70 ft. above greatly undulating country.

Transistor Calibration Oscillators

The value of a 100, 500, 1000 or 3500 kc/s band-edge marker is too widely known to require emphasis. For receivers not already fitted, a transistor unit offers the advantage of small size and simple power requirements. Several designs have appeared recently (for example, in the Swedish *QTC* (June), *Short-Wave Magazine* (September) and *Electronics World* (September)). The *Electronics World* circuit by W6TNS and ZL1AAX (Fig. 3) is not the simplest but is designed to provide useful marker signals up to 30 Mc/s and to have a " negative " chassis line which facilitates its use on the d.c. voltage developed across the cathode-bias resistor of the receiver's output stage.

Human Engineering

Many years ago GM8SQ introduced in the BULLETIN the term " operability " to describe the factors which make it easy to operate an amateur station. Nowadays the professionals call this sort of thing by the more grandiose name of " human engineering " and are giving increasing attention to the subject. The following is a check list of some relevant points based very freely on an extensive list published recently in *Electronic Design:*

Are all meters and other visual indicators mounted for easy reading?

Do all controls work in the sense that the operator will anticipate? (For example, gain increases with clockwise movement, switches " on " when down.)

Can the operator get an adequate and comfortable grip on the various controls?

Does the operating position provide good knee room, optimum writing surface height and convenient layout of controls and meters?

Does the design share the operating " work " equally between both hands?

Is the illumination adequate, and have all glare hazards from lamps, bright polished surfaces and glossy finishes been eliminated? (G3VA well recalls a wartime radio station where one after another the operators began to suffer from sties and other eye troubles until a different non-glare type of bulb was fitted in the operating bays.)

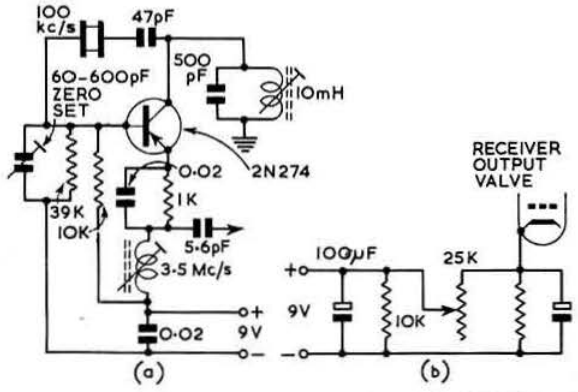


Fig. 3. 100 kc/s transistor calibrator designed by W6TNS and ZL1AAX. The 3·5 Mc/s coils consists of 90 turns, No. 36 (Amer.) enam. scramble wound on ⅜ in. slug-tuned former. 10 mH coil is a winding from a Command 85 kc/s i.f. transformer with added core. (b) Shows method of deriving 9 volt supply from cathode of output stage of receiver.

Have maintenance and servicing needs been considered? This includes easy access to all units, handles or other means of lifting out heavy chassis, ready availability of all circuits and other servicing data.

For amateur stations, one needs to add a further check point: Has adequate provision been made for the incorporation of extra units and modifications?

More High-stability Oscillators

The amateur today has an almost embarrassingly wide choice of so-called high-stability oscillator circuits—all of which will give good results when combined with satisfactory mechanical and thermal design but will prove equally unsatisfactory if these aspects are neglected. The following quotation from a standard text on this subject is worth emphasizing: " The frequency change which can be produced by the combined effect of inductance and capacitance variation with temperature is . . . of the order of 1000 part in 1 million. Frequency drifts of this order are so large compared with those produced by all other factors that their minimization is of prime importance in the development of means for improving the frequency stability of r.f. oscillators." This is why oscillators which keep the tuned circuit completely isolated from sources of heat are

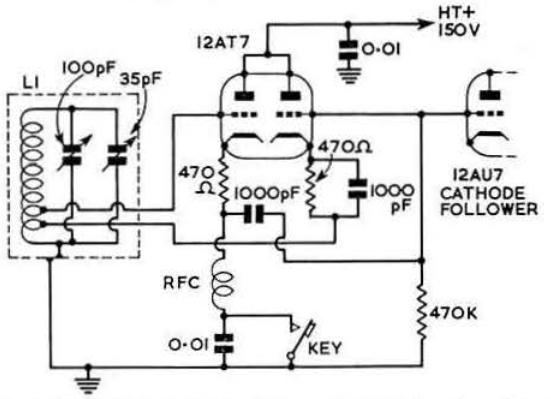


Fig. 4. W2FRQ's high-Z v.f.o. L1 tunes to 3·5 Mc/s and consists of 24 turns 2 in. dia. with grid tap 3 to 5 turns from earthy end and cathode tap 2 to 3 turns from earthy end. A second double triode valve (12AU7) is used as a conventional cathode-follower/buffer amplifier.

usually the most satisfactory, regardless of the actual circuit used.

But for those who wish to experiment with circuits here are two more. The first (Fig. 4) comes from W2FRQ via *Electronics World* (July, 1961) under the title " Ultra-stable High-Z V.F.O." This, in effect, uses a cathode-follower to reduce loading on the tuned circuit. The complete v.f.o. has a second double triode (12AU7) arranged as a cathode follower feeding a buffer amplifier. The oscillator works on the 3·5 Mc/s band.

The circuit shown in Fig. 5 is that used in the new Central Electronics 200V s.s.b. transmitter (reviewed in *QST* August 1961) and in some respects is similar to the Franklin: it is permeability tuned from 5-6 Mc/s (though could, of course, be adapted for capacitance tuning). Incidentally, another feature of this transmitter is the broadband coupler used in the output stage to eliminate all manual tuning except that of the single v.f.o. knob. The coupler consists essentially of a transformer with the primary tuned to the h.f. end of the band and the secondary to the l.f. end. A portion of the coils is wound bifilar to provide distributed capacitance. The circuit elements are so proportioned (do not ask us how) that the output stage " sees " the required impedance over the entire band.

Sideband Signals

In the June 1961 *T.T.* we touched on the point that the theoretical 9db power gain of s.s.b. was not the overwhelming advantage that some adherents suggest. A letter from F8ZF raises the interesting point that in practice s.s.b. often appears to give greater gain than this, with s.s.b. stations coming through from areas which cannot be heard on a.m. or even c.w. This could be due to the high general efficiency of s.s.b. installations or because of their operation on the h.f. ends of bands puts them just that much nearer to the m.u.f. Or is it, F8ZF queries, feasible that there may be some difference in propagation characteristics? Could an a.m. carrier increase absorption? This seems rather unlikely but may be worth investigating.

F8ZF mentions that F8DW has developed a new super modulation a.m. system which incorporates a second modulator for the suppressor grid of a high power pentode to shift the carrier level up for negative peaks and down for positive peaks. Although a 6 to 9db gain without splatter is said to be possible, this is not a something-for-nothing scheme as big valves and a big modulator are necessary; it is, however, one means of using high " talk power " while keeping within the terms of the French licence which is based on carrier power. F8ZF also wonders if anyone has tried using an s.s.b. linear for a.m. using controlled carrier.

British Equipment in the U.S.

It has always been considered difficult for British firms to break into the American amateur market. So it can be considered something of a triumph that two recent issues of *QST* have featured British gear *on the cover*. The Eddystone precision drive fitted to an HBR-16 receiver graces the June issue, while a Racal RA-17 receiver figures prominently in the April cover honouring W6NLZ/KH6UK as the recipients of the 1960 Edison award for their v.h.f. activities.

The G4ZU beam is also well known in the U.S. A shortened version of this tri-band beam called " The Gee Four Zed Smith " is described by W8VVD in *73 Magazine* for May, 1961. By dropping down the ends and making a few other modifications the beam is given a turning radius of less than 11 ft. After some years of popularity in the United Kingdom J-Beam slot fed Yagi arrays are now available to Stateside v.h.f. enthusiasts.

Also Noted

G3JGO points out that a further use of ferrite beads (see *T.T.* August) is as cores for miniature transistor transformers. An article on their use for wideband 75 ohm

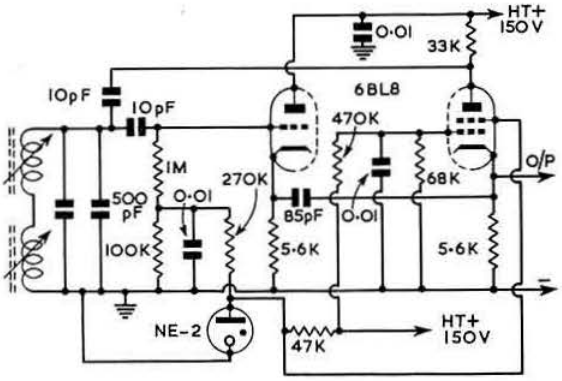


Fig. 5. The oscillator used in the Central Electronics 200V s.s.b. transmitter.

transformers (query for T-R switches) appears in *Mullard Technical Communications* for September 1960.

The " Abe Lincoln " mobile (or home) aerial by K2TKN is another new one for the book (see *73 Magazine*, June 1961); basically this is described as half of a " pylon slot " and for 144 Mc/s consists of a kind of stove-pipe top hat (hence the name) some 20 in. high, 10 in. diameter with a vertical slot ½ in. wide (the slot and top can be filled with plexi-glass). The bottom end is closed and fixed to the mast. The aerial is fed with 52 ohm co-ax connected across the slot, starting about 2 in. from the bottom and moving upwards for minimum s.w.r.

One of the main disadvantages of low priced and home-built oscilloscopes is hum, particularly in the vertical amplifier and that caused by direct pickup in the c.r.t. Not everyone can afford a MuMetal screen, but much can often be done by re-positioning the major sources of hum fields, including the mains transformer and those of nearby instruments. A push-pull amplifier for the vertical amplifier can also help; another tip is the use of d.c. on the vertical amplifier heaters. These and other suggestions are given in " Hum Elimination in Scopes " in *Electronics World* (July 1961).

When, last year, the R.S.G.B. National Convention party visited the Cambridge radio telescope, there were several ribald remarks at finding an R1155 among the equipment. It is therefore only fair to record that during a recent visit to the brand new R.R.E. twin radio telescopes, despite talk of masers and parametric amplifiers, a good old AR88 was spotted in one of the equipment cabins.

When in need of a new meter glass or other glass to size or shape, W6DIE reminds us (in *QST*) of the old dodge of cutting glass with strong scissors or snips *under water*. From *QST* also comes the suggestion that holes can be made in glass window panes without splintering by tapping the glass smartly with a drinking straw containing a steel ball bearing. But please note that if anything goes wrong no bills for repairing broken panes will be accepted by G3VA.

For those who want to keep up with the latest ideas in communications to overcome the problem of the limited width of the radio spectrum, here is a list of just some of the ideas now being kicked around the research laboratories: gamma-ray radiation; deflected sunlight; particle beams; ultra-violet and infra-red radiation; blackbody radiators; X-rays and optical frequencies. Looks as though *Technical Topics* of the future—distributed presumably by satellite facsimile service—is going to need some pretty exotic terminology.

Transistor Data Manual

THE *International Transistor Data Manual* published by Avo Ltd. is primarily intended for use with the Avo Transistor Analyser, but the information contained therein is of value to all users of semi-conductors. In its 130 pages the *Manual* provides essential data on types of European, American and Japanese manufacture, with, in addition, diagrams of transistor connections. Bound in stiff covers it is available from Avo Ltd., 92-96, Vauxhall Bridge Road, London, S.W.1, price 35/-.

R.S.G.B. INTERNATIONAL RADIO HOBBIES EXHIBITION

November 22-25, 1961

For a successful display in the Home Constructors' section, the Exhibition Committee requires the loan of home-built equipment. Offers, together with full details, should be sent to Mr. C. Waterman (G3NKX), 46 Danbury Road, Loughton, Essex.

The International Radio Amateur Year Book 1961-1962

THE second edition of this Year Book contains several special features including a review of V.H.F. Operations (June 1960-May 1961) by F. G. Lambeth (G2AIW), notes on the R.S.G.B. V.H.F. Beacon Station at Wrotham Hill by G. M. C. Stone (G3FZL) and a Year on the H.F. Bands by J. D. Kay (G3AAE). There are also frequency prediction tables (G. Jacobs, W3ASK), A.R.R.L. Countries List, details of World QSL Bureaux, a Net Directory, Diary of General Events and a Bibliography of Amateur Radio Publications. There is also a comprehensive Directory of National and local Radio Societies and Clubs. The book is rounded-off with a Contests Diary, the results of major contests during 1960/61, lists of U.S. Call Areas, British Counties, States of the U.S.A., Lists of the Amateur Bands in current use in the U.K. and U.S.A. and a reproduction of the *CQ* DX Zones of the World Map.

Copies of this 36 page Year Book can be obtained from R.S.G.B. Headquarters, price 4s. post free.

President Kennedy Calls for Review of U.S. Frequency Allocation Policy

IT is reported that in a recent message to Congress, President Kennedy requested approval of sweeping plans to alter the present U.S. frequency allocation policy. The message called for a co-ordinated effort " to provide a better method for the allocation among governmental and non-governmental users of the radio spectrum and to improve the regulation over the method of their use . . . "

At present U.S. frequency allocations are handled on an informal basis by the Interdepartmental Radio Advisory Committee. Represented on this committee are Government users, the F.C.C. and non-Government users. What may happen if President Kennedy's programme is approved is that this Committee would be replaced by a more formal organization, with more sweeping powers, and with the intent to reallocate spectrum space not being fully used.

(*From Metro Modulator, Toronto. Special to 73 News Service via QLF Lockport, N.Y.*)

CQ de LU5MBR

SENOR Jose Militello, LU5MBR, Calle Santiago Del Estero, 102, Mendoza, Argentina, would like to correspond—in Spanish—with a British Radio Amateur.

A Mobile Unit for Two Metres (Continued from page 159)

Any h.t. supply voltage in the range 200-300 volts could be used but it would be necessary to reduce the value of the stabilizer dropping resistors for voltages below 250 volts.

At the time of construction no suitable transistors were available for the r.f. stages of the receiver. However, this situation is rapidly improving and the circuit described could easily be replaced by one using transistors. The receiver power consumption would then be negligible.

The unit described has been used for mobile and portable operation for about 18 months and has proved to be both reliable and efficient. The receiver performance is quite adequate in comparison with the transmitter power available and the oscillator stability is sufficient to allow an s.s.b. signal to be received without too much difficulty. For mobile operation a simple halo type folded dipole is mounted at the rear of the car while a slot fed 4-over-4 array is used for portable operation. Several auroral contacts have been made using this arrangement.

It would be wrong to conclude this article without thanking all those who co-operated in tests during the construction of the unit. Many of their suggestions were incorporated in the final design.

Test Report

The K.W. Electronics S.S.B. Exciter

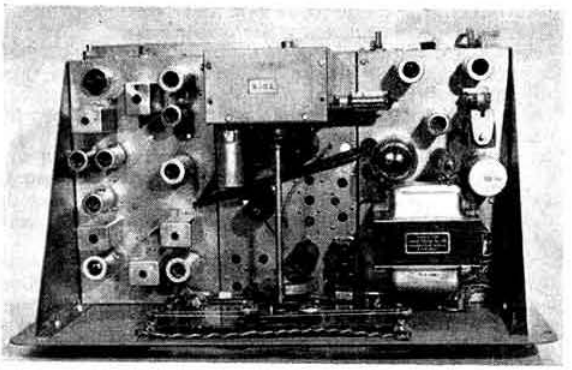
REVIEWED BY R. F. STEVENS (G2BVN)

THE KW Electronics S.S.B. Exciter is basically of the same design as the KW " Viceroy " transmitter but differs from the latter in that the linear amplifier has been replaced by a power supply, thus providing a self contained unit capable of driving to full output a pair of 6146, 807 or TT21 valves on all bands from 3·5 to 28 Mc/s. The unit, which measures 22 in. × 12 in. × 11 in. high, contains the following circuits: carrier oscillator and phase splitter (12AU7); balanced modulator (2 OA79); 435 kc/s amplifier (EF89); second balanced modulator (12AU7); mixer (6CL6); output stage (6CL6); v.f.o. and cathode follower (12AT7); v.f.o. amplifier (EF80); speech amplifier (12AX7); voice control and anti-trip circuits (2 12AU7 and 6AL5); rectifier (GZ32) and voltage regulator (OA2).

The carrier oscillator operates at a frequency of 435 kc/s and feeds, through a phase splitter, a balanced modulator into which audio is coupled from the speech amplifier designed for high impedance input. The resultant signal is passed through a half lattice filter which rejects the upper sideband. The filter, which is of conventional design, employs three vacuum mounted crystals, one of which is used as a series rejector. After amplification the 435 kc/s s.s.b. signal is mixed with the output of the v.f.o. to produce a signal in the 3·5 Mc/s band. For operation on other bands the output from a crystal oscillator and frequency multiplier is mixed with the 3·5 Mc/s signal to give a signal of the correct sideband, i.e. lower sideband on 7 Mc/s and upper sideband on 14, 21 and 28 Mc/s. This signal is amplified by a class A stage and is then available at low impedance from a socket on the rear apron, the power output being approximately 8 watts p.e.p.

The exciter contains its own voice control and anti-trip circuits, and there are two additional sets of contacts on the relay which can be used for receiver muting and aerial change-over. The exciter can be very effectively used for c.w. operation and a blocked grid system of keying is used in the grid circuit of the second balanced modulator. A form of low efficiency a.m. transmission is also possible by inserting some carrier and unbalancing the first balanced modulator.

The equipment is of attractive appearance with the controls grouped in two parallel lines under the Eddystone geared dial which is calibrated on all bands. There is no output indicator and tuning must be carried out by reference to the meter in the grid circuit of the following linear amplifier. The panel, chassis and cabinet are of substantial construction, and are finished in a grey hammertone. Internally, the exciter consists of three small chassis, two containing the r.f. and a.f. circuits, with the third housing the power supply and voice control components. The v.f.o. is mounted in a separate box and operates from a stabilized h.t. supply. The wiring throughout conforms to the highest standards.

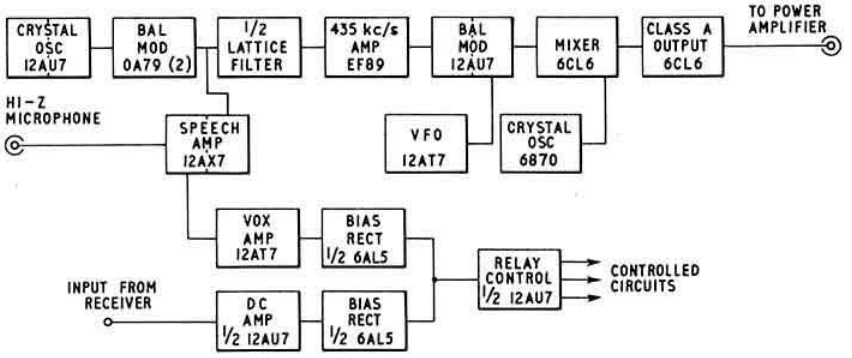


An above-chassis view inside the cabinet. The r.f. and a.f. circuits are on the left, with the v.f.o. in the centre and the power supply on the right.

Operation

The exciter was used under test to drive a linear amplifier employing two TT21 valves and the reports received mentioned the excellent audio quality and good carrier and sideband suppression. The former was found to be better than 50db and the latter approximately 40db. Once the controls had been initially set up it was found that readjustment was only necessary following a large move in frequency or a change of band. After a suitable warm-up period the v.f.o. stability was good and within the strict limits necessary for s.s.b. operation. The built-in power supply contributes a good measure of internal heating and this could probably be reduced by the replacement of the GZ32 by silicon rectifiers. The OA2 voltage stabilizer is mounted on the v.f.o. box and this accounts for a portion of the temperature rise of the latter. The tuning dial is a precision unit and allows accurate netting, which is essential in " round table " operation.

The KW S.S.B. Exciter can be recommended as a well engineered and reliable piece of equipment. Being the only unit of its type manufactured in the U.K., no direct price comparison can be made, but the cost of £87 10s. is well below that of any comparable imported equipment.



Block diagram of K.W. Electronics single sideband exciter.

THE MONTH ON THE AIR

A CHRONICLE OF EVENTS ON THE HF AMATEUR BANDS

By R. F. STEVENS (G2BVN)*

THERE appears to be considerable agreement amongst readers with the views expressed in *Current Comment* in the June issue and also with the points noted from time to time in M.O.T.A. GI6TK, an operator of many years' experience and now active on s.s.b. mentions a further practice now being encountered and with which he strongly disagrees, this being the compilation of a list of operators wishing to work a certain DX station, who then queue by numbers for their QSO. A variant on this theme is the supervision by a "master of ceremonies" with or without an accompanying list. Whilst in very difficult situations there may exceptionally be some justification for this practice, it would seem that the ability to work the master of ceremonies rather than the DX station is a prerequisite of a QSO with the latter. G4LX, another very experienced operator, now on s.s.b. found the atmosphere on 14 Mc/s much more friendly than that on 3·5 Mc/s, but notes the habit of certain operators of monopolising a frequency in anticipation of a contact with a rare station, and being distinctly unfriendly to others who may call. As G4LX rightly points out there is much more in Amateur Radio than working 350 countries and the maintenance of the Ham Spirit is a far more important consideration. In the experience of the writer the great majority of operators using the 14 Mc/s band are extremely helpful and friendly and it is to be hoped that this state of affairs will continue to prevail.

GW3AHN writes to express his agreement with the comments made in this column regarding the use of high power, and regrets that an increasing number of United Kingdom stations are obviously using their maximum licenced input. It is worth remembering that an increase in input from 150 to 600 watts would increase the signal at the receiving end by one S point. Turning now to 7 Mc/s, G3OLH expresses his concern at the large number of telephony stations using the segment between 7 Mc/s and 7·05 Mc/s, and occupying frequencies, which, under the European Band Plan, are allocated to c.w. operation. 'OLH hopes that the accepted arrangements will be firmly adhered to and that there will be more co-operation between the users of the different modes to avoid mutual interference in our congested bands.

News from Overseas

From **5N2JKO** comes news of current activities in Nigeria, together with the news of a new Wireless Telegraphy Ordinance under which existing licences are to be withdrawn and application will have to be made for a new issue. The power limit will automatically be 150 watts, without the need for special authorisation to use power above 50 watts as before, and mobile licences will be issued as an addition in accordance with the practice in the United Kingdom. It is to be hoped that the reissue of licences will not mean a change of callsign and the introduction of an alphabetical series. At the time of writing 5N2JKO is not very active but hopes to find DX easier with an Eddystone 888A and a TA33 Jr. beam. **ZD2GWS** is active from the S. Cameroons, but the call sign will be changed when the territory amalgamates with the Federal Republic of Cameroon. **5N2HHT** is active on 21 Mc/s a.m., and **5N2BRG** is finding a new G4ZU beam superior to his previous dipole. **5N2ATU** will be on U.K. leave from the end of October and **5N2IJS** and **5N2IND** are both at present operating 14 Mc/s c.w. **5N2JAF** hopes to be on 14 Mc/s s.s.b. very shortly and **5N2RDG** is working 14 Mc/s c.w. and 21 Mc/s a.m. using a DX40. **5N2RSB** and **5N2RDG** are both awaiting new transmitters to arrive from the U.K. on a boat which appears to be travelling the long path.

VS9ADM, whose home call is G3HZW, is active from Aden using 50 watts to a 14 Mc/s dipole. He is looking for United Kingdom QSOs on Tuesdays and Thursday usually after 18.00, and will be resident in VS9 until some time in 1962.

Bryan Bisley, **MP4QAO** (and 20 other calls to date), writes to clarify the situation surrounding the appearance of **MP4TAO** operating from Abu Dhabi, which is one of the

During Commonwealth Technical Training Week last May members of the Uganda Radio Club installed a radio station (VQ5URC) at a training week exhibition. Operation was on all the DX Bands and more than 100 contacts were achieved. A GHZU Minibeam and a dipole were in use. Here is a picture of the stand—believed to be the first of its kind to be put on exhibition in Uganda.

(Photo VQ5AU)

** Please send all reports to R.S.G.B. Headquarters to arrive not later than October 20.*

Trucial Oman independent sheikdoms. It appears that the error occurred when the licence was issued, and the call MP4DAE should have been given for the operation from Abu Dhabi. It will be remembered that Bryan operated from this location with the call MP4DAC.

From Cyprus, **ZC4CT** mentions that the planned s.s.b. operation from the club station ZC4PC has been held up but the DX100U should be on the air by the time that this is being read. Slow morse transmissions are being radiated from **ZC4PC** every Tuesday and Thursday at 17.00 on 3510 kc/s and reports from the U.K. will be welcomed.

From Monaco **G6LX** gives us the following information on the position following the appointment of a new Director General of Telecommunications. All non-resident 3A2 licences have been cancelled, but visitors may still obtain permission to operate, but only on personal application and for the period of the visit. The reissue of calls commenced in June and several calls have already been used by more than one operator. In an attempt to avoid the confusion which the constant reissue of calls would cause, G6LX, in company with 3A2AH, G3FPK and G3CWL, called upon the Director General, and obtained the concession that cancelled calls would not be reissued except to the original licensee unless there is a gap of over two years between visits. The following calls are held by residents of Monaco: 3A2s AH, AJ, AM, AX, BA, BE, BF, BJ, BL, BY, CK, CN, CX and DB. In addition the following visitors have operated during 1961; the call in brackets indicating the destination for a QSL. 3A2AY (G6LX), 3A2BT (G3FPK), 3A2AD (DL4PI/K9EPU), 3A2AE (DARC Munich); 3A2BP (DL4FX/K8RJP), 3A2BZ (DL4KPA), 3A2CM (K4TWK), 3A2DA (5 to 12 August, USKA) and 3A2DA (8 to 16 September, G3CWL). Cards for unlisted operation may be sent to 3A2AH, 6 Rue Gastaldi, Monaco-Ville who will see that they are redirected to the correct bureau. The new licences permit operation on 3·5, 7, 14, 21 and 28 Mc/s and five of the v.h.f. bands.

CONTESTS DIARY

1961

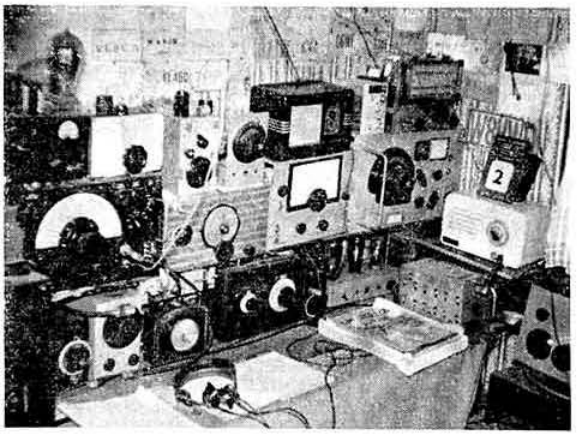
October 28–29 – CQ WW DX (telephony)
November 11–12 Second 1.8 Mc/s Contest (For Rules, see page 180)
November 25–27 CQ WW DX (c.w.)

December 2–3	–	R.S.G.B. 21/28 Mc/s Telephony Contest R.S.G.B. 21/28 Mc/s Telephony Receiving Contest (For rules, see page 180)
December 3	–	OK DX Contest

1962

January 28	–	144 Mc/s C.W. Contest
February 3–4	–	Affiliated Societies' Contest
February 24–25	–	First 1·8 Mc/s Contest
March 3–4	–	144 Mc/s Open Contest Listeners' V.H.F. Receiving Contest
March 10–11	–	B.E.R.U. Contests
April 7–8	–	Low Power Contest
April 15	–	D/F Qualifying Event
April 29	–	First 420 Mc/s Contest
April 29	–	D/F Qualifying Event
May 6	–	First 144 Mc/s Field Day *
May 13	–	D/F Qualifying Event
May 27	–	D/F Qualifying Event
June 2–3	–	National Field Day
June 16–17	–	70 Mc/s Contest
June 24	–	D/F Qualifying Event 1250 Mc/s Tests
July 7–8	–	Second 420 Mc/s Contest *
July 15	–	D/F Qualifying Event
July 22	–	Second 144 Mc/s Field Day
(September 1–2	–	Region 1, I.A.R.U. V.H.F. Contest)
September 9	–	D/F National Final
September 16	–	Low Power Field Day
October 7	–	R.A.E.N. Rally
October 27-28	–	7 Mc/s DX Contest
November 10-11	–	Second 1·8 Mc/s Contest
December 1–2	–	R.S.G.B. 21/28 Mc/s Telephony Contests

**To coincide with I.A.R.U. Region 1, V.H.F. Contest dates.*



Mr. H. R. Lodge, (B.R.S. 191) of Wickford, Essex, has been a member of the R.S.G.B. since 1928. In this picture of his station can be seen a much modified R1155A receiver, a two stage preselector, a signal generator and several convertors. Notwithstanding his early B.R.S. number, Mr. Lodge is as keen as ever on Amateur Radio.

The amateur station aboard the aircraft carrier H.M.S. *Hermes* has now closed down after a period of operation from May 28 1960 to September 9, 1961. Using the calls **G3IPV/MA** and **G3IPV/MM** 320 stations in 73 countries were contacted. Operation was restricted to 28 Mc/s and the transmitter in use ran 150 watts input to a telescopic whip 8 ft. in length mounted on the portside of the stern of the ship. This was a poor situation necessary to avoid interference with the installations in the ship and aircraft. P. W. Haylett, the Chief Radio Communication Supervisor, who holds the call G3IPV, mentions a contact with G6UT/M mobile in Essex whilst the ship was at sea near the Isle of Wight. Probably a unique case of a QSO between an aircraft carrier and a private car. G3IPV feels that there is considerably more scope for ground wave contacts on 28 Mc/s and hopes for more activity in this direction.

The Argentine stations located in the various **Antarctic** regions may be identified by the last letter of their call signs. The prefix is, of course, LU followed by either a figure 1 or 3 and the letter Z. The second letter of the suffix then determines the location e.g. LU1ZA, LU1ZG and LU1ZM are in S. Orkney Islands, ZC, ZI and ZO are at Deception Island with ZS and ZT all in the S. Shetlands, ZY being in the S. Sandwich Islands. The following letters are allotted to stations situated at one of the five bases in Antarctica: ZB, ZD, ZE, ZF, ZH, ZJ, ZK, ZN, ZP, ZR, ZU, ZV and ZW.

The following call signs may be heard from **Wilkes Base** in the Australian sector of **Antarctica**: VK0s EH, JB, RT, TC, VK, WB, WE, all using the same equipment consisting of a KWS-1 running at 150 watts input and a 75A-4 receiver. The operators usually favour the segment 14,100 to 14,140 kc/s. VP8s CC, FD, FC, FV and DG are located in Antarctica, with VP8FU and DM in S. Shetlands and VP8GE at King Edward Point in S. Georgia.

DXpeditions

MP4QAO will be operating from Qatar for approximately 10 days from October 17 on c.w., s.s.b. and a.m. Bryan hopes to be active on 21 Mc/s a.m. to give some of the newer stations an opportunity of a contact, and the transmitter in use will be a Gonset G-76 running 100 watts. QSLs for MP4QAO should go to R. Baines, 81, Kitchener Road, Strood, Kent, and for a direct reply please enclose a s.a.e.

UA0BP will be operating from **Zone 19** on s.s.b. probably during the last fortnight in October, and particularly during the two days of the CQ DX Contest. After this UA0BP will go to Zone 23 for 2 or 3 days. (UA3CR).

VP5BL/5 QSLs should go to the dxpedition manager W3AYD and cards sent to VP5BL or the A.R.R.L. will not be answered. The station operated from the Cayman Islands.

The operation of the portable Russian transmitter from **Kaliningrad** under the call **UA2AO** was an outstanding success and Anly has kindly written giving some details of the results. The transmitter was in operation for 9 days during which time 1200 contacts were made with 100 countries in 37 zones. 121 QSOs were made with 86 United Kingdom stations, and it is interesting to see the break down into different prefixes: G2-7; G3-43; G4-4; G5-5; G6-2; G8-4; GD-1; GI-9; GM-9 and GW-2. UA2AO is very grateful to all those stations that helped him to work rare DX stations, for being crystal controlled on three frequencies he was working under a considerable disadvantage, and G3AWZ is mentioned as having given invaluable help in this way. At first the transmitter was operated "barefoot" but later a linear was modified and added. In addition to UA2AO, UA2AC also operated, and UA2ABM was responsible for the G5RV aerial and UA2AW loaned a fine 18 valve double conversion receiver. UA2AO, did not at the time have the equipment to build the s.s.b. transmitter (his calling is that of a lawyer) and UA3CR arranged for him to have the loan of the portable transmitter for which the Moscow Club were responsible. This operation will be remembered for skilled operating and outstanding co-operation from all parts of the world.

FW8AS is scheduled to operate for three days from November 8 from Wallis Island, probably on c.w. only. QSLs should go to W7PHO. (G3AAE).

VR1M (G3JFF) was active from Gilbert Islands and one of the first contacts was with Pacific specialist G6XL, who exchanged 579 reports with him on 14,040 kc/s. The location was Tarawa and QSLs for this operation should go via GW3LQP.

VR5RZ, after several weeks of successful operation, closed down on September 19 and by now will be back at his home QTH in Queensland from where he will he heard as VK4RZ. It is hoped that the operation will lead to a permanent station being established in Tonga.

G3JUZ will be active from **Rutland** on November 18 on 1·8 Mc/s c.w., and he and G3AIP hope to be in operation from 18.00 on the Saturday evening until 06.00 on Sunday.

QTH Corner

AP5CP	Mohd. Sarwar Khan, Dacca Signals, 14 Div., Sigs. Regt., Dacca Cantt., Dacca, E. Pakistan.
BV2A	P.O. Box 101, Taipeh, Formosa.
HM4AQ	P.O. Box 3, Iri, S. Korea or via W8BF.
HS5OSQ	via W5ZG
KB6BR	U.S.P.O. Box 06/50,000, Canton Is., via Honolulu, Hawaii.
KC6CG	F.P.O. Navy 926, San Francisco, U.S.A. or via VE7ZM.
LU1ZL	via W9LGR
MP4TAO	via DJ1BZ
VK0TC	via ZS7P
VP2GAQ	via K9UTI, Box 567, Metropolis, Ill., U.S.A.
VP5BL/5	via W3AYD
VP5MJ	via K0TYO
VP8GE	M. Meade, Sarsfield St., Kilmallock, Co. Limerick, Eire.
VQ8BR	160, Monaco Rd., Melbourne, Florida, U.S.A.
VS9ADM	c/o P.O. Box 1158, Tawahi, Aden.
ZD2GWS	W. G. Slinger, Film Unit, Cameroons Dev., Corpn., Ekona, S. Cameroons.
ZD6GA	P.O. Box 16, Mzuzu, Nyasaland.
ZD6PR	P. M. Rackham, P.O. Box 41, Zomba, Nyasaland.
ZP5HK	Box 512, Asuncion, Paraguay.
5N2KHP	K. H. T. Perrin, c/o Glyndovas (Nigeria) Ltd., P.O. Box 127, Kaduna, Nigeria.
9G1DE	Box 128, Dunkwa, Ghana.

DXotic Showcase

Call-sign	kc/s	Mode	G.M.T.	Country
AP5CP	14,055	c.w.	17.15	E. Pakistan
VR1M	14,070	c.w.	08.15	Gilbert Is.
VP8GE	14,030	c.w.	19.54	S. Georgia
XT2A	14,008	c.w.	21.30	Upper Volta
KB6BR	14,305	s.s.b.	08.30	Canton Is.
KC6CG	14,308	s.s.b.	15.50	W. Caroline Is.
KJ6BV	14,306	s.s.b.	08.35	Johnston Is.
ZK1BS	14,280	s.s.b.	08.15	Cook Is.
KH6EDY	21,070	c.w.	08.20	Kure Is.
KX6DB	21.050	c.w.	10.00	Marshall Is.
ZD7SE	21,090	c.w.	20.15	St. Helena
VR4CB	21,240	a.m.	09.30	Solomon Is.

Prefixes

Following the operation of 7G1A in the Mali Republic as /TZ and the appearance of **XT2A** from the Republic of the Upper Volta, it is assumed that these prefixes represent the official allocation to these countries.

Contests

The telephony section of the **CQ World Wide DX Contest** will take place from 02.00 October 28 to 02.00 October 30 and details of the rules will be found on page 177.

The Fourth International Jamboree on the Air, which will take place during October 21 and 22 will have representation from Imperial Headquarters under the call **GB3BPH** and this station is being organised by the 19th. Kensington Troop. It is hoped to keep this station continuously on the air during the 48 hours of the Jamboree, and special QSL cards will be available. Amongst the operators will be G3BHK and G2CAJ.

The R.S.G.B. 21/28 Mc/s Telephony Contest will be held during the period December 2/3, and the Receiving Contest will run concurrently. The rules for the events will be found on page 180.

Awards

Details of the new **5N2 Award** have been sent by 5N2JKO. It requires contacts on either 'phone, c.w. or a mixture of both modes with five different Nigerian stations since January 1 1961, using at least two bands; for example four stations on 21 Mc/s, and one station on 14 Mc/s. QSLs are not required, but a list of stations contacted with log details should be sent, together with five IRC or a remittance for 2s. 6d. to 5N2JKO.

The N. Johannesburg Branch of the S. African Radio League offers the **W38Z** and **H38Z Awards.** To claim the former, amateurs outside Zone 38 must work 6 out of the 8 countries in this Zone. All postwar contacts will count and two awards can be obtained—one for telephony and one for telegraphy (mixed contacts will not count). Minimum reports of RS33 and RST339 are required. The H38Z can be obtained by a listener anywhere in the world submitting proof (with QSL cards) of having heard 6 out of the 8 countries in Zone 38. QSLs, a list of countries heard or worked and a remittance for 4s., 1 dollar or 8 IRC should be sent to: The Awards Manager, N. Johannesburg Branch, P.O. Box 17198, Hillbrow, Johannesburg, S. Africa. The countries comprising Zone 38 are: (1) ZS1, 2, 4, 5, or 6; (2) ZS3; (3) ZS7; (4) ZS8; (5) ZS9; (6) ZE; (7) ZS2MI; (8) ZD9.

The membership of the **Certificate Hunters' Club** is now 325, and interest in this continues to grow. The basic membership attests that a member holds 25 or more amateur radio awards, and a leaflet giving full particulars may be obtained from G2BVN. The secretary of CHC is K6BX, Box 385, Bonita, Calif., U.S.A.

Following the award of **WAZ SSB** No. 1 to UA3CR, the following certificates have been issued: 2-OD5CT; 3-UB5KAB; 4-G3FKM; 5-G3AWZ. It is pleasing to see two United Kingdom stations so early in the list.

The **Directory of Certificates** may be ordered through G2BVN, the cost, including three supplements, being 30s. A three ring binder to hold the Directory can be supplied at a cost of 7s. 6d.

DX Briefs

GI3PGG is the present call of ZD1AW who for the time being can be reached at 15, Glengoland Gardens, Stewartstown Road, Dunmurray, Co. Antrim.

A QSL card sent to **OH0NF** by G3NOZ for a 14 Mc/s c.w. contact during May of this year has been returned with the comment that the genuine OH0NF cannot trace the QSO and was not active on 14 Mc/s at that time.

The Rhiendahlen Amateur Radio Club is now again active from B.A.O.R. mainly on 3·5 Mc/s with low power, but they hope to be on all bands in the near future. Among the club members are DL2XM/G6XM and DL2BT/G3NUF.

W3AYD is now the QSL Manager for FY7YI, VP2DU (1961 only), VP5AB (1961 only), VP5BL (after May 1 1961), ZB2AD (1961 only) and VP5BL/5 (1961 dxpedition). The QTH is P.O. Box 731, Rockville, Maryland, U.S.A.

SM5ZS/4U heard on 21 Mc/s is reported to be operating from U.N. territory in Jerusalem.

AP5CP, located in Dacca, E. Pakistan, is active on most days usually between 14.00 and 16.00 around 14,060 kc/s. His address is given in QTH Corner, and G3AAE reports receipt of a multicoloured QSL within three weeks of the QSO.

K6BX reports than more than 4,000 call books have been sent to DX stations under the scheme, which he is administering, whereby U.S. stations send discarded copies of the American call book to overseas operators.

B.R.S. 20104 notes that two new methods of sending reports have been heard. The report consists of the usual RS numbers plus either the time of contact, i.e. 59 1615 or the QSO number as determined by the sending station, i.e. 59 214. Whilst this system will facilitate reference to a QSO for QSL purposes, it might introduce some confusion when reception is not so good. Our correspondent heard KV4AA say that his country score was now 317.

Colin Richards, **GW3JET,** who formerly held the call AP2CR, is now in Malaya. He hopes to be active from this part of the world in the near future.

Peter Brisbar, G3JHZ, formerly 5N2PJB and ZD3P, is now in Bahrein and will be operating with a KWM-2 under the call **MP4BCR.** The logs for the ZD3P operation are being obtained from W7VEU and missing cards can be requested via G3JHZ and the R.S.G.B. Bureau.

Members of the Rhiendahlen Amateur Radio Club. The club is located at HQ B.A.O.R.,West Germany.

Band Reports

The three l.f. bands are now commencing to show signs of the activity that it is hoped will materialize during the winter months. Our reporter **B.R.S. 20317** notes that on **1·8 Mc/s** propagation was not good, and although there were trans-Atlantic openings on most Sundays around 04.30 to 05.00 only W2RD could be identified. On **3·5 Mc/s** there have been several G/ZL contacts on s.s.b. reported around 06.30. From the same direction VK5KO was RST349 on 3501 kc/s at 20.30. The Australian station will also be using 3510 and 3520 kc/s. **7 Mc/s** still remains the best of the l.f. bands, if one can stand the commercial interference. In many cases this is not only caused by the fundamental transmission but also from the splatter, harmonics and spurious frequencies radiated from apparatus that must be worth many times the cost of a fully equipped amateur station. B.R.S. 20317 reports that the signals from VK/ZL are of good strength and reasonably consistent with several outstanding stations: **VK5KO,** 22.30; **VK4SS,** 19.45; **VK2BA,** 21.00; **VK3XB,** 06.00 and **VK5NO,** 07.35 to 08.15. A report of VK9TC has been queried and this may possibly have been VK0TC now active from Wilkes Base, Antarctica. These signals were heard at 22.12 on 7,005. Other noteworthy DX includes: JAs between 19.30 and 20.30; **VU2BK** 22.40; **EP2BB,** 21.22; **MP4BDH,** 21.35; **9M2DW,** 23.00; **DU9WX,** 21.35 and **UA1KED** 21,30. From Africa **VQ2WR,** 21.35; **ZS1JA,** 20.40; **CR7IZ,** 21.00 and **ZD8JP** was heard being called at 21.15. The Americas yielded **VP2SH,** 22.30; **VP9AK** 22.45; **CX4IK,** 22.45; doubtful **CE0HP,** 22.55 giving his QTH as Pasqua; **VE7BAX/W7** 07.45, **W4VCA/KH6** and **KH6AFS** both at 06.00. East coast U.S. stations were heard from 21.45 with W6 and W7 audible after 05.15. For a band which the majority of operators dismiss as pure QRM the above loggings represent a most creditable effort.

14 Mc/s still remains the band producing the greatest quantity of DX with reasonable consistency. Dealing first with the c.w. portion, **7G1A/TZ** operating from the Mali Republic provided many DX'ers with their initial opportunity of a contact with this country, and shortly afterwards **XT2A,** operating near the band edge, provided S9 signals from the Republic of Upper Volta. Happily, both these stations followed their QSOs with rapid QSLs. The Pacific area has been well heard between 07.00 and 10.00, with **KH6EDY** on Kure Is. an outstanding signal on a number of mornings, usually between 08.30 and 09.30. **KJ6BV** also put in an appearance (14,090; 09.30) but was not easy to work from Europe. **VR2EA** (G3JFF) was widely worked from the United Kingdom, both on this band and 21 Mc/s, and when operating from **VR1M** was contacted by G6XL at 08.15 on 14,040. **FO8AQ** was worked by **G2FFO** at 08.54 on 14,011 despite the attentions of a Euklot. G2FFO was one of the few to contact VR5RZ on c.w., the time being 08.30. A newcomer worked by a number of United Kingdom stations was **VP8GE** in S. Georgia, whose address for QSL will be found in *QTH Corner*. Active around 19.00/20.00 on 14,030/040 this station may be distinguished by a slow c.w. speed. Also worked were **VK0FZ** (06.30; 14,090) on Macquarie Island, **VR3L** (07.00; 14,085) and **FR7ZD** (13.10; 14,035). Reported but not worked are **XV5ASY** (13.00) and **XU6AL** (14.00) both on 14,050. A new representative of Zone 23 is **JT1KBL** worked on 14,020 at 11.30. In addition to the stations enumerated there has been a considerable quantity of " bread and butter " DX coming in from all continents. A.m. DX has apparently been non-existent and we proceed therefore to s.s.b., where there has been a considerable amount of r.f. expended in many pile-ups. Amongst the causes of this are: **KB6BR** (08.30); **K6CQV/KS6** (08.00); **HM4AQ** (14.30); **KJ6BV** (09.15); **FK8AC** (06.30), **ZK1BS** (08.15) and **ZK2AB** (08.30). From Bahrein, **MP4BBW** provides a cross section of what is to be heard on the band in the shape of : CE3RY (19.06); DU1GF

(13.16); EA6AZ (17.20); EI9AE (16.46); HM4AQ (16.52); HS5OSQ (16.23); KH6AWS (17.00); KZ5LC (07.30); PJ2AA (21.00); TG9AD (22.15); UA2AO (17.34); UI8AG (19.21); UO5PK (13.47); UF6FB (19.49); YN1CK (02.57); YS1MS (22.51); 5U7AH (17.38), and 7G1A/TZ (21.05). Ian comments that the band has been closing as early as 19.00 on some days, but that the Pacific path in the mornings is showing promise. **HE9LAA** provided many QSOs from a location nearer home, and **LA1LG/P** on Jan Mayen provokes activity whenever he appears, although it is said that conditions in that area are generally poor.

21 Mc/s although it has not produced the exotic DX of 14 Mc/s has been the scene of many openings to the East and North particularly in the mornings around 09.00 to 11.00. Both c.w. and a.m. have been productive, the former mode giving us: **KH6EDY** (09.05); **MP4QAQ** (10.40); **VU2BK** (13.15); **KX6DB** (10.00); **VR2DK** (09.45); numerous JAs, VKs and ZLs. G3AAE mentions **WG6ALD** (13.15), a novice in Guam and of interest to the WPX chasers; **VQ8BC** and **BP** (21.45, 21,045); together with OD5, CR6, ZS and ZP5HK. **ZC4CT** worked EL4A (17.20); MP4BBE (15.57); VQ8BC (15.55); VS9AAC (11.50); and ZP5BC (16.16), and has now accounted for 120 countries worked using a DX40 and G5RV, also a 14 Mc/s dipole. **UA0LL** has given many Zone 19 QSOs with signals of good strength being heard up to midday. On a.m. the prize catch was undoubtedly **VR4CB** (10.00) with an S7 signal but not hearing Europeans too well. The new French Community Republics have been represented on this band including TN8, TT8 and TL8, with TR8AA and AB reported but not worked. The remaining area without activity is Dahomey (TD8) and 5N2AMS hopes to provide some signals from this country in the not too distant future. **TA2AR** has been heard (09.20) and asks for QSLs via the ISWL, but his bona fides have not yet been established. During the coming months this band will obvious provide some excellent openings to most parts of the world.

28 Mc/s is showing signs of emerging from its summer hibernation and good strength a.m. signals have been heard from Africa and Asia, the latter including a number of Japanese stations. Australian stations have also been heard and worked, but, at the time of writing, on isolated occasions only. If the predictions hold good then this band should undoubtedly furnished much a.m. DX during the coming winter, and a promising start has been made. During periods of high sunspot activity 28 Mc/s has always produced considerable DX on 'phone, but, except during contest periods, the c.w. portion has always been under populated.

* * *

Correspondents are thanked for their letters and reports, and acknowledgements are made to the DX' press (PAOFX), the West Gulf DX Club Bulletin, DX (W4KVX) and the DX'er (K6CQM).

News items, details of any unusual activity and notes on band conditions will be welcome, and should be sent to arrive at R.S.G.B. Headquarters not later than October 20.

DXpeditions—Late News

ARRANGEMENTS have been made for the portable s.s.b. transmitter built by Jack Laib, HB9TL, to be sent to the Caribbean area for the next few months. The first station to operate this rig will be VP3YG, and with the co-operation of PJ2AA the 18 lb. transmitter will then go on to other areas not having s.s.b. representation. The freight charge for the first journey is being defrayed by HB9TL, but an appeal may be made later to cover subsequent journeys Arrangements have been made for QSLs for W/K contacts to be handled from N. America, and a U.K. manager will probably be responsible for the rest of the world. Further details will be announced later.

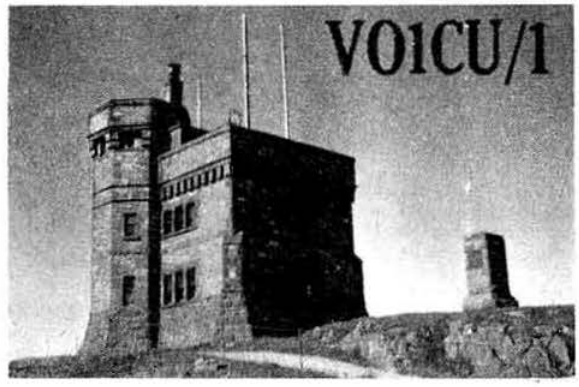
* * *

G3DAF sends the following snippets: **9G1DE** (Dunkwa) is active on 14 Mc/s c.w. and is anxious to make contact with his home town of Liverpool. He may be found between 20.00 and 22.00 on most evenings. **XZ2TH** is active on c.w. after 17.30 usually on 14.110 kc/s, with good signals from Rangoon. He is looking for a G station who is also an aquarium expert.

G3LET, a well-known 7 Mc/s operator, is now on his way to the **S. Orkneys** and will assist VP8EG in keeping this spot available on the amateur bands.

Marconi Anniversary to be Commemorated

THE Newfoundland Radio Club of St. John's, Newfoundland and the Cornish R.S.G.B. Group are making plans to commemorate the 60th anniversary of the occasion when a wireless signal was transmitted across the Atlantic for the first time. The historic transmission was made from Poldhu, Cornwall, on December 12, 1901 and was received by Marconi on Signal Hill, St. John's, Newfoundland. Members of the Newfoundland Radio Club and of the Cornish R.S.G.B. Group are planning to set up stations on Signal Hill and at Poldhu respectively and will operate from there during the period from December 9 to December 17, 1961.



This is a view of Signal Hill, St. John's from where the Newfoundland Radio Club will operate during the Marconi 60th Anniversary commemorations.

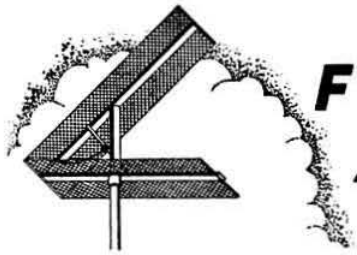
The Cornish R.S.G.B. Group, led by the Cornwall C.R., Mr. John Watson, G3AET, 24 St. John's Terrace, Devoran, Nr. Truro, will erect the aerials on the actual site of the original Marconi transmitting station and the station will use the call-sign GB3MSA (Marconi Sixtieth Anniversary). The Newfoundland Radio Club station will operate on the DX bands under a similar type of call, VO1MSA using 'phone or c.w. (depending upon conditions) and also perhaps on 160 metres. It is understood that the Prime Minister of Newfoundland (Rt. Hon. J. R. Smallwood), will perform the switching-on ceremony at Signal Hill.

Special QSL cards will be issued to all amateurs who contact VO1MSA and GB3MSA.

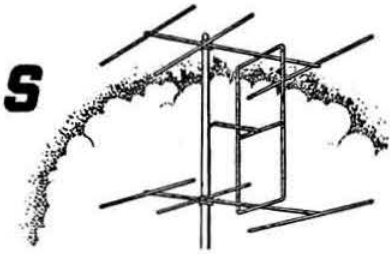
The period 17.30 G.M.T. to 19.30 G.M.T. on December 12, 1961, will be reserved for contacts between the Signal Hill, Newfoundland and Poldhu, Cornwall stations.

Reciprocity—U.S. Move

U.S. Senator Barry Goldwater recently introduced a Bill into Congress to permit the reciprocal licensing of amateurs. Congress referred the Bill to the Committee on Commerce whose observations are now awaited.



FOUR METRES AND DOWN



By F. G. LAMBETH (G2AIW)*

THE great news this time, (already reported as a " flash " in our last) was the exceptional opening of both 2m and 70 cm which brightened the last week of August and the beginning of September. This led to " firsts " for many stations on each side of the North Sea (never forgetting our old friend EI2W across another sea), and at times the 2m band was so full of calls that it was an extremely difficult operation to pick out the one that was your QSO. SMs, OZs, DJ/DLs, PAs, ONs, and Fs were legion and nearly all of them S9 signals. Then all the Gs, GMs, GWs, GCs and EI were heard and/or worked by someone at some time (and some very many times) during that glorious week. Similar conditions were apparent on 70cm with SM7BAE and other SMs, DLs, ONs, PAs, Fs to say nothing of DX Gs. Altogether a very fine occasion, and to make it even better the West Country and Wales had a share of it.

The I.A.R.U. Region I Contest seems to have coincided with the gradual break up of the peak conditions, and although there were many continentals on, and working, during the Saturday evening and night, they were less strong than they had been, and the few heard on the Sunday morning were going out. However, there was very great activity in the U.K. and some stations amassed good scores.

Transistorized Rig at PA0ZR

G5DW (Ashcott) had an interesting QSO on August 29 with PA0ZR/M. This was on phone, with good reports, but the point is that the PA station was completely transistorized, mostly with OC71s. The transmitter was 3 × OC71. PL70 and a 3B4 as PA with 3 watt input. The receiver contained 13 transistors, and the aerial was a simple dipole *held in the hand* whilst talking to G5DW! The low end of the band was a " big pile up " of G-DX, a real pleasure to listen to, even if it was sometimes impossible to sort out the signals.

G5MA (Gt. Bookham) had a good opening, commencing August 28, when EI2A was worked on two way phone from Navan (Co. Meath). On Thursday August 31 GM3EGW was worked (phone) followed by GM6XW (Larbert) GM3GUI (Friockheim) and GM3BOC/A (Brora, Sutherland) all on c.w. GI3FJA and GI3OPFT (Belfast) were also worked, and EI2W three times during the week. Others worked included four OZs, DLs, PAs, ONs and SM6ANR.

G2DHV (Sidcup) worked 4 ONs, 6 PAs, 2 DLs and heard 2 Fs on a 6 element Yagi INDOORS!

It was pleasant to hear from G8VN (Leicester) of indoor aerial fame and to learn that G6JQ, G3NZL, G3GUD, G3CKQ, G4MK, G3GXN, G2FMO and of course G8VN himself are all active on 2m in the Leicester area.

G3ABZ (Maidstone) worked G5DW (Ashcott) on August 25, and on the 27th worked F3CU S9 both ways. On the 28th ON4XT was worked and DJ2MM/M heard, with two new G counties worked. On the night of the 30/31 August in the peak of the grand opening PA and DJ2/DL9 were worked for 2 new countries. ON and F were also worked and OZ heard. On September 3 in the morning PA0EZ and PA0YZ/A were surprise QSOs. The converter in use at G3ABZ is a single 12AT7 mixer/oscillator which has not yet been replaced by a complete converter, but is greatly helped by the 4 over 4 slot beam at 25 ft. in what appears to be a good position 260 ft. a.s.l.

G3MDH (Southampton) who was portable near Shaftesbury found the contest very enjoyable with good conditions for a change. There was a heavy thunderstorm at 03.00 which made operating impossible temporarily but otherwise everything was satisfactory. G3MDH hopes that next year there will be an R.S.G.B. Contest as well.

G3LTN (Weyhill) notes the excellent Tropo opening at the end of August with the peak on August 31 and before breakfast on September 1, when PA, DJ/DL, ON, and OZ were roaring in at S9+. On the evening of September 1 SM7ASN was heard on the key but faded quickly, and no QSO resulted. However many stations in PA, DJ/DL, ON also OZ4KO were worked, bringing the total up to nine, with the all time counties now at 40. Conditions were falling off during the Contest and no stations were heard to the North, presumably due to the thunderstorms which developed, but occasionally PAs were heard and worked. In nearly all cases operating practices were good but the action of one station (and similarly quite a few others—G2AIW) of going down frequently into Zone 2 was deplored. His own area *did* appear to be free from QRM.

G3LTF (Galleywood) reports from August 24 when EI2W was worked for the 15th country on 2m. On the 28th GI3FJA was worked and the others all heard. Several DJ/DLs were worked at approx 300 miles; DM2ABK was worked on the 29th, with OZ3NH, OZ5BK, OZ7WA, OZ2PV, OZ4AU and SM6ANR. The 30th and 31st brought many PAs, ONs more DLs, OZs and SMs. September 1 continued in the same way. On September 2 operation was from the portable location at Burley Hill, when 153 stations were worked, with only 41 Gs included! The best QSOs were DJ3EAA near the Czech border, OZ3EDR, DL1BF, DL1FF, DJ2DF and DL6SV all over 650 km. All this with 25w and a 10/10 Yagi 30ft. high only 200 ft. a.s.l. Finally the overall totals from August 27 were 1 DM, 55 DL/DJ, 54 PA, 17 OZ ,6 SM, 21 ON and 1 GI. And then he complains about his position which is affected by QRM from PAs and ONs etc. and makes it difficult to work real DX! !

For **G3MTI** (Malvern) as for many other incredulous " new boys " on 2m the opening was a revelation. The best QSOs were at 620 miles for the fixed station and 460 miles for the halo (mobile). During a visit to Londonderry G3MTI canvassed converts to the band and GI2DHN has promised to be on by the end of October, with others hoping to follow.

G5TN (Weston Super Mare) managed to get on 2m on July 1 and in the short time since then has worked ten countries and 35 counties. On September 2, the best DX worked was SM7BE. Others included PAs, ONs, F9TH, EI2W, EI9AK/M and GC2FZC, with G3JYP (Appleby, Westmorland) to

* *R.S.G.B. V.H.F. Manager, 21 Bridge Way, Whitton, Twickenham, Middlesex.*

keep the old country in the picture! G5TN hopes to be on 70 cm soon.

A1657 (Gomersal, Leeds) found that GB3VHF was at times reading "59 + 30" during the evenings of the opening (usually 54) marred by FM and TV signals which were apparent and sometimes S9+. F8GH at one time was as strong as G5YV who is only 3 miles away! It was also surprising that some of the Continentals did not seem to be getting QSOs, although plenty of Gs were on. Six new countries were heard in 24 hours.

G3OSA (Wimborne) was very happy during the opening of August 31, when SM, DJ/DL, ON, PA and GM stations were worked on 2m. G5ZT/M was in Eire during the contest as EI9AK/M and found either that conditions were less good there or that only a minority turned their beams westward, but thinks it was conditions. Although not a single Continental was heard, most G and GW signals were S9.

G6RH (Bexley) in a welcome letter after many years off the band, says he has now moved off the main road and has been working on and off since March. The present gear is running 100 watts, to a 7 element close spaced yagi 30ft. high. On August 28 his first ever GI (5AJ) was worked. This was after hearing and calling GI3GXP, GI3FJA and GI3OFT the same evening without result. The same evening an S8 phone QSO was achieved with EI2W, and GW3LJP (Radnor) was worked for a new county. On August 31 LA8RB was a first ever Norwegian QSO, LA9T being heard weakly earlier that evening, when DL3QO, DL3ZA and DL6SV were also worked. On September 1 SM6PU, SM7ASN, OZ7LX, DL1FF and DL6QS were raised, followed by DJ5HG on September 2. Several Midlands stations were worked during the month and the total now stands at 15 countries and 55 counties, with GD anxiously awaited.

G3BYY (Wraysbury) worked 4 new countries within 4 hours on the morning of Friday September 1!

Eleven Countries on Indoor Aerial

G3JR (Barnes) has now worked 11 countries (with indoor aerial) and says that for him, the opening was limited to August 31/September 2 (evenings) and finished during the early hours of the 3rd. Easily the best period was the Thursday evening and early Friday morning. As the band was full of PA, DL and ON, G3JR thought there might be a chance for Scandinavia and kept the beam NE—a very tough and risky decision! After a lot of queueing (until 0230) the 5 element indoor Yagi and 12 watts were rewarded with OZ4KO, OZ4AU and SM6ANR. Most others were gone by then but G3JR finished up with PA0F, PA0FN and G3HUL (Norwich) and all were good reports. Friday evening brought QSOs with DL6AH, ON4HC, ON4PZ PA0YZ, PA0HK, G, F3XK and others.

The G3HWR/P and G3LAR/P Expedition to Wales

G3HWR/P and **G3LAR/P** have sent news of their DX trip into Wales. On September 1 they failed to reach the top of Hatteral Hill, and had to stop at 1200 ft. (in Monmouth) and GW3LAR/P opened up. In 2½ hours 25 Gs 1DL and 1 PA were worked. Surprisingly 4 of the Gs had not worked GW before. An evening's jaunt proved much more valuable than expected. The location was NGR SO.316234. Over the first weekend (September 2/3) GW3HWR/P operated from Mynydd Llangattock (Brecknockshire) about 5 mile N. of Ebbw Vale (NGR SO 160160). With good conditions a fine time was had working 3 EIs, 5 GWs and 48 Gs also various portables. GC2FZC was heard and many Continentals. Brecknock was very satisfactory! Height a.s.l. about 1700 ft. On September 4 a site 5 mile w.s.w. of Ammanford (Carmarthen) was reached. The best site could not be used because (as in some other places) prior occupation by Police leaves insufficient room for both and there is also a risk of interference because of close frequencies. Conditions were poor here, and only 8 QSOs were made. SN552013 at 867 ft. a.s.l. by a reservoir. The following day at Mynydd Llanbyther it rained; G5DW and G3JGJ were heard on the halo but there were no QSOs. On September 6 there was a visit to GW3MFY (Bridgend) and operation from Mynydd Baiden 4 miles N. of the town (SS873855) 500 ft. GW3HWR/P had 9 contacts in poor conditions. September 7/8—Lampeter and the 6 over 6 up in Carmarthenshire. The result was 42 QSOs with 37 stations for GW3LAR/P. September 9 and 10 found them in Cardiganshire on an unnamed hill (SN460500) From there, 43 stations gave 51 QSOs in two days and the Monday night September 11. The Sunday was practically a washout with only 6 QSOs (5 stations), height 1067 ft. and call sign GW3HWR/P. Tuesday was unfortunate and fruitless and very damping in more senses than one! Wednesday (13) they beat the rain and had a good evening. On Thursday the same, but they had to abandon the mast and beam on the mountain (Foel Drych) and recover it on the Friday morning—1150 ft.—SN173312. The site is 9 miles south of Cardigan near Crymych Arms (Pembrokeshire). During the two nights operation, they had 49 QSOs with 42 stations. With GW3LTF/P also in the country they were not too worried about Pembrokeshire, so returned to Cardiganshire. The wind and rain of Friday made it impossible to erect the mast and beam; nothing was heard on the halo, so after several QSOs they packed up. Summing up, apart from the first weekend, conditions were poor, but if people are prepared to work weak stations up to 200 miles with good sites and sufficient advance publicity no portable expedition need lack contacts *whatever the conditions.* In 46 hours 20 minutes, 128 stations (259 QSOs) were worked. 115 QSOs were wholly on c.w. (sometimes very necessary) and out of the 128 stations 57 used c.w. to raise them. Please be patient for QSLs, they will come in the end! Finally G3LAR still wants Norfolk, Brecon, Cardigan and Pembroke (!!!) and G3HWR wants Carmarthen as well! Warm congratulations to both operators for a sterling effort!

GW3MFY (Bridgend) called many DX stations in ON, PA, DL and F during the opening (August 28/September 2) but only one of them came back! This was PA0SU, and he was not worked until the Saturday. Most signals were only S4 max. ON4BZ and F9CQ were the only ones to touch S9. The amazing thing is that similar stations were S9+ in Cardiff, only 15 miles East!

GW3DFF (Mumbles) had the same frustrating effect—it always happens that way—any explanations? There must be one.

G3HRH (Welwyn) contacted many stations in G, GC, EI, F, ON, PA, DJ/DL, OZ and heard GW, GI and SM. The best DX was OZ3M, OZ4KO and OZ9OR. All this was done with 30 watt phone on a frequency in the *correct zone*, reports being S7 or better, frequently S9+. It was very noticeable during the opening that many erstwhile supporters of the Band Plan abandoned their principles in the hunt for DX. This is not necessary (witness above) and only adds QRM to other zones; above all it is unfair to operators in those other zones who do try to adhere to the Plan. It would be a great pity if DX operating "manners" were allowed to penetrate the VHF bands especially during the all too rare major openings, says G3HRH. On the other hand

R.S.G.B. V.H.F. BEACON STATION GB3VHF

The frequency of the Society's v.h.f. beacon transmitter at Wrotham Hill, Kent, when measured by the B.B.C. Frequency Checking Station, was as follows (nominal frequency 144.50 Mc/s)

Date	Time	Error
September 5, 1961	13.23 G.M.T.	170 c/s high
September 19, 1961	12.40 G.M.T.	850 c/s low
September 26, 1961	11.12 G.M.T.	480 c/s low

The station is in operation from 06.30-23.59 B.S.T. daily but may be on for the full 24 hours for test purposes from time to time.

many G and EU stations showed great ability in handling short fast QSOs, thus permitting many other stations to work the DX. But *please* if you have been listening in the queue for an EU station for several QSOs, why not tell him straightaway that you already know his QTH and equipment, thus saving him time and breath and helping more people to work more DX in less time through faster QSOs. After all openings have been known to fade out with very little warning, leaving many stations high-and-dry while patiently waiting in the queue.

G3HRH was fortunate enough to work the G3HWR/LAR/P expedition in each of the counties visited, this during the period September 3/13. Although QSOs were sometimes on c.w. both c.w. and phone signals were heard from them on each of the eight evenings when G3HRH listened. Reports varied from RS59 (September 1, Monmouth) to RST 4 3/5 9 (September 9, Cardigan). The advance publicity, intelligent use of c.w. and rapid contacts with the use of QLH and QHL, contributed largely to the success of the trip. Since January 1, 1961, G3HRH has worked 42 counties and 9 countries from the home QTH, all with 30 watts input to a 4 × 5 element Yagi aerial. Of these, 14 counties and 7 countries rank *after* June 1. GI, GM, and SM are, however, still needed, also Anglesey, Merioneth and Glamorgan for " worked all Wales." More DXpeditions please!

G5MA (Great Bookham) amplifies the quick note of last time and tells us he worked (August 27 to 30) EI2W, GI5AJ, EI2A (Co. Meath) " a tropospheric gem " phone, S3 (G5MAs S5/7) GI3FJA S7 phone both ways. G3JYP, c.w. (Westmorland) and EI2W again, another fine phone QSO. On August 31, while the majority were going " Continental mad " Bob kept pounding away to the North West and worked GM3EGW (" best phone ever ") GM6XW (solid c.w.) GI3FJA, GM3GUI (c.w.) GI3OFT (c.w.) and GM3BOC/A (Brora, Sutherland) c.w. again. Last worked four years ago during an auroral opening, now the bright star of a fine tropo constellation of QSOs. Apparently the GMs were not hearing the Continentals. When there were no more GMs and GIs to be heard, the beam was turned to the Continent and one PA, four OZs and one SM were worked. Before the opening G5MA had some fine QSOs with the GW2DTO/P expedition in the rare GW counties and some fine contacts with G3HWR/LAR/P.

G3JMA (Harlow) had a most exciting time on 2m as second operator to G3LTF/P during the Contest when 153 stations were logged, over 100 being Continentals. The sked with G3FCY (Hull) has been revived at 2030 G.M.T. Mondays, Wednesdays and Fridays.

G5MR (Hythe, Kent) had a good contact with OZ4AU (N.W. Jutland) during the night of August 31. The OZ phone was S8 and G5MR S7, both steady. G3KMP had worked this station earlier and asked him to look out for G5MR. OZ6ML was also heard but was not raised. After 12 years G5MR had thought OZ (or SM or LA) impossible by reason of very heavy screening by rising ground, but hope is now revived for the others! Conditions during the I.A.R.U. Contest were exceptionally good to S.E. and E and many enjoyable contacts were had with DL, ON, and PA. Conditions for France seemed below average except from 0830/0900 on the Sunday morning, when the Fs came in well. On September 18, conditions were extremely good to S and E and amongst new ones worked were DL2XM (G6XM) and PA0LX. Activity seemed very low, which was confirmed by the Continental contacts.

G3NBQ (Coventry) started his opening on August 28, when (between 1740/2359 G.M.T.) many Gs, PA0CML, PA0EZ, GW3LJP (59+) PA0FB, ON4TQ, PA0BN, PA0SU, PA0JEP, and PA0KPO were worked. On August 31, OZ4AU, DL6SS, DL1VK, DJ4NG, DL6QS, OZ3NH, DL1FF and a host of ONs and PAs were raised. In nearly every case the reports were S9 to S9+ phone. During mobile operation with G3KEP on September 1 many DX QSOs were made, and G3NBQ thinks that conditions were even better than that on the 31st. No SM stations were heard. Coming back to more normal things GW3LAR/P (Carmarthen), 59 both ways, GW3HWR/P (Cardigan) 57/8 both ways, and G3LAR/P (Pembroke) 59 both ways, were all very satisfactory. A new station on the band is G3PER (Rugby).

G4LXs Auroral Report for August

No reports from G stations again, and we must rely upon SM6PU. Olof reports auroral conditions on August 2, 11, 20, 26, 29, 30, and 31. Much more notice would have been taken of auroral conditions at the end of the month if these had not coincided with the very intense tropospheric opening throughout the North Sea area. Stations neglected to beam to an auroral curtain, and ignored the rougher notes in favour of T9 DX signals which abounded. Nevertheless, SM6PU worked SM3AKW, SM3BEI, SM5BIU on August 30 and heard OZ4OL.

A separate report by SM6PU on his Es and Tropo work will be found elsewhere.

Scottish News 2m.

GM3BOC/A (Brora) says his experience in the opening were not so rosy as those reported elsewhere. Starting on August 30, when conditions seemed above average, the only G heard (and not raised) was G3JYP. A few GMs were worked. On August 31 only three Gs (5MA, 5YV and again 3JYP) were heard and no continentals. The only one worked was G5MA, which was still pretty good with 10 watts to a 4 over 4 slot 12 feet high! Possibly other Gs were too busy with the Continentals to beam North. During the Contest it is believed that GM3HLH/A (Crail) worked several DLs and PAs. GM3GUI (Friokheim) worked a DL, but no EDX was heard at Brora. GMs worked were GM2FHH, 3BCD, 3FSD, 3KPD, 3LCP, 3UM, and 6XW. The most distant (GM3FSD) was a very consistent signal, and QRP!

BRITISH ISLES TWO METRE BAND PLAN

Zone	Mc/s	Area
1	144.0 -144.1	Cornwall, Devonshire, Somerset.
2	144.1 -144.25	Berkshire, Dorset, Hampshire, Wiltshire, Channel Islands.
3	144.25-144.5	Brecknockshire, Cardiganshire, Carmarthenshire, Glamorgan, Gloucestershire, Herefordshire, Monmouthshire, Pembrokeshire, Radnorshire, Worcestershire.
4	144.5 -144.7	Kent, Surrey and Sussex.
5	144.7 -145.1	Bedfordshire, Buckinghamshire, Essex, Hertfordshire, London, Middlesex.
6	145.1 -145.3	Cambridgeshire, Huntingdonshire, Leicestershire, Norfolk, Northamptonshire, Oxfordshire, Rutland, Suffolk, Warwickshire.
7	145.3 -145.5	Anglesey, Caernarvonshire, Cheshire, Denbighshire, Flintshire, Merionethshire, Montgomeryshire, Shropshire, Staffordshire.
8	145.5 -145.8	Derbyshire, Lancashire, Lincolnshire, Nottinghamshire, Yorkshire.
9	145.8 -146	All Scotland, Northern Ireland, Isle of Man, Cumberland, Co. Durham, Northumberland, Westmorland.

Overseas News

Ireland

After a long absence from 2m EI2W returned on August 24. A new shack has been constructed at an open site in the Dublin Mountains (1000 ft. above sea level).

Excellent 2m conditions prevailed in Eire during the week ending September 2, but went out just as the European VHF Contest opened. EI2W worked 169 different stations during four days of operation including ON4BZ, ON4BK, ON4CP, PA0BM, PA0MSH, PA0CML, F3LP, F2BS, F9NW, F3NG. Six new counties were worked for the first time. These included EI2AG (Louth) operating from Drogheda, Co. Armagh (GI3CDF), GM2FNF (Bute), GI5ZT/M (Co. Tyrone) Brecknock (GW3HWR/P) Denbigh (GW3FJI/P). Of the 169 stations, 48 were worked for the first time. This indicated the number of new stations on two metres since EI2W was last operative.

New Irish stations to look for are EI2A (145.950) and EI2AG (145.88). The former station is in County Meath and the latter in County Louth.

EI2W had 48 contacts during the European VHF Contest, but for the first time no GMs were heard. Reports of severe electrical storms in Scotland were thought to be responsible. The good DX conditions experienced by the Southern G stations did not cover EI during the contest. G3FZL and G5MA were excellent signals from the London area.

Sweden

SM6ANR (Gothenburg) who has always been in the Scandinavian portion of these openings, worked and heard nearly 50 Gs, also GM2FXN, GM3HLH/A. He had some trouble with the RF stages in the receiver, so coupled the aerial into the crystal mixer. Apologies to those who only got an S6 report!

SM6PU (Malsryd) was of course deeply involved with the great opening (August 31 to September 2). On September 1 early morning GB3VHF was S 6. In the evening the band was open to PA, ON, G and DL, with PA strongest. On September 2, during the Contest the opening covered GM, PA, ON and DL.

France

F3SK (Uncle) recently spent eight days at St. Nazaire with F8TD helping him to adjust his new multiband all transistor de luxe receiver. As F3SK had no mobile licence, it was necessary for his own transistorized station to operate from the QTHs of licensed friends, but "as usual " the propagation was quite poor. The results were interesting however:

August 7/17 from G8TD (St. Nazaire) with 4 element Yagi.

F3AC (Nantes 50 km).

F80D (St, Jean de Monts Atlantic Coast 55 km) phone and c.w.

F3LS (Prefaibles, 17 km) phone S9.

August 21 from F8MX/A St. Valery with 4 over 4 stacked yagis).

G6OX (Englefield Green, Surrey about 200 km) c.w. and phone on peaks.

G6NB (Brill).

August 22 (weather slightly better).

G6OX c.w. and phone, G6NB (same).

G6ZP (Malvern, 330 km) c.w.

F3SK is very pleased to have made the first all transistor QSO from France to England, and looks forward to making a complete one with a British transistor station. The power delivered to the transmitter was 100 mW. It would be able to deliver 220 mW on c.w. or f.m. F3SKs Bilbao friends wrote that whilst working /P at Archanda, a hill 900 ft. high near Bilbao they were heard by EA4URE near Madrid. They are also working /P at the top of Monte Solubo, 2400 ft. near Bilbao.

Denmark

OZ5MK (Lyngby, Denmark) only had one QSO during the opening of August 31 (which he calls " fabulous"). This was with PA0EZ on c.w. as the modulator was u.s. on that of all occasions! When G5YV was first heard coming in at an ample S9, a leg pull was at first suspected, but the unmistakably British accent soon cleared that! Many other British stations were heard, not all S9, this probably because their beams were " side-on " whilst working PA stations.

Holland

PA0FB (The Hague), has been trying a Perseid sked with OH1NL, however without success. A special licence from the Dutch P and T Dept. (500w) will also enable skeds during the coming Germinids (December 13, 14). PA0FB sends congratulations to those responsible for bringing into being GB3VHF which, he says, is a splendid station. Having made many experiments in reception of v.h.f. television PA0FB will shortly have a " backfire " beam with a gain of 16 db, which might possibly be applied to amateur radio. With regard to the RTTY QSOs recently made by PA0FB, it was necessary to use AFSK (Audio frequency shift keying), which meant rather a lot of adjustment for the right tone frequencies—fresh for every QSO! The report of a PA calling an EA appears to be misplaced " fun," as the same station also " worked " OE and CT as well as EA. He should grow up!

Cyprus

We have received a cable from Cyprus ARA as follows: " Unconfirmed report Cyprus ARA operating 144.175 Mc/s call-sign ZC4PW/ZC4JB stop Signals received by VS5GS R5 S7 SM5MO R5S8 L1KDB R5 S1. Further information to follow when report confirmed " (From Pat West, ZC4PW/G3CZY).

We are awaiting the promised information with great interest.

I.A.R.U. Region I V.H.F. Contest, September 2-3, 1961. Claimed scores by G, GW and GM stations. (These scores are subject to scrutiny.)

Sect. I	(2m Fixed)	Sect. II	(2m Portable/ Mobile).
G3BBR/A	31228	G3LTF/P	47407
G3FIJ	10283	G2DTO/P	23362
G5TN	10129	G2HIF/P	21369
G5DW	8962	G3EFX/P	20027
G6GN	8639	G3FD/P	17308
G2AXI	6908	G3EMU/P	14485
G5MR	6443	G3FRV/P	14421
G3LTN	5639	G3MDH/P	11820
G3OSA	3035	G3OBD/P	10905
G3AS	2976	G3LCH/P	10258
G2DHV	2281	G3OXD/P	7524
		G3LJB/P	5170
GW Sect. II		GM Sect. I	
GW3KMT/P	16467	GM3GUI	3333
GW3FJI/P	11908		

Section II

EI9AK/M (G5ZT operating under special licence in Eire) 11942.

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70 cms.

G3NOX/T was well in on the opening of August 31-September 1, and worked ONs, PAs, F9CQ, SM7BAE and many Gs some of whom were DX and which included G3LGJ (a TV contact). SM6ANR was heard on c.w. Jeremy is quite certain that as things were SM7BAE could have taken the pictures had he been equipped for TV. The opening was the best ever experienced on VHF/UHF at G3NOX/T and all stations worked were S9 phone signals. The equipment used at G3NOX/T for these contacts was a 4 x 250B running at 150w and a 64 element stack. The receiver a new c.c. converter just completed to the G3BKQ design with an A2521 r.f. stage. Many f.m. stations and Band 4 German TV were received by G3GDR during the opening. G3NOX/T during his QSO with F9CQ was asked to pass the news that during 2107/2345 on August 31. F9CQ worked G3GDR, G3JMA, G3LQR/T, G8RW, G3LVO, G3LTF, G2XV, G2FNW, and G3NOX/T. SM6ANR (Gothenburg) had a good time on 70 cm, August 31, working G2FNW, G3LTF, G3GDR, G3LQR/T, G3JHM/A, G3JMA and G6HF. Another G and F station were heard.

G3LHA (Coventry) started working DX on August 28 including G3NNG, G2XV, G3LQR/T and G3JMA, all good strong signals. On August 31, ON4HN, ON4ZK and ON4HC were all worked at reasonable to strong, with DL3FR, F9CQ, SM6ANR and ON4LN heard. September 1 was the peak and F8MX (59+) DL3FR (?) PA0WAR, SM7BAE (59+) and G3NOX/T (blocking receiver) were worked. G3LHA used 100w to a QQVO6/4OA. Aerial 8 over 8 Yagi at 34 ft. G3BKQ converter. Frequencies 433.38 Mc/s, but also 434.9. Other stations heard during the opening were G3LQR/T, G3FP, G3NNG, G3JHM/A, G3NOX/T, G3JWQ, G3LTF, G6NF, G2FNW, G6XA, G3HBW. SM7BAE worked G3NNG (Harwell) as his best DX and what with this and the QSO w between SM6ANR and G3JHM/A, it looks as though the world record has been bettered again!

G3OSA (Winborne) had a 70 cm. station working during the contest, and worked G3FP and G2XV on September 1, before it started. Many stations were heard during that afternoon, including ON, but during the contest only F3LP was logged.

G3LQR/T (Dedham, Colchester) worked G3LGJ, PA0WAR, ON4HN, G3EYV, G3IUJ, ON4ZK, ON4LN, F9CQ, SM6ANR, SM7BAE, G3JWQ, F3LP, F8AA, 8MX/A, ON4HC, G3EGV, DJ1EY/P, PA0NL, with 3DJ/DLs and G3NNG, G3JHM/A heard, all between August 28 and September 3. The total is now six countries and 16 counties. The 2m third harmonic of PA0LOD/A was heard R5S6 during the contest, which must be nearly a record!

G3LTF (Galleywood) started on August 21 with G4AC (Suffolk) and G6GN (Bristol) on the 26th for a new county. On this day G3LTF was heard by F8MX/A who had no transmitter available at that time. On August 31, SM6ANR, PA0WAR, F9CQ (Paris), ON4HC, ON4ZK and ON4HN were worked, all S9+. September 1 brought DL3YBA, and DJ2YF bringing the countries up to six this year. F3LP was also worked, and the ONs were very strong.

G3HWR (Hampstead) is on with ½ watt output (QQVO2/6 tripler), the PA being under construction. An A2521 RF amplifier precedes the receiver. The aerial is a G5DT seven over seven slot fed. There have already been contacts with nine stations.

G3JMA (Harlow) worked SM6ANR also PA0WAR, ON4HN, ON4LN, ON4HC, ON4ZK. F9CQ (Paris), was just like a local. GW3ATM, was also worked making five new countries on 70 cms. during the opening. G3GZM was the 23rd county. Dorset (G3OSA) and Lincs. (G3CCH) were heard but not worked. F8MX/A was heard, but then went QRT.

G5MR (Hythe, Kent) is now fortunate in having two semi-locals, F8AA and G3KMP, with whom to make tests. F8AA is anxious to make more G contacts. His frequency—434.480 Mc/s. F8GH and F8MX/A have been other recent G5MR QSOs.

Four Metres

A1657 (Gomersal) has heard the following stations recently, G3EHY, G5JU, G3LZN, G3KEU, G3NDF, G3GNN, G3LSA, G5PW and G8BL. The lecture of September 27 at Leeds Radio Society and the earlier one at Bradford by G3OGV seems to have done quite a bit to stimulate 4m interest in the area. G2XK (Harrogate) is a new one who seems to be having success on the band.

Worked and Heard on Two

Two Metres

G3HWR/P-G3LAR/P, Expedition to Wales.

Stations Worked Only.

GW3LAR/P *(Monmouth) September 1. 2hrs. 20 mins.*
DL6SV, G2AHL, 2AOX, 2BDX, 2DZH, 3JR, 3BLP, 3BNE, 3FRF, 3HRH, 3IIR, 3JAM, 3JEQ, 3JLH, 3JYT, 3MCS, 3NNK, 3NWG, 3NZP, 3OSA, 3OSS, 6GN, 6XJ, 8DR, 8GP, 8SK, PA0COB.

GW3HWR/P *(Brecon) September 2-3. 16 hours.*
EI2A, EI2W, E9AK/M, G2RD, 2AIW, 2AXI, 2BHN, 2CIW, 2DTO/P, 2HIF/P, 3FD/P, 3HS, 3JR, 3AYC, 3BBR/A, 3BGR, 3BLP, 3BNE, 3BRE, 3CZZ/M, 3DKF, 3EFX/P, 3EHY, 3FRV/P, 3GIM, 3GWL, 3HRH, 3HZJ, 3ICO, 3JHM/A, 3JLH, 3JYT, 3KBS/P, 3KDG, 3KZU, 3LCH/P, 3LLS, 3LTN, 3LZN, 3MDH/P, 3MPS, 3MTI/M, 3NAE, 3NGS, 3OBB, 3OBD, 3OBD/P, 3OSA, 3OSS, 3OXD/P, 3PBV, 5DS, 5DW, 5HU, 5MA, 5TN, 6FK, 6GN, 6XJ, 6ZP, 8GP, 8VZ, GW3ATM, 3FJI/P, 3LJP, 3MFY, 8UH.

GW3LAR/P *(Carmarthen) September 4, and 7-8. 8 hrs. 20 mins.*
G2CIW, 3JR, 3BRE, 3BYY, 3DKF, 3EJO, 3FZL, 3GHO, 3GVA, 3GWL, 3HBW, 3HRH, 3JMA, 3KPT, 3LBA, 3LTF, 3LTN, 3MPS, 3NBQ, 3NGS, 3NNG, 3OBD, 3OJY, 4AU, 4LU, 4PS, 5DF, 5LB, 5LK, 5MA, 5TN, 6OX, 8GP, 8VZ, GW3ATM, 3LJP, 3MFY, 8SU.

GW3HWR/P *(Glamorgan) September 5. 2 hrs. 20 mins.*
G3HBW, 3LTF, 3NNG, 4DC, 5MA, 8VZ, GW3ATM, 3HAW, 3MFY.

GW3HWR/P *(Cardigan) September 9-11. 10 hrs. 40 mins.*
G2RD, 2CIW, 3BA, 3JR, 3BLP, 3BRE, 3DKF, 3EJO, 3FZL, 3GVA, 3GWL, 3HBW, 3HRH, 3JLH, 3JWQ, 3KEQ, 3KPT, 3KZU, 3LTN, 3NAE, 3NAQ, 3NBQ, 3NGS, 3NNG, 3NOH, 3OBB, 3OBD, 3OJY, 3PFM, 4AU, 4LU, 5DW, 5MA, 5TN, 5ZT, 6NF, 8GP, 8VZ, GW3ATM, 3IGY, 3LJP, 3LTF/P, 3MFY.

GW3LAR/P *(Pembroke). September 13-14. 6 hrs. 40 mins.*
G2AXI, 3BA, 3JR, 3BLP, 3BNE, 3CCH, 3DKF, 3EJO, 3ENY, 3FZL/A, 3GIQ, 3HBW, 3HRH, 3IIR, 3JDN, 3JHM/A, 3JLH, 3JMA, 3JWQ, 3KEQ, 3KPT, 3KZU, 3LHA, 3LTN, 3MDM, 3MPS, 3NAE, 3NBQ, 3NNG, 3OBB, 3OSS, 4AU, 5HZ, 5MA, 5ML, 5TN, 6NF, 6XA, 8GP, 8VZ, GW3MFY, 8NP.

SM6PU (Malsryd) August 31-September 3.
Worked: DJ1HH, 1KN/P, 2VE, 3HV/A, DL6QS, G2MV, 3CCH, 3FZL, 3LTF, 3OTJ, 3HBW, 3LRP, 3AQX, 3GHO, 3DKE, 3HS, 3IIR, 3BYY, 3GDR, 3MCG, 3INU, 3JYT, 3KMP, 6NB, 6OX, 6RH, GM3HLH/A, ON4BZ, PA0BU, 0FE, 0YY, 0EO, 0ME, 0LH, 0EZ, 0SS, 0LP, 0FA, 0YZ/A, 0AND, 0ANG, 0JEP, 0JMT, 0CMH, 0CML, 0MAI, 0FHB, 0YVS.
Heard: DJ1HO, 1DO, 2XW, 4KO, DL1FF, 31Y, 3YBA, DM2BGB, GB3VHF, 2XV, ?XL, 3KEQ, 3MCS, 3JWQ, 3MNQ, 3HRP, 3AG?, 3KXK, 30PW, 3JMA, 3AY?, 3HH?, 3NBQ, 3IIT, 3LTN, 3EMU, 3BR, 3FIG, 3ITF, 5MA, 5YV, 6R, 6LI, 6NF, ON4CP, 4TQ?, PA0DH, 0VH, 0SOB, 0HKG, 0WIL, 0ITS, 0FOK, 0GE/A, 0MCH, 0KH, 0JVS, 0MCG, 0MCD.

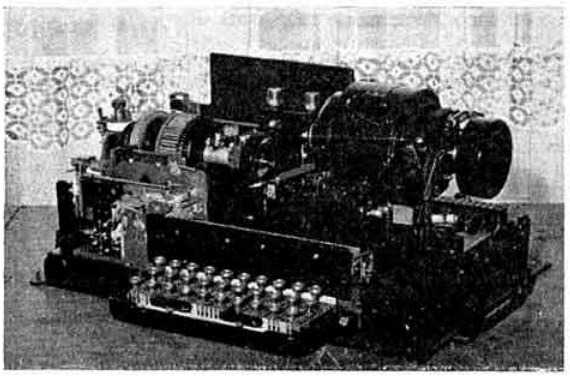
G2HIY/M (GW2HIY) Near Louth, Lincs.
Worked: August 20: G3BML, 3MNQ/M.
" 21: G3JXF, 3OUT/A.
" 26: G3JXF, 3OTJ, 3OUT/A.
" 27: G2HOP.
" 28: G3BA, 3AQX, 3ARX, 3JHM/A, 3LRP, PA0CML.
" 29: G3CCH, 3OUT/A.
" 31: F2KD (Orly), DJ6UE, DL3NI, 6YL, G3FJR, 3MUR/M, ON4PE, OZ2PV, PA0HAR, 0RLS.
September 1: DL1CK, 6NX, PA0ZR/M, PA0AKD, G3DMK, PA0TNR.
" 2: G2CVV, 3BCP, 3JWQ, 3EFX/P, 3MNQ, 3OTJ, 3OUT/A, 4JJ, 5YV, 8VZ, PA0YZ/A.

RTTY

A Quarterly Review of Amateur Radio Teleprinting News and Views

By Dr. ARTHUR C. GEE (G2UK)*

WHEN the G.P.O. authorized the use of RTTY in 1959, it was intimated they would review the question of its continuation at a later date, after they had had more experience of how this facility worked out. It is very gratifying therefore, to be able to announce that a further communication has recently been received from them to the effect that they now consider, "that there is no reason why the Amateur (Sound) Licence should not be quite explicit as regards RTTY" and they therefore propose amplifying the licence accordingly. Briefly this will permit the use of RTTY in any band except Top Band, and requires that the International Telegraphic Code No. 2 shall be used with transmission speeds of 45.5 or 50 bands. These conditions will be incorporated in the next reprint of the licence. Meanwhile, individual authorization will be granted to amateurs who apply for RTTY facilities. This is a most happy conclusion to negotiations which have been going on about RTTY facilities in the U.K. and everyone will be delighted at their outcome.



The Type 3 tape teleprinter is used by many of the active RTTY stations in the United Kingdom.

(Photo by G3NPF)

Questions are often asked as to how amateur RTTY transmissions can be identified. The amateur RTTY operator has to sign his call in c.w. before and after each period of transmission in a QSO, so his signals can be readily distinguished from the many commercial ones which are to be found in the amateur bands these days. The other most frequent question is, "Where can I get a teleprinter and what type should I get?" There are two types of teleprinter commonly used by the amateur in this country, viz., the various models of the Type 3 or the Type 7 Creed machines. The Type 3 is a tape printer, i.e., it prints the message on paper tape or "slip" which comes out of the machine in a continuous strip. The Type 7 is a page printer, i.e., the printing being like that in a typewriter. The latter machine needs to be supplied with two additional signals to the Type 3. A signal must be sent at the end of each line of printing to return the typewriter-like carriage back to the beginning of the next line and another to feed on the paper for the next line of type. These signals are sent by depressing appropriate keys on the keyboard. For use on v.h.f. where conditions are more likely to be QRM free, this does not present much of a problem, but on the normal amateur bands with their QRM and QSB, this does present a bit of a snag as if the carriage return or line feed signals get lost, the print gets overprinted or piles up at the end of the line. With the tape printer, anything lost by QRM or QSB, simply appears as a few misprints or blank spaces which are rarely sufficient to spoil the sense of the message. It is no doubt very much a matter of personal preference which machine one chooses. The writer's preference is for the Type 3, for the above reasons and also because it is smaller and more convenient in size than the Type 7. And where to get them? B.A.R.T.G. does not hold a stock! One must watch the advertisements and the surplus dealers stores. They are about, but now that RTTY is catching on, they are becoming more and more difficult to find—and the price is going up!

* *Honorary Secretary, British Amateur Radio Teleprinting Group.*

RTTY News

And now for the news. Since the first review, several more "firsts" have been recorded. G3IIR made the first two metre RTTY QSO with PA0FB during the very good two metre conditions at the beginning of September. G3MCS and G3KMD also made two metre RTTY QSOs with PA0FB after G3IIR's "first." G2UK worked DL6AW in Brunswick on 80, for the latter's first G contact. From PA0FB we learn that DL3VJ, DL5DJ, DL6VH, DL6AW and DL4KW are all active, and that his two metre RTTY signals have also been copied in Germany. From Hans Horn, DL1GP, we learn that he has worked LA6J for the first LA/DL RTTY QSO. LA5LG is also active on RTTY. DM3KG in East Berlin is on RTTY. He is the first DM station on RTTY and has worked DL6AW. OZ5EL and OZ9DR are on RTTY, having been supplied with Lorenz Tape Printers by DL1GP. Back home again, G3IVP and G3HKT have joined the 80 metre gang, GM8FM has been copying K3GIF's RTTY News Bulletin nicely and G3LGP and G3FXI in the Southport area are now chasing the last snags out of their gear before making an appearance on 80. 5A3TY writes in to record his interest in this feature and ZE4JN to say that he has been granted the first RTTY authorisation in S. Rhodesia and once he can find a T/P will be on the air. So—things are certainly on the move! CUAGN January.

Type 7 page printer, one of the Creed machines used for Amateur RTTY.

(Photo by G3NPF)

Society News

Headquarters Fund List No. 1

THE following is a list of those who had contributed to the Headquarters Fund up to September 30, 1961:

L. E. Newnham (G6NZ), G. N. Harvey (B.R.S.23228), A. P. Newport (G3ECX), A. M. Gurney (G3KUQ), L. J. Ralli (G4AJ), A. J. Peck (G5PK), J. L. McVennon (G3PBJ), R. J. Rogers (G3LIA), P. W. Feesey (B.R.S.10068), W. Scott (B.R.S.10116), E. A. Lomax (B.R.S.1579), H. H. Lassman (G2PX), F. C. Mason (G4QU), J. Lees (G2IO), W. H. Eccles (President 1923-24), C. R. Green (G5LN), A. W. Fawcett (G2HQ), J. W. Heffernan (G4BX), R. A. Kingstone (B.R.S.23306), R. E. Griffin (G5UH), H. G. Hughes (GW4CG), A. M. Smith (G3IAS), C. J. M. Wozencroft (GW3GIN), A. E. Seymour (G3GNS), W. J. Wills (G3JWX), C. W. Strong (G2BLZ), J. J. Maling (G5JL), F. G. Sadler (G3UZ), D. F. J. C. Rowan (B.R.S.4798), D. F. Davies (G3RQ), J. Guttridge (G3JQS), C. W. Davidson (GM3LAV), Miss N. Corry (G2YL), G. D. Roberts (B.R.S.7572), L. G. Spencer (G4LX), J. S. Goundrill (B.R.S.22762), A. D. Stenning (G4JA), G. G. P. Holden (G2HIX), W. D. Clague (G2BSA), F. H. Laverty (B.R.S.23419), N. Caws (G3BVG), W. D. Horniman (G2WH), H. T. Brock (G3FD), J. A. Brighting (B.R.S.22931), R. M. Strickland (G8KB), C. A. Simmons (G3SV), Rev. G. W. D. Spurrell (B.R.S.5205), C. W. Matheson (G8IM), H. Cole (G30HK), Major-General E. S. Cole (G2EC), C. A. Hogg (G3NRZ), Horace Freeman (Hon. Vice-President), L. M. Arrowsmith (B.R.S.19480), S. L. Hill (G8KS), D. G. Wright (B.R.S.5806), J. R. Toothill (B.R.S.20543), S. A. G. Cook (G5XB), Rev. F. Ness (GD3ESV), F. H. Spencer (G4AH), J. E. Coote (B.R.S.19151), W. T. Clegg (G3EFK), S. Meadowcroft (G2FPM), D. B. Drage (G2BNI), G. I. Turner (G3GDN), J. Dee (ex-G3BJE), R. E. Johnson (A.2769), R. W. P. Wilson (G3DSV), A. A. H. Moss (G8VF), J. Carey (A.2913), P. Miller (A.2830), G. A. Hunter (A.2872), M. Box (A.1795), J. W. Dunn (B.R.S.23239), H. Bollands (G5DW), J. G. Treece (G3QD), J. V. Bebbington (A.2633), W. J. Miller (GM5VG), P. Lattey (A.1897), A. G. Walker (GM3IQS), Miss K. Bell (B.R.S.22375), A. G. Ball (B.R.S.21565), N. S. Beckett (G3MWP), I. A. Dransfield (A.2719), N. J. Dransfield (A.2718), D. J. Taylor (A.2763), H. V. Custance (B.R.S.23348), R. Reynolds (G3IDW), F. H. Chambers (G2FYT), R. A. Yardley (B.R.S.23154), J. E. and J. Hodgkins (G3EJF and G3JZP), L. N. Goldsbrough (G3ERB), J. H. G. Allsop (G3OGX), R. C. Taylor (G2HCJ), J. W. Baker (G2SB), C. R. Maltby (G2HLB), W. E. Jones (B.R.S.17066), F. D. Cawley (G2GM), I. Gillespie (A.2521), R. V. E. Walsh (GI4RY), P. A. Singleton (B.R.S.22997), G. A. S. Lander (DJ0BF), J. E. Barton (B.R.S.22934), I. L. Hampton (G3JLH), G. Brown (B.R.S.22807), Lt. P. J. Patrick (B.R.S.23163), Lt.-Col. A. W. Lister (G5LG), J. R. Gazeley (B.R.S.20533), W. A. Whitehouse (B.R.S.7238), G. A. Shalet (A.2582), R. J. Wells (A.2768), S. Levings (G3AO), L. Bodman (B.R.S.22865), D. Crowley (A.2082), H. Chinnery (B.R.S.12954), W. E. Hazlehurst (G3OBE), R. Uphill (G2HKW), E. T. Carter (G4IV), R. J. Buckstone (G5JR), Miss B. Dunn (G6YL).

Total amount contributed up to September 30, 1961: **£321 9s. 10d.**

The Amateur Radio Handbook

ENCLOSED in each copy of this issue of the R.S.G.B. BULLETIN, *addressed to members*, is a voucher for the purchase of a copy of the third edition of *The Amateur Radio Handbook* at the special pre-publication price of 28/- (plus 2/- part postage and packing).

It is anticipated that the *Handbook* will be published in time for it to be on sale at the Radio Hobbies Exhibition in November, but a more exact date will be given in the November issue and in R.S.G.B. News Bulletins.

The retail price of the *Handbook* has been fixed at 34/- (plus 2/6 postage and packing) but orders from members received up to the closing date of the special offer, namely, Saturday, November 25, 1961, will be dealt with first. The initial printing order for the third edition is for 5,000 copies.

Radio Hobbies Exhibition

MR. H. LOOMIS, Director of the Voice of America programmes, will open the 1961 R.S.G.B. Radio Hobbies Exhibition on Wednesday, November 22, 1961. The Exhibition is to be held in the Old Hall of the Royal Horticultural Society, Vincent Square, London, S.W.1, from November 22 to November 25, 1961.

London Lecture Meeting
Friday, October 27, 1961

"Multiband Aerials Systems"

By G. A. Bird, Assoc. Brit.I.R.E., F.Inst.P.I. (G4ZU)

The lecturer will discuss such systems as the W3DZZ, Minibeam, Quad, Birdcage, G5RV and an entirely new type of ferrite loaded wire array for 10-80 metres.

Institution of Electrical Engineers, Savoy Place, Victoria Embankment

Buffet Tea 6 p.m. (Free.) **Lecture 6.30 p.m.**

Society Trophies and Premiums

THE Council has made the following awards for 1961:

ROTAB Trophy: Mr. D. Courtier-Dutton (G3FPQ) in recognition of his consistent DX work over a period of many years.

Courtenay Price Trophy: Mr. J. Plowman (G3AST) for his contributions to the development of slow scan amateur television systems.

Founder's Trophy: Dr. R. L. Smith-Rose for his distinguished services to the Society.

Calcutta Key: to Mr. T. A. St. Johnston (G6UT) for outstanding services to the cause of international friendship through the medium of Amateur Radio.

* * *

Acting on the advice of the Technical Committee the Council has made the following further awards for 1961:

Norman Keith Adams Prize: to Mr. F. C. Judd (G2BCX) for his article "Ground Plane Propagation at 1·8 Mc/s." (December 1960 BULLETIN).

Bevan Swift Memorial Prize: to Mr. J. Gazeley (B.R.S. 20533) for his article "A High Gain Low Noise Crystal Controlled Transistorized Converter for 144 Mc/s." (April 1961 BULLETIN).

Ostermeyer Trophy: Mr. G. R. B. Thornley (G2DAF) for his article "The G2DAF Communications Receiver" (March and April 1961 BULLETIN).

The Varney Trophy and the Wortley Talbot Trophy have not been awarded for the current year.

Maitland Trophy

THE Council has awarded the Maitland Trophy to Mr. W. Robertson (GM6RI) who was the Scottish contestant with the highest aggregate score in the Second 1·8 Mc/s Contest 1960 and the First 1·8 Mc/s Contest 1961.

How to Become a Radio Amateur

A REVISED edition of the G.P.O. pamphlet *How to Become a Radio Amateur* has recently been printed. Paragraph 6 of the earlier printing has been amended to take care of the position that as from 1962 the City and Guilds of London Institute will conduct two Radio Amateurs' Examinations each year—one in the spring and the other in the autumn.

Appendix E has been modified so that in future an applicant for an Amateur (Sound) or Amateur (Television)

Licence will be required to state which amateur bands he intends to work on with a crystal controlled transmitter and those which he will work on with a transmitter which is not crystal controlled. Applicants will also be required to give details of the frequency measuring equipment they intend to use, viz. Maker's Name and Type; Description of Meter (e.g. heterodyne, absorption, cavity resonator, slotted line, etc.), Crystal Frequency or Frequencies, Calibrated Frequency Range(s). Failure to give complete details of the equipment to be used may delay the application.

Instructors who are preparing candidates for the R.A.E. are asked to note the foregoing amendments and revisions.

More Pirates Fined

ON August 30, 1961, at Wolverhampton County Borough Juvenile Court two 14-year-old youths each pleaded guilty to a charge of using wireless telegraphy apparatus without a licence. One was fined £5 and ordered to pay £2 2s. costs while the other was fined £8 and ordered to pay £2 2s. costs. In each case the apparatus was forfeited to the P.M.G.

These prosecutions followed one day after the successful prosecution of three Wolverhampton youths for similar offences reported upon in last month's issue.

Stamford Rallyfest

THE Stamford Rallyfest was held at Burghley Park, near Stamford, on August 27, 1961 and was attended by about 70 mobiles, most equipped for Top Band operation. The four talk-in stations, G3FUR and G3KWC/P on 160m and G2HOP and G3HES/P on 2m, had a busy time, many of the mobiles calling both Stamford and Buxton control stations, those on 2m being particularly grateful for the extra QSOs. The prize for the longest distance worked on 160m was awarded to G4JW/M at a distance of 66 miles; G3JXF, with a 40 mile contact, won the 2m prize.

G3GWR received certificates for the safest mobile installation, the best l.f. band rig and for the concours d'elegance. The prizes were presented by the Marquis and Marchioness of Exeter, both of whom showed much interest in the mobile stations present.

Nearly 20 entrants took part in the Treasure Hunt which was won by G3JXF with a loss of only 40 points. One radio clue was given on c.w. at a timed 12 w.p.m. Other attractions included cheese and wine tasting and a make-up demonstration by a representative of the Beauty Councillors of Great Britain.

Among those present were Council Members R. C. Hills (G3HRH), F. K. Parker (G3FUR), G. M. C. Stone (G3FZL) and E. W. Yeomanson (G3IIR).

South Manchester and Stockport Amateur Radio Rally

MORE than 330 visitors in 130 cars took part in the South Manchester and Stockport Rally on August 27, 1961, in perfect weather. Of the total, 46 vehicles were equipped for Top Band and two for 144 Mc/s.

The main competition comprised an exercise in mobile working, calling for a number of contacts with the control station whilst competitors were following a prescribed route between Stockport and Buxton. The winner was G3GJV/M, of Batley and the runner-up G3JCT/M of Bishopthorpe, Yorks. A treasure-hunt over the same route was won by G3LSL, followed by J. Gunson of Marple, Cheshire, in second place. The prizes were presented by F. C. Ward (G2CVV), R.S.G.B. Region 4 Representative.

Publicity for the rally was given by both the B.B.C. and Granada Television.

Second 1·8 Mc/s Contest, 1961

THE rules for this event are the same as for last year.

When: 22.00 G.M.T. on Saturday, November 11, to 08.00 G.M.T. on Sunday, November 12, 1961.

Eligible Entrants: All fully paid-up Corporate members of the R.S.G.B. resident in G, GC, GD, GI, GM and GW.

Contacts: C.w. (A1) only in the 1·8 Mc/s band.

Scoring: Contacts with stations in the British Isles (G, GC, GD, GI, GM and GW) will score one point only: contacts with stations outside the British Isles will score *three* points.

Contest Exchanges: RST reports followed by the contact number starting with 001. All reports must be acknowledged with " R."

Logs: (*a*) Must be tabulated in columns headed (in this order): " Date/Time G.M.T.," " Call-sign of station worked," " My report on his signals and serial number sent." " His report on my signals and serial number received," " Points Claimed."

(*b*) The cover sheet must be made out in accordance with R.S.G.B. Contests Rule 5. The declaration must be signed.

(*c*) Entries must be postmarked not later than November 27, 1961.

Power Input: The power input to the final stage or any preceding stage of the transmitter must not exceed 10 watts.

Awards: At the discretion of the Council, the **Victor Desmond Trophy** will be awarded to the winning station and **certificates of merit** to the stations placed second and third. In addition, the **Maitland Trophy** will be awarded to the Scottish member with the highest aggregate number of points in this contest combined with the First 1·8 Mc/s Contest 1962. A certificate of merit will also be awarded to the non-transmitting member submitting the best check log.

The General Rules for R.S.G.B. Contests apply to this contest.

CQ World Wide DX Contest 1961

THE following is a résumé of the rules for this year's World Wide DX contest arranged by *CQ Magazine*.

Period: phone section; 02.00 G.M.T. October 28 to 02.00 G.M.T. October 30. **c.w. section;** 02.00 G.M.T. November 25 to 02.00 G.M.T. November 27.

Bands to be used: 1.8 to 28 Mc/s.

Type of competition: 1. **Phone Section.** (a) Single operator; (b) Multi-operator single transmitter; (c) Multi-operator multi-transmitter. 2. **C.w. Section.** (a), (b) and (c) as for Phone Section. 3. Inter-Club (DX Clubs affiliated to a national body).

Serial numbers: Phone stations will exchange serial numbers consisting of 4 numerals, the first 2 being the RS report and the last 2 their own Zone number. C.w. stations will exchange serial numbers consisting of 5 numerals, the first 3 being the RST report and the last 2 their own Zone number. Stations in Zones 1 to 9 will prefix their Zone number with 0.

Points: Contacts between stations on different continents will count 3 points. Contacts between stations on the same continent but not in the same country will count 1 point. Contacts between stations in the same country will be permitted for the purpose of obtaining a Zone and/or Country multiplier but no QSO points can be claimed. Only one contact with the same station is permitted per band. A multiplier of 1 for each Zone contacted on each band and a multiplier of 1 for each country worked on each band.

Scoring: The score of each single band is the sum of the Zone and country multipliers for that band, multiplied by the total contact points on that band. The total all band score is the sum of the Zone and country multipliers of all bands multiplied by the sum of the contact points on all bands.

Those sending in logs for a single band are eligible for a single band award only. If a log is sent in for more than one band, indicate which band is to be judged otherwise it will be judged as an all band entry. Single operator contestants must show a minimum of 12 hours operating time to be eligible for an award. If a contestant operates more than one band and wishes to be judged for a specific single band he must show a minimum of 12 hours on that band. Multi-operator stations must show a minimum of 24 hours of operating time to be eligible for an award, and will be judged only on the basis of an all band score.

The log forms and report forms follow the pattern of previous years. Zone numbers and countries should be filled in on only the first occasion of a contact. All times to be in G.M.T. All logs must be postmarked not later than **December 1, 1961,** for the **phone** section and **January, 15 1962,** for the **c.w.** section, and should be sent to CQ, West 300, 43rd Street, New York, 36, N.Y. U.S.A. (Att: Contest Committee).

Longleat Mobile Rally

THE winners of the DX Balloon Race organised at the Longleat Mobile Rally were: 1st, L. Hart, 46 Byron Road, St. Marks, Cheltenham Glos. (found at Burnham-on-Crouch, Essex); 2nd, T. E. Clark, 68, Abbey Road, Malmesbury, Wilts. (found at Lewisham, London, S.E.13); 3rd, P. Austin, 20 Worcester Close, Reading, Berks. (found at Holborn, London, W.C.1).

Single Sideband

By G. R. B. THORNLEY (G2DAF)*

THE three basic methods of power amplifier operation—class A, B and C—were considered in detail last month. A single sideband signal driving the power amplifier is varying in amplitude in sympathy with the modulator voice input. The p.a. is required to amplify this signal without change—in a linear manner. When a valve is operated in class A the degree of linearity is quite high but the efficiency is low—of the order of 25 to 30 per cent. By operating class AB1 the principal advantages of class A operation are retained while the efficiency is raised to between 55 and 65 per cent.

If operation is further advanced into the class AB2 region, the efficiency is improved only slightly, but any gain in this direction is more than offset by the more stringent requirements imposed upon the driver stage brought about by variation in driver loading as the amplifier is driven into the positive region. This can, and often does, result in a compression of the modulation peaks and non-linearity unless the driver is capable of providing the increased loading. Usually, in order to maintain driver regulation in class AB2 linear amplifier operation, a relatively large percentage of the driver output is dissipated in a swamping resistor so that when the grid is driven positive the relative increase in driver loading is small. After careful consideration of these factors one finds that class AB1 operation has much to offer.

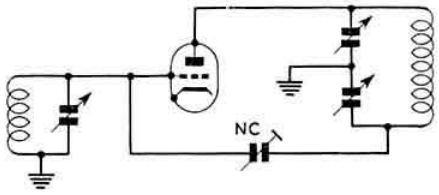


Fig. 1. Grid driven anode neutralized amplifier.

Operating Methods

There are four basic methods of operating a linear amplifier as follows:

(i) Grid driven—anode neutralized; (ii) Grid driven—grid neutralized; (iii) Cathode driven—grounded grid; (iv) Grid driven—passive grid. These basic circuits are shown in Figs 1, 2, 3 and 4 and in each circuit configuration the valve can be either a triode or a tetrode.

At this stage it might be advisable to consider what exactly is meant by the term "linear amplifier." To the high fidelity music lover a linear amplifier is intended to give superb quality with the lowest level of distortion. To the single sideband operator a linear amplifier can be added to an existing exciter and will give a more powerful signal without impairing the speech quality. In fact the hi-fi enthusiast and the sideband operator when they talk about a linear amplifier are in fact talking about the same thing. In theory, a good hi-fi linear amplifier can be turned into a good low distortion sideband amplifier by replacing the audio input and output transformer by r.f. tank circuits. In addition, because the flywheel effect of the tuned circuits puts back the missing half cycle it is not even necessary to use two valves in push-pull. Finally, the operating parameters of anode, screen and grid supply voltages, anode load resistance, grid driving voltage and power output, supplied by the valve manufacturer for audio operation, apply equally for single sideband r.f. service. An example of this is given in Table 1 for the valve type 811A.

* *5 Janice Drive, Fulwood, Preston, Lancashire.*

TABLE 1

811A Operating Data

	Class B Audio Service (Two valves)	Class B R.F. Service (S.S.B.) (One valve)	
		Grid Driven	Grounded Grid
Anode Voltage	1250	1250	1250
Grid Bias	0	0	0
Peak Grid Voltage	175	88	88
Zero Sig. Anode Current	54	27	27
Max. Sig. Anode Current	350	175	175
Load Resistance (ohms)	9200	4600	4600
Max. Sig. Grid Current*	26	13	13
Power Output (watts)	310†	155†	141‡

*Varies from valve to valve. †Computed power output. ‡Measured including circuit loss.

The operating parameters of a class B amplifier stage remain the same regardless of whether the value functions in audio or r.f. service. Grounded grid operation is similar, except that the exciter must supply additional feed through power. Since class B audio service requires two valves, all currents and anode load resistance must be halved for single valve r.f. service. Class B audio data is readily available for most valves and can be used for r.f. service as shown above.

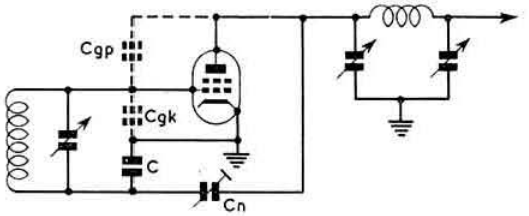


Fig. 2. Grid driven grid neutralized amplifier. For neutralization, $C_{ga}/C_{gk} = C_n/C$. C may be any convenient value between 250 and 500pF.

Is Linearity Necessary?

For sideband service the envelope of the signal in the anode circuit must be an exact replica of the envelope of the exciting signal. This implies that the power gain of the stage must be constant regardless of the signal level. This desirable basis of operation can only be obtained if the amplifier is operated in a linear manner. Any non-linearity

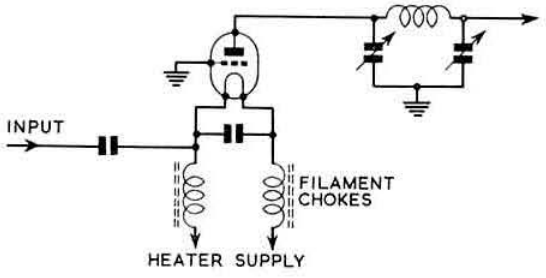


Fig. 3. Grounded grid (cathode driven) amplifier.

creates distortion products that appear *both in the signal pass band and in those channels adjacent to it.*

It is quite common to hear the report " You have an excellent signal old man, the quality is very good "—and find on tuning across the transmission that the recipient of this flattering observation has a signal a lot wider than it should be, complete with whiskers and splatter that obliterates 10 or 20 kc/s of the phone band. It should be obvious from this that the test of quality of a sideband system is what you *don't* hear—not what you do. The place to examine a sideband signal for linearity and quality is in the adjacent suppressed sideband channel, not in the frequency band of the signal itself.

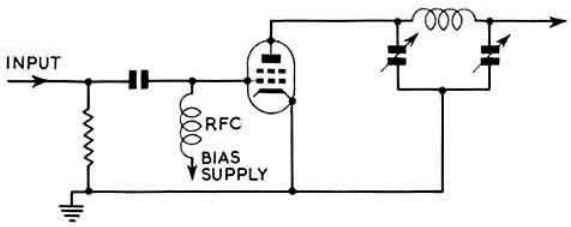


Fig. 4. Grid driven passive grid amplifier.

The excellence of a sideband signal is judged by the amount of (or lack of) sideband splatter in nearby channels. Theoretically, a sideband signal should be just as wide as the voice pass band of the equipment—3 or 4 kc/s—and no wider. If the output signal of a linear amplifier stage is a replica of the existing signal there will be no distortion products—however, valves are not perfect and the transfer characteristics of even the best linear amplifiers exhibit non-linearity at the extremes of the anode current swing. So long as the signal input is a single tone (such as inserted carrier, or a single tone into the microphone socket) departure from linearity has no effect but, and this is an important but, if the signal input contains two or more tones, the non-linearity of the power amplifier will cause " mixing " of the signal source and will produce new additional sum and difference frequencies that were not present in the original input signal. These new frequencies, generated in the power amplifier, are known as intermodulation distortion products.

The standard method of testing a linear amplifier to determine the level of distortion products is the two tone test, in which two radio frequencies of equal amplitude are applied to the amplifier and the output signal is examined for spurious products. Those output signals falling in the harmonic region—" even order " products—are attenuated to a low level by the amplifier tank circuits. Unfortunately, the " odd order " products fall close to the fundamental output frequencies and cannot be removed by tuned circuits. These are the distortion products that put back the signal *on the unwanted sideband* and in the case of a poorly designed or incorrectly operated linear amplifier, cause objectional splatter.

Fig. 5(a) shows the spectrum distribution of the products generated in a typical p.a. stage, while Fig. 5(b) shows on an expanded frequency scale those intermodulation products within the amplifier pass band that cause s.s.b. distortion. In the example shown the two frequencies making up a typical two tone test are 3,748 and 3,750 kc/s. If the linear amplifier is perfect these will be the only frequencies appearing in the output. In practice, the amplifier is not perfect and there will be additional combinations of sum and difference frequencies generated by the non-linear transfer characteristics of the valve. These odd order products fall within the pass band of the selective output circuits and will be radiated together with the wanted signal. The inside pair of intermodulation products are third order, the next fifth order, seventh order, and so on. It will be noted that those distortion products nearest to the original input frequencies, F1 and F2, have the greatest amplitude. These are the third order intermodulation products and it is the relative amplitude of the third order products in relation to the wanted signal that determines the excellence or otherwise of the transmitted sideband signal.

Fortunately so far as amateur operation is concerned, it is not necessary to have or be able to use elaborate test equipment. Many s.s.b. operators have selectable sideband receivers with correctly calibrated S meters and they can check the relative signal level on the wanted and on the unwanted sideband, under tone input or voice conditions, and give a report of so many decibels down with a degree of accuracy that is reasonably high and quite adequate for amateur use.

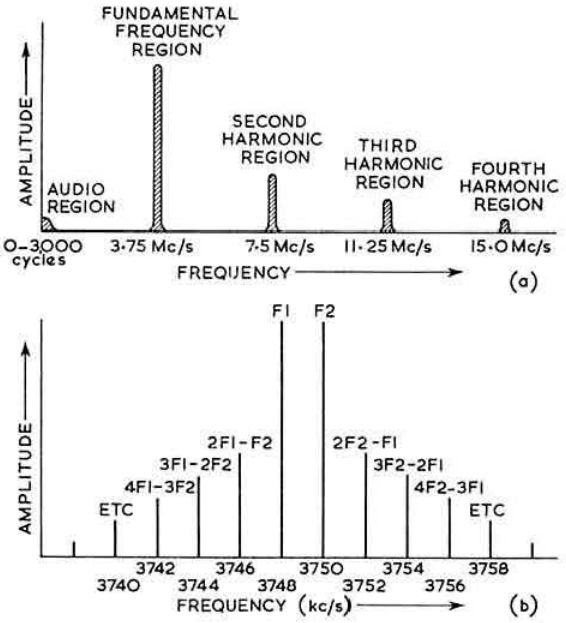


Fig. 5. Odd order intermodulation products causing s.s.b distortion. The frequencies shown assume a transmitter with a carrier on 3750 kc/s (radiating lower sideband) and modulated by a 2 kc/s tone input. The amplifier is driven at carrier frequency (F2) by unbalancing the modulator or using carrier insertion. The audio input of 2 kc/s produces the second frequency of 3748 kc/s (F1). Controls are adjusted for equal amplitude of F1 and F2.

At the power levels allowable in the United Kingdom it is possible to obtain an intermodulation distortion product level of between 40 and 50db down. Agreed this takes some doing and offers a challenge that all operators are not prepared to accept. However, the minimum level for sideband suppression in the filter should be 35db, and it would be to the advantage of all to keep all radiation outside the pass band to at least this level—the aim therefore is a distortion product suppression at least as good as the filter (35db). This is a practical figure obtainable by the average amateur without too much trouble, requiring only a little common sense in the choice of circuit design and in the operating parameters of the equipment.

Rules for the R.S.G.B. 21/28 Mc/s Telephony Contest, December 2-3, 1961

RADIO amateurs throughout the world are again invited to take part in the annual R.S.G.B. 21/28 Mc/s Telephony Contest to be held this year on December 2 and 3.

The rules are the same as in previous years but the attention of overseas contestants is drawn to the bonus for working each additional ten U.K. stations irrespective of band. The scoring system is described in detail in Rule 8.

This year, a multiple operator section has been introduced.

Rules

1. **Duration.** The contest will start at 07.00 G.M.T. on Saturday, December 2, and end at 19.00 G.M.T. on Sunday, December 3, 1961.

2. **Eligible Entrants.** The contest is open to licensed amateurs in all parts of the world. There will be two sections: (i) for single operators; (ii) for multiple operator stations. Entrants in the multiple operator section will not be eligible for awards under Rule 9 but will be eligible for certificates of merit.

3. **Licence Conditions.** Entrants must operate in accordance with the terms of their licences.

4. **Contacts.** Contacts may be made using any telephony system for which the entrant is licensed. Contacts with unlicensed stations will not count for points. Proof of contact may be required. Only one contact on each band may be made with a specific station, whether fixed, portable, mobile or alternative address. Duplicate contacts must be logged and clearly marked as duplicates without claim for points. Cross-band contacts may not be claimed.

5. **Contest Exchanges.** An exchange of RS reports followed by a three figure serial number starting with 001 for the first contact and increasing by one for each successive contact (for example, 58001, 56002, etc.) must be made before points can be claimed.

6. **Operators.** In the Single Operator Section only the entrant will be permitted to operate his station for the duration of the contest. In both sections all operators must be licensed.

7. **Entries.** Entries must (a) be clearly typed or written on ***one side only*** of foolscap paper; (b) log sheets must be ruled in columns headed (in this order) " Date/Time (G.M.T.)," " Call-sign of station worked," " My report on his signals and serial number sent," " His report on my signals and serial number received," " Band," " Leave Blank," " Bonus Points," " Points Claimed "; (c) be addressed to the **Contests Committee, Radio Society of Great Britain, New Ruskin House, Little Russell Street, London, W.C.1, England,** the name of the contest being clearly shown on the top left hand corner of the envelope which must be **postmarked not later than December 18, 1961.** Log sheets are available from R.S.G.B. Headquarters on receipt of a large stamped addressed envelope.

8. **Scoring.** British Isles stations may not work each other for points. Overseas stations may only claim points for contacts with British Isles Stations (G, GB, GC, GD, GI, GM and GW). Scoring will be as follows.

British Isles Stations. Each completed contact will score **5 points.** In addition, a bonus of **20 points** may be claimed for the first contact with each new country on each band. For the purposes of scoring, the official countries list will apply, with the exception that VE, VK, W/K, ZL and ZS call areas will each count as a separate country.

Overseas Stations. Each completed contact with a British Isles station will score **5 points.** In addition, a bonus of **50 points** may be claimed for the first contact with each British Isles country-numeral prefix on each band, i.e. G2, G3, G4, G5, G6, G8, GB, GC2, GC3, GC4, GC5, GC6, GC8, GD2, GD3, GD4, GD5, GD6, GD8, GI2, GI3, GI4, GI5, GI6, GI8, GM2, GM3, GM4, GM5, GM6, GM8, GW2, GW3, GW4, GW5, GW6, GW8. *A further* **50 bonus points** *will be scored for each additional ten stations worked in each of the above categories irrespective of band.*

9. **Awards.** In the Single Operator Section, The **Whitworth Trophy** will be awarded to the leading British Isles entrant. In addition, **certificates** will be awarded to the leading station in each of the other five British Isles country-prefix zones and to the runner-up in the Trophy winner's zone. Certificates will be awarded to the leading station in each overseas country, VE, VK, W/K, ZL and ZS call areas counting separately as in Rule 8.

SAMPLE COVER SHEET

R.S.G.B. 21/28 Mc/s Telephony Contest **Claimed Score** .....

December 2-3, 1961. **Call-sign** .....

Name .....

Address .....

Transmitter .....Power Input ..... watts

Modulation system(s) used .....

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

The closing date for posting entries is December 18, 1961.

Rules for the R.S.G.B. 21/28 Mc/s Telephony Receiving Contest, 1961

1. **Eligible Entrants.** The contest is open to short-wave listeners throughout the world. All entrants agree to be bound by these rules. Only the entrant may operate his receiving station for the duration of the event. Holders of amateur transmitting licences are not eligible to take part.

2. **Duration.** The contest will start at 07.00 G.M.T. on Saturday, December 2, 1961, and end at 19.00 G.M.T. on Sunday, December 3, 1961. The R.S.G.B. 21/28 Mc/s Telephony Contest for transmitting amateurs will take place during the same period.

3. **Entries.** (a) To count for points, logs must show, in columns: (i) Date/Time G.M.T.; (ii) Call-sign of station heard; (iii) Report sent by station heard; (iv) Call-sign of the station being worked; (v) Band in Mc/s; (vi) Bonus points claimed; (vii) Points claimed. *CQ or test calls will not count for points.*

(b) Entries must be set out on ***one side only*** of foolscap or quarto paper, must be postmarked not later than December 18, 1961 and must be addressed to the **Contests Committee, Radio Society of Great Britain, New Ruskin House, Little Russell Street, London, W.C.1, England.** Log sheets are available from R.S.G.B. Headquarters on receipt of a large stamped addressed envelope.

(c) All entries must contain the following declaration:
I declare that this receiving 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 do not hold an amateur transmitting licence.

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

4. **Scoring.** British Isles entrants may only log *overseas stations working U.K. stations in the contest.* Overseas entrants may only log *British Isles stations in contact with overseas stations in the contest.* A station whether fixed portable, mobile or alternative address may be logged only once per band for the purposes of scoring. CQ or test calls will not count for points.

British Isles Entrants. Each complete log entry will score **5 points.** In addition a bonus of **20 points** may be claimed for the first station logged in each new country on each of the two bands (21 and 28 Mc/s). For the purposes of scoring the official countries list will be used, with the exception that VE, VK, W/K, ZL and ZS call areas will each count as separate countries.

Overseas Entrants. Each complete log entry relating to a British Isles station heard will score **5 points.** In addition a bonus of **20 points** may be claimed for the first station heard in each British Isles country-numeral prefix on each band, i.e. G2, G3, GM4 etc., as listed in Rule 8 for the transmitting contest. A further bonus of **50 points** will be scored for each additional ten U.K. stations (in each of the categories in Rule 8 of the Transmitting Event) logged irrespective of band.

5. **Awards.** At the discretion of the Council, the **Metcalfe Trophy** will be awarded to the leading British Isles entrant. In addition, **certificates** will be awarded to the British Isles runner-up and to the leading entrant in each overseas country.

R.A.E.N. Notes and News

By E. ARNOLD MATTHEWS (G3FZW)*

AS the result of a scheme evolved by the **Torbay** Group and put into effect during G3ABU's holiday in West Cornwall R.A.E.N. have been handed a Southern Trunk Route " on a plate! " On August 13, stations along the South Coast of England linked G3ABU/M at Land's End with G3NAT, the station at B.R.C.S., H.Qs London. Although planned in a hurry, the exercise was successful, thanks to the efforts of members in Cornwall, Devon, Dorset, Hampshire, Surrey and London. It was found however, that things could have been speeded up by omitting some of the stations, and by a closer adherence to recommended procedure. Nevertheless, if the result of this first test is any guide, the new route will be very effective and the East Coast will have to look to its laurels!

The question of adherence to recommended procedure is often the subject for debate in Groups, but with the growing amount of inter-county working it is becoming apparent that locally-accepted modifications can cause confusion. The Committee consider therefore, that the use of the issued procedure is preferable.

Practice Call-out Exercises

Essex and **Surrey** police forces are testing the speed with which R.A.E.N. in those counties can place members in communication as and where required. A three-stage scheme seems to be in use. First, a call-out on arrangements made with about a fortnight's prior notice; second, a no warning call-out, but with possible dates stated; third, a " total surprise " call-out.

During a recent Stage One call-out the Surrey Group arranged for shift working members to provide an opportunity for everyone to take part in a small scale exercise. This idea is worth copying in " domestic " schemes. It is much less likely to get out of hand than the normal sort where everybody goes into the net for the duration—and sometimes spend much time on watch.

Accident on the A 148

On the evening of August 19, **Norfolk** CC, G3HRK was about two miles out of Cromer en route for Holt calling CQ when he came upon the scene of a collision between two cars in which five persons were injured. He stood by to offer assistance and G3NMY (Cromer) replied to the CQ. G3HRK ascertained that ambulance and police service had been called, but as these did not arrive after some interval G3NMY telephoned Cromer police, who assured him that a sergeant was on his way, and requested G3NMY and G3HRK to remain on watch. On his arrival the sergeant after assessing the situation gave G3HRK a message requesting a patrol car and other equipment. This was transmitted but cancelled just as G3NMY was about to telephone it to Cromer police as the patrol car then arrived at the incident.

Group Notes

During a holiday in **Somerset**, G3FZW had short contacts with G5TN, G3NXU and G3LYW, followed by a personal QSO with G3NXU, from whom it was learned that two exercises are planned to be held with Keynsham B.R.C.S. this year.

Following the recent successful meeting of officers at Chelmsford, a similar meeting has been called for October 22, at **Leeds**, and invitations have been sent to CCs. and ACs. in the northern half of the country. The chairman of the R.A.E.N. Committee Dr. Gee, will be present.

Lincolnshire Group members attended a meeting at North Hykeham on September 17, when Committee members G2UK, G3ABB and G3FZW were present.

Surrey Group has been presented with a 2-metre transmitter by G3OJY, who is leaving the district and removing to Cornwall.

* *1 Shortbutts Lane, Lichfield, Staffs.*

R.A.E.N. Membership Cards

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

Regional and Club News

Basingstoke.—At the inaugural meeting held on September 18, the following were elected: *Chairman:* P. J. Sterry, *Hon. Treasurer:* J. Marriott, *Hon. Secretary:* P. Jackson, 11 Oaklands Way, Basingstoke. A course in preparation for the R.A.E. has been arranged at Queen Mary Grammar School on Monday evenings.

Bradford.—On October 24, at St. George's Hall, there will be a Mullard Film Show. On November 15, Mr. E. M. Price, M.Sc., will give a talk on "Modern Methods of Communication," and a Junk Sale has been arranged for November 28, at the Fire Service Dept., Nelson Street. *Hon. Secretary:* M. T. Powell (G3NNO), 28 Gledhow Avenue, Roundhay, Leeds 8.

Bridlington.—A Mobile Rally and Hamfest has been arranged for Sunday, June 24, 1962. The venue will be the Spa Royal Hall, Bridlington. Further details will be available early in the New Year. Club meetings are held each Wednesday, at 7.30 p.m., at the Royal Naval Cadets H.Q., Applegarth Lane, Bridlington. All visitors and new members welcome.

Civil Service Radio Society.—Visits have been made recently to the Mullard Valve factory and the G.P.O. International Telephone Exchange. A visit to the Royal Mint is planned. Future lecture meetings will be recorded and the tapes made available to out-of-town members and to others not able to attend the lecture. Informal meetings are held on the third Tuesday of each month. New members are sought from all departments of the Civil Service and similar institutions. Full details from G. Lloyd-Dalton, 2 Honister Heights, Purley, Surrey.

Clifton Amateur Radio Society.—Five teams took part in the last D/F event of the year, when the winner was C. Hatfull (G3HZI). Due to adverse weather conditions only three stations took part in the Low Power Field Day timed to coincide with the R.S.G.B. L.F.D. At the A.G.M. held on September 8, the following were re-elected: *Chairman:* W. Martin (G3FVG), *Hon. Treasurer:* N. Moore. *Committee members:* J. Gould (G3JKY), R. Schilling (G3OAW), P. Madagar. E. Godsmark (G3IWL) was elected Honorary Secretary in place of C. Bullivant who relinquished the post after eight years' service.

Cornish Radio and Television Club.—At the September meeting the main topic was a discussion on the proposed station to be operated during the Marconi 60th Anniversary celebrations. Later G2FQD played back a tape recording of recent QSO's with 5M2AMS, 9GIDQ, and 9G1CC. Meetings are held at the Y.M.C.A., Falmouth. *Hon. Secretary:* W. J. Gilbert, 7 Poltair Road, Penryn, Cornwall.

Crawley.—Recent activities have included a successful mobile evening on the Hogs Back with support from many local clubs. The main activity of the meeting to be held on October 25, at the West Green Centre, Crawley, will be a sale of surplus equipment. *Hon. Secretary:* R. G. B. Vaughan (G3FRV), 9 Hawkins Road, Tilgate.

The Council's representatives with the Region 14 Representative at the O.R.M. held in Ayr, Scotland, last month. Left to right, E. G. Ingram, GM6IZ (Executive Vice President and Zonal Representative), D. R. Macadie, GM6MD (R.R.), N. Caws, G3BVG (Hon. Treasurer), P. H. Wade, G2BPJ (Zone A Representative).
(Photo by G2BPJ)

An example of the attractive QSL card which has been donated by the County Borough of Wolverhampton to members of the Wolverhampton Amateur Radio Society. Some 9,000 of these cards have been printed altogether and issued to the 14 licensed members of the W.A.R.S. The card is printed in a deep shade of green and black.

Crystal Palace and District Radio Club.—At the meeting to be held on November 18, there will be a talk on V.H.F. Communications in the Port of London Authority, by P. Balestrini (G3BPT), followed by a talk on Civil Defence, by E. W. Yeomanson (G3IIR). *Hon. Secretary:* G. M. C. Stone (G3FZL), 10 Liphook Crescent, Forest Hill, London, S.E.23.

Lincoln Short Wave Club.—The Annual Hamfest and Mobile Rally was held on September 17 in favourable weather conditions. There was a record attendance. The Zone A and B representatives were present as well as the Chairman of R.A.E.N. Committee, Dr. A. C. Gee (G2UK), who gave a most interesting film show on his recent travels. Awards were presented to G5CP for the best mobile installation and to G5GS for being the earliest licensed amateur present. Talk-in stations were operated by G3MUL and G4BU.

Lothians.—Meetings are held in the Y.M.C.A., 14 South St. Andrew Street, Edinburgh, on the second and fourth Thursday in each month and a great effort is being made to recruit new members.

Mitcham and District Radio Society.—The Society will be operating a station at the Fourth International Jamboree-on-the-Air to be held during the weekend of October 21. From October 6, meetings will be held fortnightly, Morse instruction commencing at 7 p.m., and lectures at 8 p.m. The Club net will be worked on alternate Fridays, starting October 13. *Hon. Secretary:* M. Pharaoh (G3LCH), 1 Madeira Road, Mitcham.

Northern Heights Amateur Radio Society.—A Pea and Pie Supper will take place on October 18, and a talk and demonstration on Hi-Fi Equipment will be given by Mr. Falkus on November 1. *Hon. Secretary:* A. Robinson (G3MDW) Candy Cabin, Ogden, Halifax.

Peterborough Amateur Radio Society.—More than 60 members and friends attended a barbecue held at the riverside site at Alwalton. *Hon. Secretary:* D. Byrne (G3KPO) Jersey House, Eye, Peterborough.

Plymouth Radio Club.—A sufficient number of entrants have been secured to start R.A.E. Classes at the Devonport Technical College, Paradise Road. Business meetings are held on the first Wednesday in each month at the new Guild of Social Service Building, Buckwell Street, Plymouth in addition to Tuesday meetings held at the clubrooms. *Hon. Secretary:* R. Hooper, 2 Chestnut Road, Peverell, Plymouth.

Radio Society of Harrow.—Commencing in October, beginners and candidates for the R.A.E. will be given short lectures on

elementary theory from approximately 7.30 to 8.30 p.m., before the commencement of the main meeting. Future activities will include a combined talk by G3HBW, G3MLS and G3HWR, entitled, " Getting started on 2 metres." On October 27, there will be a film show. *Hon. Secretary:* A. C. W. Biddell (G3GNM), 114 Kingshill Avenue, Kenton, Harrow, Middlesex.

Reading Amateur Radio Club.—The picnic meeting arranged in conjunction with the Oxford and Newbury Groups was a great success and it is hoped to repeat it again next year. The October meeting—a Junk Sale—will be held a week earlier than planned (namely the 21st.), at Palmers Hall, West Street, Reading. *Hon. Secretary:* R. G. Nash (G3EJA), 9 Holybrook Road, Reading.

Reigate Amateur Transmitters Society.—Recent visitors to the Club have been G3OQO from Rugby and G3NCL from Newcastle. G3NKS will present a Quiz at the Tower Hill, Redhill on October 21. There will be a film show by G3NDF at the same address on November 18. Members are making up a party to visit the Radio Hobbies Exhibition on November 24. *Hon. Secretary:* F. D. Thom (G3NKT), 12 Willow Road, Redhill, Surrey.

Southend and District Radio Society.—Future activities will include a visit to Southend Airport on October 20, whilst on November 3, G3NPF will describe a miniature six-band transmitter/receiver. Details of meetings may be obtained from the *Hon. Secretary:* Mrs. P. M. C. Collop, 53 Beedell Avenue, Westcliff on Sea, Essex.

Thames Valley Amateur Radio Transmitters Society.—At a well attended meeting in September, Mr. G. Moore, (VS6CJ) gave a talk on Amateur Radio in Hong Kong. The Annual Dinner and Dance will take place on Saturday, October 21, at the Carnarvon Castle Hotel, Hampton Court. Tickets are available from the *Hon. Secretary:* K. Rogers (G3AIU), 21 Links Road, Epsom.

Torbay Amateur Radio Society.—Following the September business meeting two Mullard films were screened and much enjoyed. Members of the club (G3LHJ and G2GGM) were placed first and second respectively in the British section of the 1960 Scandinavian Activity Contest. Meetings are held on the second Saturday in each month at the Y.M.C.A., Castle Road, Torquay. *Hon. Secretary:* Mrs. G. Western (G3NQD), 118 Salisbury Avenue, Barton, Torquay.

Can You Help?

- C. W. Austin (B.R.S. 22019) who requires circuit information on the BC624 Receiver Unit and the W1310 Wavemeter.
- D. Byrne (G3KPO), Jersey House, Eye, Peterborough, who requires information on the Canadian Marconi 52 Receiver and the T1131 V.H.F. Transmitter.
- M. Harrison (G3HKH), who is looking for the circuit of the R25/ARC5 Receiver (1.5 to 3.0 Mc/s).
- R. E. Parkes (A1629) Great Oaks, Green Lane, Blackwater, Camberley, Surrey, who would like to buy or borrow a manual or any data, especially about D/F, for the Admiralty Tuner Amplifier B36 (pattern W9232). Also data for the type 46 Tranceiver.
- G. M. Sifford (B.R.S. 21530), who requires a circuit diagram or literature for the Collins TCS12 Receiver.

GB2RS SCHEDULE

R.S.G.B. News Bulletins are transmitted on Sundays in accordance with the following schedule:

Frequency	Time	Location of Station
3600 kc/s	9.30 a.m.	South East England
	10 a.m.	Severn Area
	10.30 a.m.	North Midlands
	11 a.m.	North East England
	11.30 a.m.	South West Scotland
	12.00	North East Scotland
145·55 Mc/s	11.15 a.m.	Beaming south-east from Leeds
	11.30 a.m.	Beaming south-west from Leeds
	11.45 a.m.	Beaming north from Leeds
145·3—145·4 Mc/s	12 noon	Beaming north from South East England
	12.15 p.m.	Beaming west from South East England

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

New Books

SOUND AND TELEVISION BROADCASTING—GENERAL PRINCIPLES. A B.B.C. Engineering Training Manual, by K. R. Sturley, Ph.D., B.Sc., M.I.E.E. Published for *Wireless World* by Iliffe Books Ltd. Size 8¾ in. by 5½ in. 382 pages, including 248 diagrams and photographic illustrations. 45s. net. (46s. 4d. by post from R.S.G.B.).

This book by Dr. K. R. Sturley, head of the B.B.C. Engineering Training Department, explains the basic principles of sound and television broadcast engineering and operations. It was written primarily for new recruits to the B.B.C. Engineering Division, but as it is the Corporation's policy to disseminate their specialized knowledge and experience to all interested in sound and television broadcasting, this book is offered to a wider public.

The introductory chapter deals with basic physical principles and their application to broadcasting. This is followed by chapters on sound and television studios, telecine and telerecording. Among other topics covered are apparatus, technique and procedures, outside television broadcasting, including Eurovision; amplitude and v.h.f. modulated transmitters; the problems of conveying the sound and television programme frequencies and communicating between the various studio centres and transmitting centres. The text is amplified by photographs and over 200 specially drawn line illustrations.

This book should prove invaluable to anyone engaged in or responsible for instructing in broadcasting and other forms of radio communication.

COLOUR TELEVISION. The N.T.S.C. System—General Principles by P. S. Carnt, B.Sc.(Eng.), A.C.G.I., A.M.I.E.E. and G. B. Townsend, B.Sc., F.Inst.P., M.I.E.E., A.K.C. Published for *Wireless World* by Iliffe Books Ltd. Size 8¾ in. by 5½ in. 487 pages, including 233 line illustrations, plus eight pages in full colour and eight monochrome plates. 85s. net. (86s. 9d. by post from R.S.G.B.).

This book describes the British adaptation of the American N.T.S.C. system of colour television, a system which is fully compatible and can be received in black and white on current monochrome receivers. The N.T.S.C. system is explained with particular reference to the 405 line version, but wherever there are differences between the 405, 525 and 625 line systems, these are fully explained, so that no matter which line system is finally used in the U.K., this book will not become obsolete.

A working knowledge of black and white television is assumed, and though the work is largely non-mathematical the more advanced mathematics is given in the appendices. Introductory chapters are included which will enable the reader to understand the principles of colour measurement and the behaviour of the human eye in relation to colour reception. Most aspects of the transmission and reception of colour signals are discussed, though the emphasis is on the latter.

For the service engineer, chapters on fault finding have been included, and these typify the practical approach to colour television throughout the book.

Both of the authors have been actively engaged for several years in the development of colour television equipment and have lectured extensively on the subject throughout the country.

5 Ack R Trophies

THE 5 Ack R Trophies, donated by the late E. Dawson Oster-meyer, G5AR, have this year been awarded to A. J. Reynolds G3NNK (Senior Award) and R. Bown G3PCN (Junior Award) for the best judged entries of home constructed equipment in the East London District. The presentations will be made at the Districts' A.G.M. in December.

East London Members are reminded that the competition is open to all paid-up members of the Society residing in the East London District, and that entry forms should be sent to the D.R. Mr. M. A. C. McBrayne, G3KGU not later than March 31, 1962.

Entry forms may be obtained from the Hon. Secretary, G3NNK or from the T.R.s.

Forthcoming Events

Details for inclusion in this feature should be sent to the appropriate Regional Representatives by 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, whenever possible, details of the lecture or other event being arranged. Regional Representatives are requested to set out the copy, preferably typed double spaced, in the style used below. Standing instructions for more than three months ahead cannot be accepted.

DATES FOR YOUR DIARY

October 21-22.—Scout Jamboree-on-the-Air.
November 22-25.—R.S.G.B. International Radio Hobbies Exhibition, London.
December 16.—A.G.M., London.
May 6, 1962.—South Eastern Counties Mobile Rally.
June 24, 1962.—Bridlington Mobile Rally and Hamfest.

REGION 1

Ainsdale (A.R.C.).—Wednesdays, 8 p.m., 37 Hawthorne Grove, Southport.
Blackburn.—Fridays, 8 p.m., West View Hotel, Revidge Road.
Blackpool (B. & F.A.R.S.).—Tuesdays, 8 p.m., Squires Gate Holiday Camp.
Bury (B.R.S.).—November 14, 8 p.m., Knowsley Hotel, Kay Gardens.
Chester.—Tuesdays, 8 p.m., Y.M.C.A.
Liverpool (L. & D.A.R.S.).—Tuesdays, 8 p.m., Gladstone Mission Hall, Queens Drive, Stoneycroft.
Macclesfield.—October 17, and 31, November 14, and 28, 42 Jordongate.
Manchester (M. & D.A.R.S.).—Wednesdays, 7.30 p.m., King George VI Club, North Road, Moston, Manchester, 10. **(S.M.R.C.).**—Fridays, 7.30 p.m., Ladybarn House, Mauldeth Road, Fallowfield.
Morecambe.—November 1, 125 Regent Road.
Preston (P.A.R.S.).—October 24, November 14, and 28, 7.30 p.m., St. Paul's School, Pole Street.
Southport (S.R.S.).—Thursdays, 8 p.m., The Esplanade.
Stockport (S.R.S.).—October 25, November 8, and 22, The Blossoms Hotel, Buxton Road.
Wirral (W.A.R.S.).—October 18, November 1, and 15, 7.45 p.m., 15 Balls Road, Claughton, Birkenhead.

REGION 2

Bradford (B.R.S.).—October 24, (Mullard Film Show), St. Georges Hall. November 15, ("Modern Methods of Communication" by E. M. Price, M.Sc.), Fire Service Dept., Nelson Street.
Halifax.—October 18, (Ragchew). November 1, ("S.S.B." by C. B. Hill, G3LGS). November 15, (Informal), Beehive and Crosskeys Inn, Halifax.
(Northern Heights A.R.C.).—November 1, (Hi-Fi Talk and Demonstration by Mr. Falkus). November 15, (Informal), Sportsman Inn, Ogden.
Scarborough (S.A.R.S.).—Thursdays, 7.30 p.m., Chapmans Yard, North Street.
Sheffield (S.A.R.C.).—November (Stag Party), Regency Restaurant, West Bar, Sheffield.

REGION 3

Birmingham (Slade).—October 20, 7.45 p.m., The Church House, High Street, Erdington. **(South).**—October 19, (Annual General Meeting), 7.30 p.m., Friends Institute, 220 Moseley Road, Birmingham.
Sutton Coldfield.—October 20-22, ("Jamboree on the Air"), Yorks Wood Camp Site, Castle Bromwich. October 26, ("DX T.V. Reception" by C. Rafarel), 7.30 p.m., 92 The Parade, Sutton Coldfield.
Stourbridge.—October 20, (Annual Dinner), 7.30 p.m., Bell Hotel, Stourbridge. November 7, ("How Far can Radio Signals be Heard" by C. S. Bull), 7.45 p.m., Foley College, Stourbridge.
Wolverhampton.—October 23, 8 p.m., Neachells Cottage, Stockwell End, Tettenhall.

REGION 4

Derby (D. & D.A.R.S.).—October 18, (Direction Finding Equipment—A. Hitchcock, G3ESB), October 25, (Open night—Committee Meeting), November 1, (Surplus Sale), November 8, (Hot Pot Supper at White Hart Aston on Trent), November 15, (Electronics as applied to Telecommmunications—G. Morgan, A.M.I.E.E., Messrs. Ericssons Telephones Ltd.), 7.30 p.m., Room No. 4, 119 Green Lane, Derby.
Derby (D.S.W.Exp. Soc.).—Fridays, 7.30 p.m., Sundays, 10.30 a.m., Nunsfield House, Boulton Lane, Alvaston, Derby.
Grantham (G. & D.A.R.S.).—Mondays, 7.30 p.m., Club Rooms (rear of Manners Arms), London Road, Grantham.
Grimsby (A.R.S.).—Alternate Thursdays, 8 p.m., R.A.F.A. Headquarters, Abbey Drive West, Grimsby.
Leicester (L.R.S.).—Mondays, 7.30 p.m., Club Rooms, Old Hall Farm, Braunstone Lane, Leicester.
Lincoln (L.S.W.C.).—October 25, (Mobile Operating—R. Plant, G5CP), 7.30 p.m., Lincoln Technical College, Cathedral Street, Lincoln.
Melton Mowbray (M.M.A.R.S.).—November 9, (Any Questions Night?), 7.30 p.m., St. John Ambulance Hall, Asfordby Hill, Melton Mowbray.
Nottingham (A.R.C.N.).—Tuesdays and Thursdays 7.30 p.m., Community Centre, Woodthorpe House, Mansfield Road, Sherwood, Nottingham.
Northampton (N.S.W.C.).—Thursdays, 7 p.m., Allen's Pram Works, 8 Duke Street, Northampton.
Peterborough (P. & D.A.R.S.).—November 3, Annual General Meeting, 7.30 p.m., Peterborough Technical College.
Retford & Worksop (N.N.R.C.).—Tuesdays and Thursdays, 7.30 p.m., Club Rooms, Victoria Street, Worksop, Notts.

REGION 5

Cambridge (C. & D.A.R.C.).—Working Party every Saturday afternoon, New Headquarters, Council Yard, Victoria Road.
March (M. & D.A.R.S.).—Every Tuesday, 7.30 p.m., Rear of Police Headquarters.
Shefford (S. & D.A.R.S.).—October 19, (Problem Evening), October 26, (Talk by G3IDR), November 2, (Film Show), November 9, (Discussion, Annual Dinner and Junk Sale), November 16, (Judging of Competition), 7.30 p.m., Digswell House.

REGION 6

Cheltenham.—First Thursday in each month, 8 p.m., Great Western Hotel, Clarence Street.
High Wycombe (Chiltern A.R.C.).—October 26, 8 p.m., British Legion Hall, St. Mary Street, High Wycombe.
Stroud.—Wednesdays, 8 p.m., Subscription Rooms, Stroud.
Wolverton (W.D.R.C.).—Fridays, 7.30 p.m., Science and Arts Institute, Church Street.

REGION 7

Acton, Brentford & Chiswick.—October 17, ("Receiver Design for SSB" by G3NEH), 7.30 p.m., A.E.U. Rooms, 66 High Road, Chiswick.
Bexleyheath (N.K.R.S.).—November 9 ("Discussion on Mobile Operation"), 8 p.m., Congregational Hall, Bexleyheath. (nr. Clock Tower).
Croydon (S.R.C.C.).—November 14, 7.30 p.m., Blacksmith Arms, South End, Croydon.
Dorking (D. & D.R.S.).—October 24, ("Film Show—NFD 1961"), 7.45 p.m., Star and Garter Hotel, Dorking, November 14 (Informal Meeting) 8 p.m., Wheatsheaf, High Street, Dorking.
Ealing.—Sundays, 11 a.m., A.B.C. Restaurant, Ealing Broadway, W.5.
East Ham.—Tuesdays fortnightly, 8 p.m., Leigh Road, East Ham.
East London District.—November 19, ("Selenium and Silicon Rectifiers" by Mr. Barker, Standard Telephones and Cables Ltd.), 2.30 p.m., Lambourne Rooms, Ilford Town Hall.
East Molesey (T.V.A.R.T.S.).—October 21, (Annual Dinner), November 8, (Regular Meeting) 8 p.m., Carnarvon Castle Hotel, Hampton Court.
Enfield.—October 26, ("TW VHF Equipment" by T. Withers, G3HGE), 7.30 p.m., George Spicer School, Southbury Road, Enfield.
Harlow & District.—Tuesdays, 7.30 p.m., rear of G3ERN, (G. E. Read), High Street, Harlow.
Holloway (G.R.S.).—Mondays, Tuesdays and Wednesdays, (R.A.E. and Morse), 7 p.m., Fridays (Club), 7.30 p.m., Montem School, Hornsey Road, Holloway, N.7.
Ilford.—Thursdays, 8 p.m., 579 High Road, Ilford (near Seven Kings Station).
Kingston.—Lectures alternate Thursdays, Theory and Morse Classes weekly. October 19 (A.G.M.), 7.45 p.m., Y.M.C.A., Eden Street, Kingston.
Mitcham (M. & D.R.S.).—Lectures alternate Fridays, 8 p.m., Morse classes, 7 p.m., The Canons, Madeira Road, Mitcham.
New Cross (C.A.R.S.).—Fridays, 7.30 p.m., November 3, ("Trip to Yugoslavia" by D. Bennett), Sundays, 11.30 a.m., Wednesdays, ("Morse Practice"), 8 p.m., 225 New Cross Road, London, S.E.14.

LONDON MEMBERS' LUNCHEON CLUB

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

at 12.30 p.m. on Friday, October 20 and November 17.

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

Norwood and South London (C.P. & D.R.C.). October 21, ("Hi-Fi Audio Evening"). November 7, Morse Class, etc.), 8 p.m., at G3FZL. November 18, (V.H.F. Communications in the Port of London Authority by P. Balestrini and also Civil Defence by E. W. Yeomanson, G3IIR).
Paddington (P. & D.A.R.S.).—Wednesdays, 7.30 p.m., Beauchamp Lodge, 2 Warwick Crescent, London, W.2.
Romford (R. & D.R.S.).—Tuesdays, 8.15 p.m., R.A.F.A. House, 18 Carlton Road, Romford.
ScienceMuseum(Civil Service R.S.).—October 18, (Informal Meeting), November 7, ("Intercontinental Communication on UHF," G.M.C. Stone, G3FZL), 6 p.m., Science Museum, South Kensington.
Southgate and Finchley.—November 9, ("G6QM Trophy"), 8 p.m., Arnos School, Wilmer Way, London, N.11.
Sutton and Cheam (C. & C.C.R.S.).—Third Tuesday in each month. October 17, ("International Amateur Radio," A. O. Milne, G2MI), The Harrow, High Street, Cheam.
Welwyn Garden City.—November 9, (Single Sideband, M. Pyle, G2BLA), 8 p.m., The Conference Room, Murphy Radio Ltd., Bessemer Road, Welwyn Garden City.

REGION 8

Crawley (C.A.R.C.).—October 25, (Surplus Equipment Sale), 8 p.m., West Green Centre, Crawley. November 8, (Informal) for details contact G3FRV.
Tunbridge Wells (W.K.A.R.C.).—October 20, (Junk Sale), November 3, ("Two Metre Mobiles," by G4IB/M), November 17, (Hi-Fi Night), 7.30 p.m., Culverden House, Culverden Park Road, Tunbridge Wells.

REGION 9

Bath.—November 13, 7.30 p.m., Committee Room, Bath Technical College, Lower Borough Walls, Bath.

Bideford.—First Thursday in each month, 7.30 p.m. alternately at T. G. Ward (G2FKO), 38 Clovelly Road, (Phone: Bideford 964), and D. H. Jones (G3BO), Rosebank, Westcombe, (Phone: Bideford 550).
Bristol.—October 20, ("Propagation Experiments and the Scientific Studies Committee," by G. Stone, G3FZL), 7.15 p.m., Carwardine's Restaurant, Baldwin Street, Bristol 1.
Exeter.—Second Thursday in each month, 8 p.m., Y.M.C.A., St. David's Hill, Exeter.
Falmouth (F.R.C.).—First Wednesday in each month, Y.M.C.A., Falmouth.
Plymouth (P.R.C.).—Tuesdays, 7.30 p.m., Virginia House Settlement, St. Andrews Cross, Plymouth.
Torquay (T.A.R.S.).—October 14, (Contests and Contest Operating by D. Webber, G3LHJ). November 11, Lecture by Mr. Hunt, Director B.B.C. Line-Communications Dept., 7.30 p.m., Y.M.C.A , The Castle.
Weston-super-Mare.—First Tuesday in each month, 7.15 p.m., Technical College, Lower Church Road, Weston-super-Mare.
Yeovil (Y.A.R.C.).—Wednesdays, 7.30 p.m., Grove House, Preston Road, Yeovil.

REGION 10

Penarth.—Last Monday in each month, 7.30 p.m., R.A.F.A. Club, Windsor Road, Penarth.

REGION 13

Edinburgh (L.R.S.).—October 25, (Hi-Fi and Stereo), November 9, ("Electronics in Astromomy" by Dr. P. Fellgett), November 23, ("Medical Electronic Apparatus" by Dr. C. Simpson), December 14, (Schoolboys Night).
Motherwell.—Third Friday in each month, 7.30 p.m., Carfin Hall, Motherwell.

REGION 14

Glasgow.—Second Friday in each month, 7.30 p.m., Woodside Halls, Clarendon Street, N.W., (Near St. Georges Cross Underground).

REGION 16

Chelmsford.—First Tuesday in each month, 7.30 p.m., Marconi College, Arbour Lane, Chelmsford.

REGION 17

Portsmouth (P. & D.R.S.).—New meeting place. Every Wednesday, 7.30 p.m., Room 3, Twyford Avenue Community Centre, Twyford Avenue, Portsmouth.
Southampton.—Second Saturday in each month, 7 p.m., Engineering Lecture Theatre, Lanchester Building, University of Southampton, University Road, Southampton.

Council Proceedings

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, August 28, 1961, at 6 p.m.

Present: The President (Major General E. S. Cole in the Chair), Messrs. N. Caws, C. H. L. Edwards, K. E. S. Ellis, R. C. Hills, E. G. Ingram, J. D. Kay, A. O. Milne, L. E. Newnham, F. K. Parker, G. M. C. Stone, P. H. Wade, A. C. Williams, E. W. Yeomanson (Members of the Council) and John Clarricoats (General Secretary).

Apologies for absence were received from Dr. R. L. Smith-Rose and Mr. F. A. Russell.

* * *

Draft Balance Sheet and Income and Expenditure Account

The Honorary Treasurer in submitting the draft Balance Sheet and Income and Expenditure Account for the year ended 30th June, 1961 explained that the accounts were subject to audit, which had not yet taken place.

Income had exceeded expenditure by £1,156 compared with £119 for the previous year.

Resolved to record a vote of thanks to Mr. Caws for preparing the draft accounts.

Membership

Resolved (i) to elect 108 Corporate Members and 47 Associates; (ii) to grant Corporate membership to 5 Associates who had applied for transfer.

Applications for Affiliation

Resolved to grant affiliation to the Leeds University Union Amateur Radio Society and the Paddington Amateur Radio Society.

Amateur Radio Handbook

Consideration was given to a further progress report prepared by Mr. Rouse and action taken to deal with various matters which had arisen or were expected to arise.

Council Nominations

In accordance with Article 55 of the Society's Articles of Association the Council made nominations to fill the vacancies in that body which will occur on December 31, 1961. (See page 129, September, 1961, R.S.G.B. BULLETIN.)

Regional Representatives Conference

It was reported that a Conference between the members of the Council and the Regional Representatives would be held in London on Saturday, November 18, 1961.

Regional Representatives

Resolved to nominate for election those R.R.'s who had already agreed to serve for a further period of two years as from January 1, 1962, if re-elected together with such other R.R.'s who advise the Secretary, prior to the closing date for the September issue of the R.S.G.B. BULLETIN of their willingness to serve again if re-elected. (See page 132, September 1961, BULLETIN.)

R.S.G.B. Radio Hobbies Exhibition

It was agreed (i) to inform the organiser of the Exhibition (Mr. P. A. Thorogood) that the Council agrees to his proposal that Mr. Loomis, director of the *Voice of America* programme, shall be invited to open the 1961 R.S.G.B. Radio Hobbies Exhibition; (ii) that in future the Council shall give consideration at an early meeting in each year to the question of an opener of the R.S.G.B. Radio Hobbies Exhibition to be held later that year.

I.A.R.U. Calendar No. 62

Resolved to cast Aye votes in favour of (i) a proposal by the Malayan Amateur Transmitters Society to limit input power on 10, 15 and 20 metres to 250 watts, with separate c.w. segments at the bottom of each band and traffic handling confined to c.w., except in cases of nationa emergency; (ii) a proposal to admit the Korean Amateur Radio League to membership of the Union.

It was reported that an earlier proposal by I.R.T.S. (Eire) on the question of preparing a list of I.A.R.U. approved awards was carried by 12 votes to 6 with 36 abstentions (I.R.T.S. has offered to submit suitable proposals to establish criteria by which to judge acceptability for the list).

Late Delivery of Orders

It was agreed to write to two firms concerning the late delivery of material ordered by members.

Marconi 60th Anniversary

It was decided to agree in principle to a suggestion made by the C.R. for Cornwall (Mr. J. N. Watson, G3AET) that the Society should support a proposal for the Cornish Group of the R.S.G.B. to co-operate with Newfoundland Radio Amateurs in commemorating, during the period December 9-17, 1961, the 60th anniversary of the occasion when Marconi at Signal Hill, Newfoundland, received for the first time signals which had emanated from the other side of the Atlantic, namely, Poldhu, Cornwall.

It was agreed to enquire from Mr. Watson whether any financial help is required from the Society and if so the extent of that help. (See page 169, October 1961, BULLETIN—Editor.)

Reports of Committees

The Minutes of meetings of the following Committees were submitted as Reports:

R.A.E.N.	June 17, 1961
Contests	July 20 and August 10, 1961
Mobile	July 21, 1961
Finance & Staff	August 9, 1961
Exhibition	August 11, 1961
V.H.F.	August 14, 1961
Technical	August 16, 1961

Resolved to receive the Reports and certain of the Recommendations contained therein.

The Recommendations dealt, inter-alia, with co-operation between R.A.E.N. and Civil Defence; Contest results 1961; Contest Programme 1962; Car allowances for Council members; a 5 per cent cost of living increase in salary for members of the permanent staff; regional funds; family subscriptions; the *Amateur Radio Handbook*; the reprinting of Mr. Thornley's series of articles on receivers.

The meeting terminated at 10.30 p.m.

Silent Key

REGINALD GRAHAM (G2BGA)

The death occurred on August 28, 1961, at Findon, near Worthing, Sussex of Mr. Reginald (Bunny) Graham (G2BGA). He was especially well known to those who operate on 3.5 Mc/s, many of whom contributed to a floral spray at his funeral. In his earlier days Mr. Graham had been a keen racing driver. He was also a great chess player.

Sympathies are extended to his wife Doris. P.C.

U.H.F. SIGNAL GENERATOR TYPE TS14 3,200-3,370 Mc/s., power measuring range 20-200 mW., R.F. output power — 20 to — 100 dbm below 1 mW. Power supply 115 watts A.C. Price **£15.** Carriage 15/-.

MARCONI SIGNAL GENERATOR. TF 144G, 85 kc/s-25 Mc/s. Made up to new standards, **£70.** Delivered free.

H.T. CHOKES made by Bendix Radio (U.S.A.) 3 henrys. 600A D.C. 25 ohms D.C. resistance 18 volts R.M.S. 60 cycle test **£1/12/6.** P. & P. 6/-.
Ditto 10 henrys 250 amps. D.C. 90 ohms D.C. resistance 1500 R.M.S. 60 cycle test **16/6.** P. & P. 3/6.

CARBON INSET MICROPHONE, G.P.O. type **2/6.** P. & P. 1/-.

B.P.S TRANSCEIVERS. Specially built for Parachutists during the war. Receiver Superhet. Transmitter crystal controlled. CW, and phone. 2-8 Mc/s. 829 valve as output. 60 watts on CW. 15 watts on microphone, together with mains power pack 120/220 volts. Two Rotary converters to work from 12 volt battery, microphone, key and dipole aerial. Price **£15.** Carriage 30/-.

FREQUENCY METER BC221 TECHNICAL MANUAL 22/6

BRAND NEW ORIGINAL SPARE PARTS FOR AR88 RECEIVERS.
I.F. TRANSFORMERS 1st, 2nd, 3rd, 4th (for type D), **12/6** each or complete set of 6, **60/-.**
I.F. Transformers. Crystal Load, **12/6** each.
Plates escutcheons (for D and LF), **15/-** each.
Dials (for type D), **10/-** each.
Logging Dial (for D and LF), **10/-** each.
Filter Chokes (for D and LF), **22/6** each.
Output Transformers (for LF), **30/-** each.
Antenna Trimmers (LF and D), **2/6** each.
Filter Condenser 3 x 4μF, **£2/10/-.**
Condensers 3 x .25μF (D and LF), **2/6** each.
3 x .01μF (D and LF), **2/6** each.
RF Antenna Inductors (D and LF), **7/6** each.
Mains Transformers (LF), **£3** each.
Small Trimming Tool, **7/6.**
Small mica condensers, various values, **1/6** each.

VACUUM CONDENSER. 32,000 volts, 50 pF., **12/6.** P. & P. 3/-.

SPECIALLY BUILT POWER PACK for TCS Receiver. 230 volts A.C. mains, including 6X5 GT valve. **£3/10/-.** Carriage 5/-.

VIBRATOR UNIT. 12v./160v. 35 mAmps. Exceedingly well filtered and smoothed. Excellent for car radios. Including one 6X5G valve and vibrator **17/6.** P. & P. 7/-.

INSTRUCTION MANUAL FOR AR88D £1

AR88's Completely rebuilt with new PVC wiring. Type "D" **£75;** Type "LF" **£70.**

FIELD TELEPHONE TYPE "L". Excellent guaranteed condition, **£5/5/0** per pair, carr. paid

R 209 RECEPTION SET. A 10 valve High-Grade Super Hetrodyne Receiver with facilities for receiving R/T (A.M. or F.M.) and C.W. Frequency 1 Mc/s-20 Mc/s. Hermetically sealed. Built on miniature valves and incorporating its own vibrator power supply unit driven by a 6 volt battery (2 point connector included). The set provides for reception from rod, open-wire or dipole aerial with built in loudspeaker or phone output. Overall measurements:— length 12 in., width 8 in., depth 9 in. Weight 23 lb. In as new, tested and guaranteed condition. **£23/10/0** including special head phone and supply leads. Carriage and Packing £1.

FAMOUS AMERICAN CARBON HAND MICROPHONE TYPE T.17. £2/5/0. P.&.P. 3/6.

VARIOMETERS for W/S No. 19. Fully tested and working **12/6.** P. & P. 2/6.

SUPPLY UNIT RECTIFIER No. 21. Fully sealed enabling all sets built for 6 volt (R209, R109, etc.) to work from A.C. mains. Input 90-260 volts A.C. (Taps at 10 volt intervals). Output excellently smoothed up to 10 amps with meter indicating exact output voltage. Measurements 12 in. × 9 in. × 10 in. Price **£8.** Carriage and Packing 15/-.

P. C. RADIO LTD.
170, GOLDHAWK RD., W.12 SHEpherds Bush 4946

A HUGE SELECTION OF VALVES AT VERY LOW PRICES.
Write or phone your needs.

19 SET OWNERS. To increase output of your set 6 to 10 times use RF AMPLIFIER No. 2 with built in rotary converter for 12 volt input. Four 807 valves output. Simple connection with transmitter. Fully tested condition **£9/15/0** including necessary connectors and instructions. Carriage and Packing 15/-.

COMPLETE SET OF STRONG AERIAL RODS (American). Screw-in type MP49, 50, 51, 52, 53, total length 15 ft. 10 ft. top diameter 0·615 in., bottom diameter 0·185 in., together with matched aerial base. MP37 with ceramic insulator, ideal for car or roof insulation, **£2/10/-.** Post free.

POWER SUPPLY UNIT. Input 200/250 volts AC, 50 cycles. Output: 1, HT 280/350 volts 300mA smoothed; 2, MT 150/200 volts 40mA (Positive earthed); 3, LT 18/25 volts 4 amp. DC smoothed (negative earthed). 2 relay switching, HT & MT, safety switch fuses on AC and all DC. Two 5Z3 for HT, One 6X5 for MT, Selenium rectifier for LT. Ideal for Ham Transmitters. Weight 45 lbs. Dimensions 14" × 8¾" × 18". Price **£12/10/0** including valves. P. & P. 25/-.

R. 109 RECEIVER. Covering 2-8 Mc/s 6v. D.C. with set of spare valves and carrier. Brand new in original packing case. **£6/18/0** including delivery in U.K.

FAMOUS RCA TRANSMITTER TYPES ET 4336, K & L. Frequency 2mc-20mc. Power output: 350 w. telegraph 250 w. telephone. Type of modulation—Class B high level. Audio input impedance 500 ohms. Power supply 190 to 250 v. Single-phase 50-60 c. Tube compliment: Crystal oscillators—807, Master Oscillators—807. Intermediate amplifier—8C7, Power amplifier 813 (2), Modulator 805 (2), Rectifier 866A (4). Complete with Master Oscillators, crystal multipliers, speech amplifiers, microphones, keys, instruction manual, etc. We guarantee full supply of all replacement parts for a minimum of 5 years after purchase. Prices on application.

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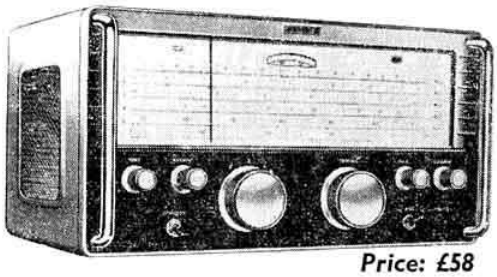

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