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CONTENTS

Current Comment (Editorial) - - - - - 49

An Amateur Band Converter for Broadcast Receivers - - - - - - - - - 50
by A. H. Koster, Dr. Ing. (G3ECA)

Mobile Column - - - - - - - - - 53
by John A. Rouse (G2AHL)

Principles of Colour Television—Part 2 - - 55
by P. S. Carnt, B.Sc.(Eng.), A.M.I.E.E.

Aerial Reflections—The Reflex Aerial - - - 59
by F. J. Charman, B.E.M. (G6CJ)

Month on the Air - - - - - - - - 61
by S. A. Herbert (G3ATU)

Frequency Predictions - - - - - - - 62
by J. Douglas Kay (G3AAE)

Two Metres and Down - - - - - - - 64
by F. G. Lambeth (G2AIW)

Expedition near-Sark - - - - - - - 67
by " Aytowen "

Beginner's Guide to DX Listening - - - - 68
by J. Douglas Kay (G3AAE)

Stresa (I.A.R.U.) Conference—Part 2 - - - 70

Tests and Contests - - - - - - - 74

Radio Amateurs' Examination - - - - 78

Radio Amateur Emergency Network - - - 79
by C. L. Fenton (G3ABB)

Society News - - - - - - - - 80

Council Proceedings - - - - - - - 81

Regional and Club News - - - - - 83

Forthcoming Events - - - - - - - 84

Letters to the Editor - - - - - - - 85

Silent Keys - - - - - - - - - 87

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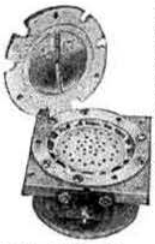

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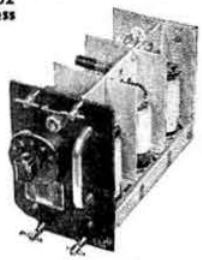

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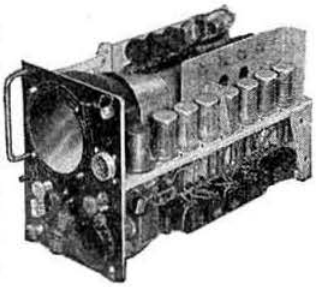

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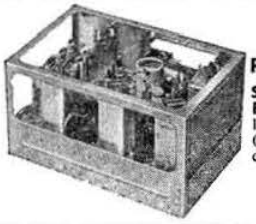

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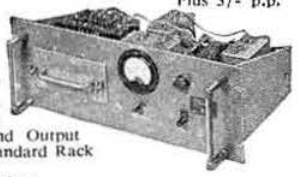

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Current Comment

Post Office Approves R.A.E.N. Co-operation With British Red Cross Society

THE Council is pleased to announce that the Post Office has approved the co-operation of the Radio Amateur Emergency Network with the British Red Cross Society in its disaster relief operations when the Post Office telephone network in the vicinity of a disaster is congested or disrupted, and also in relief exercises run by the Red Cross.

The necessary amendments to the amateur licence to permit the passing of third party messages *on behalf of the Red Cross* in actual emergencies, and in exercises, are being made by the Post Office. From now on there is no objection to full-scale co-operation with the B.R.C.S.

Ever since R.A.E.N. was formed in 1953 many members have felt that its work was being hampered by lack of official recognition. That this has now been obtained is largely due to the efforts of Lt.-Col. Arthur Dunn (G2ACD), the enthusiastic chairman of the R.A.E.N. Committee, who first of all arranged a demonstration of Amateur Radio communications for the Hon. Richard Wood (M.P. for the East Riding of Yorkshire), based on Cliffe Metcalfe's station, G3DQ, at Flamborough Head. Next the Red Cross was approached, with the result that G2ACD spent a week-end at the Barnett Hill, Guildford, training centre of that Society. In addition to a lecture on Amateur Radio by G2ACD, a demonstration of mobile work was arranged by Ken Ellis (G5KW), and other mobile enthusiasts in the London area, which entirely convinced the Red Cross officials of the worth of radio communication in connection with their work.

Soon afterwards the Hon. Richard Wood wrote to the Postmaster-General, Dr. Charles Hill, on the subject. This was followed by an informal discussion between a senior official at the G.P.O. and G2ACD and G2UK representing R.A.E.N. On June 11, Mr. Wood was informed by the Postmaster-General that he was prepared "to agree in principle to the proposed collaboration with the British Red Cross." The Postmaster-General went on to say he was arranging for "consultations with the Radio Society of Great Britain on the details of the scheme."

These details were finally agreed on July 23, 1956, at a meeting between representatives of the Society and officials of the Post Office. The R.S.G.B. was represented by Arthur Milne (G2MI), of the G.P.O. Liaison Committee and Arthur Dunn (G2ACD), Arthur Gee (G2UK), and Cliff Fenton (G3ABB), of the R.A.E.N. Committee. The General Secretary and the Deputy General Secretary were also present.

In addition to the very great help received from the Hon. Richard Wood, M.P., the plan was enthusiastically endorsed by Lord Woolton (Chairman), General Hawes (Controller, Home Department), and George Bolton (Staff Officer) of the British Red Cross Society. Their support played an important part in gaining official approval.

Members may wonder why the accent has been placed on co-operation with the Red Cross. The reason is that wherever there is a disaster, local or national, the British Red Cross Society plays a major rôle in the saving of life and property. The usual arrangement is for the police to warn a Red Cross centre. From that moment it is the responsibility of the particular B.R.C.S. Officer-in-Charge to mobilize first the County Branch and then, if necessary, the resources of the whole Society. At the present time, after the initial warning, action is taken through the normal telephone service, when possible, or *by runner* when normal communications are congested.

R.A.E.N. is particularly suited to Red Cross needs and will enable them to speed their help where and when it is most needed.

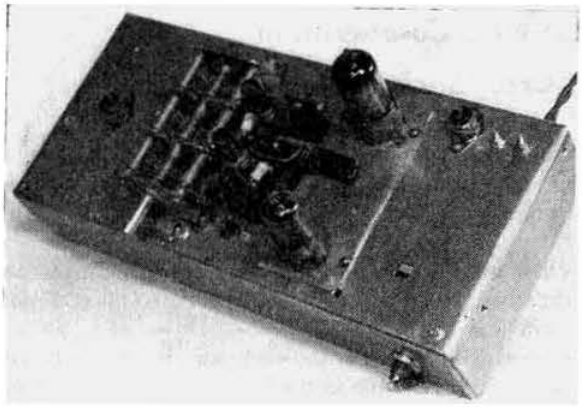
Whatever the disaster, the Red Cross is always there. In future they will be looking to the Radio Amateur Emergency Network to help.

Have *you* registered? Are *you* ready?

An Amateur-bands Converter for Broadcast Receivers

Simple Short-wave Telephony Reception for the Newcomer

By A. H. KOSTER, DR. ING (G3ECA)*



Layout of the Simple Converter with the tuning condenser, coils and valves on top of the chassis.

THE piece of equipment to be described is intended primarily to encourage the newcomer and enable him to use any existing superhet broadcast receiver as an amateur bands receiver by the simple expedient of placing a converter in front of it. The converter was designed primarily for use on the 1.9 and 3.5 Mc/s bands only, but subsequently it was found that useful results could be obtained up to 28 Mc/s. Two alternative arrangements for the higher frequencies are described. Each amateur band is spread out over the entire tuning scale of 180° subject to a small overlap at each end. The 21 Mc/s band can be spread over only half the scale.

The selectivity is determined by the i.f. bandpass of the broadcast receiver. Such receivers do not incorporate a beat frequency oscillator (b.f.o.) and, therefore, the converter is intended for use on 'phone transmissions. A b.f.o. could be added, but this means tampering with the receiver.

General

The converter consists of an r.f. stage and a frequency changer which converts the signal to a first intermediate frequency of 557 kc/s. This frequency lies at the upper end of the medium waveband and according to the 1948 Copenhagen Plan is allocated to a number of foreign stations. Although other stations are on or near this channel it is comparatively quiet as far as the London area is concerned. A second reason for choosing 557 kc/s is that the i.f. of the receiver, which now becomes the second i.f., is about 465 kc/s and the corresponding oscillator frequency is 1022 kc/s. With one exception all the harmonics of this frequency fall outside the amateur bands, hence there will be no "birdies". The exception is in the 28 Mc/s band where there will be a 28th and 29th harmonic on 28.62 and 29.64 Mc/s respectively. Should these feeble harmonics happen to coincide with a signal from a weak station they can be shifted out of the way by tuning the receiver a shade off 557 kc/s.

*195 Woodford Avenue, Ilford, Essex.

The converter does not utilize any band switching or turning of turrets. Each band has its own coil assembly, consisting of three coils and three fixed condensers which are mounted on to one 10-pin Jones plug. These plugs are solidly built and make reliable and reproducible contact. Provided the coils are properly made and the slugs prevented from moving, the assemblies can be pulled out, pushed in and handled with negligible effect on the converter calibration.

The inductances and fixed condensers for each band have been calculated in such a way that a nominal three section 25 pF ganged condenser will spread each range over the whole dial. The condenser values and numbers of turns are shown on Table I on page 52.

Breakthrough

The receiver must be fitted with a co-axial socket in place of the usual aerial inlet socket. A WARNING is given to take the usual care in the case of "live" chassis receivers, i.e. the a.c./d.c. types. The earthy part of the co-axial socket must be insulated from the chassis and connected to it via a 0.01μF condenser of 1000V working. It will be found that the aerial lead is already insulated from the aerial coil by a suitable condenser.

The connection between the converter and the aerial socket of the receiver is made by a co-axial cable. The length has no effect, but there seems no merit in a long cable because it is preferable to have the controls of the receiver handy.

To check for breakthrough C9 is temporarily short-circuited to stop the oscillator, and the aerial is connected to the converter. There should be no trace of a signal in the receiver at 557 kc/s. Should there be areas where a signal is audible it is permissible to tune the broadcast receiver about 30 kc/s either way to find a clear spot. Naturally it must be ascertained that the signal is coming in via the aerial and not by means of direct breakthrough into the converter or receiver. In that case judicious screening must be applied. If it is coming in from the aerial an i.f. trap has to be added and C23 tuned until the offending station disappears.

It must be added that the above-mentioned instructions are recommendations which the writer could not try because there was no trouble. Two domestic receivers were tested: one was a five-valve-plus-rectifier a.c. receiver with an r.f. stage, and the other a four-valve-plus-rectifier a.c./d.c. receiver without an r.f. stage.

Circuit Details

Fig. 1 shows the wiring diagram. The numbers given to the coil terminals refer to the figures found on all 10-pin Jones plugs and sockets. Starting at the aerial end, C14 serves to shorten the aerial. It is particularly useful if the aerial is very long, e.g. a quarter wave on Top Band (1.8 Mc/s). Usually low values of C14 are preferable because cross-modulation resulting from strong local or commercial stations on adjacent channels is minimized. L7C17C23 is an i.f. trap tunable to 557 kc/s. In most cases it can be left out.

L1L2C1C2C18 is the input circuit to the r.f. stage V1. In the case of Top Band, C2 is missing. C18 is

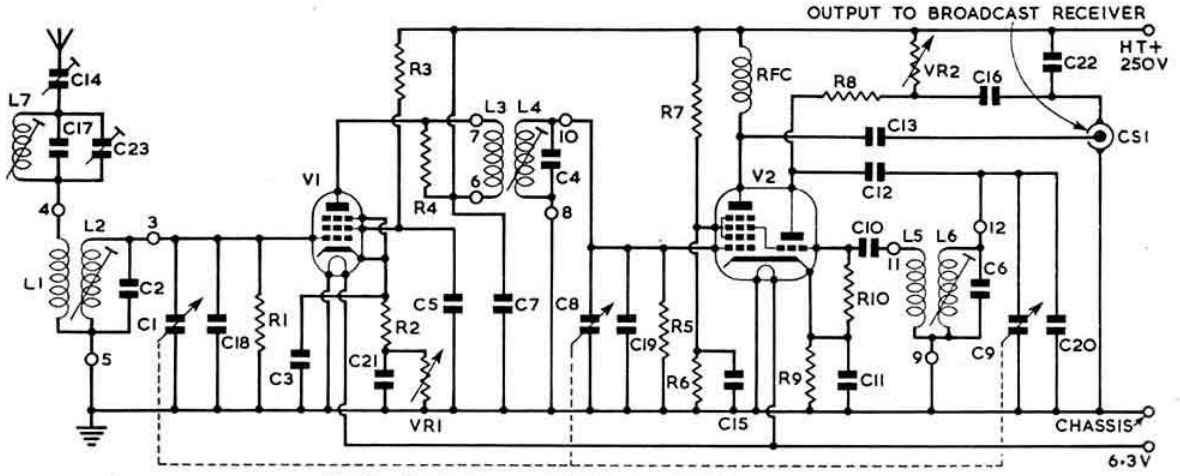


Fig. 1. Circuit diagram of the Amateur-bands Converter.

C1, 8, 9, Three-gang 4-27pF per section variable, Jackson Bros. type U.103.
C2 4, 6, Silvered mica±2 per cent, see Table I.
C3, 5, 11, 15, 16, 0.01μF.
C7, 0.1μF.
C10, 12, 150pF silvered mica±10 per cent.
C13, 21, 0.001μF.
C14, 23, 100pF variable, Jackson Bros. type C.804.
C17, 500pF.
C18, 19, 39pF silvered mica±2 per cent.
C20, 68pF silvered mica 2 per cent.
C22, 0.05μF.
L1-6, wound on Aladdin ½ in. outside diameter formers—see Table I.
L7, 110 turns 36 s.w.g. enam. copper, ½ in. o.d. former.
R1, 5, 1 Megohm 1/10 watt.
R2, 68 ohms ½ watt.
R3, 6, 33K ohms 1 watt.
R4, 47K ohms 1 watt.
R7, 22K ohms 1 watt.
R8, 47K ohms ½ watt.
R9, 200 ohms ½ watt.
R10, 47K ohms 1/10 watt.
RFC, 19 mH choke, Denco type RFC7A.
V1, Brimar 6BA6.
V2, Mullard ECH42.
VR1, 2000 ohms.
VR2, 200,000 ohms.

the fixed capacity for Top Band and is permanently connected across C1. For all other bands C2 is part of the coil assemblies. R1 serves to maintain a bias on the valve when changing coils without turning the h.t. off. R5 serves the same purpose for the next valve, and R4 keeps h.t. on the anode of V1 to stop the screen current from rising when the coil is out. The r.f. gain is controlled by VR1.

L3L4C4C8C19 is the input circuit to the mixer hexode section of V2. Here again C4 is missing in the case of Top Band. The i.f. signal is taken from the anode of the hexode section, an r.f. choke serving as a means of coupling. The input circuit to broadcast receivers is normally of high impedance and, therefore, the inductance of the choke R.F.C. should be high, say 15 to 20 mH. The output is taken to a co-axial socket (marked "CS1" on Fig. 1).

L5L6C6C9C20 is the oscillator circuit and works on the high side of the signal frequency. Again C6 is missing in the Top Band coil assembly. VR2 serves to adjust the heterodyne voltage. This is a refinement which the converter with its small tuning range on each band can use with noticeable advantage. By watching the magic-eye on the broadcast set when receiving an average signal, VR2 is adjusted for minimum angle. On the high frequency bands the converter tuning should be corrected because slight de-tuning occurs when adjusting VR2. Minimum angle indicates optimum heterodyne voltage and hence maximum gain. If the voltage is increased the gain will fall only slightly, but the harmonic content of the oscillator increases and the current in the second and fourth grid of the hexode rises, both effects causing increased noise. If the voltage is too low, the gain will fall more rapidly and the anode current of the hexode will rise, again causing unnecessary noise. For best results a mark for each band should be made on the dial of VR2.

Remembering that the converter was intended originally for use on the 1.9 and 3.5 Mc/s bands it will be found that the efficiency of the r.f. stage falls off on the higher bands. This is due to the stray capacities of the Jones plugs across L1 and L3. An alternative arrangement is to dispense with the r.f. stage by leaving out L1L2 and L3, and coupling the aerial to L4. This can be done by connecting a Philips trimmer, 0-8 pF, direct to the

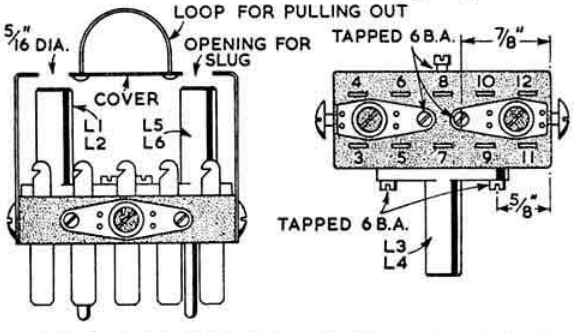


Fig. 2. Arrangements of the coil formers and cover on the Jones plug.

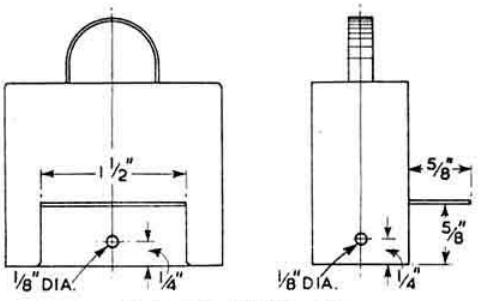


Fig. 3. The coil-plug cover.

grid side of L4, or by pushing a coupling coil of a few turns over L4 with one end connected to chassis and the other to the aerial.

The h.t. requirements are 200 to 250V at 30mA and 6.3V at 0.6A. It is preferable to make a small power supply unit, e.g., of components that have become available for TV and FM converters. Alternatively the power could be derived from the BC receiver. However, not only the possible live chassis danger has to be appreciated, but also the fact that some sets, a.c. or universal, have their chassis a few volts above zero to produce grid bias. This complicates matters and it is usually not worth the trouble to modify it.

Table I

Inductance and Capacitance Details for the Coil Units

Band with overlap	C2 C4 (pF)	C6 (pF)	L1	L2			L3	L4			L5	L6		
			38 s.w.g. enam. (Turns)	Turns	S.w.g.	Winding Length	38 s.w.g. enam. (Turns)	Turns	S.w.g.	Winding Length	38 s.w.g. enam. (Turns)	Turns	S.w.g.	Winding Length
1.775–2.025 Mc/s	nil.	nil.	27	135	38 enam.	½ in.	45	135	38 enam.	½ in.	22	92	36 enam.	½ in.
3.45– 3.85 Mc/s	18	8.2	18	92	36 enam.	½ in.	30	92	36 enam.	½ in.	22	64	32 enam.	½ in.
6.98– 7.17 Mc/s	390	330	4½	15½	18 enam.	½ in.	5½	16	18 enam.	½ in.	5	13½	18 enam.	½ in.
13.95–14.40 Mc/s	270	270	2½	6½	18 tinned	½ in.	2½	7	18 tinned	½ in.	3½	6½	18 tinned	½ in.
20.75–21.70 Mc/s	180	150	2½	4½	18 tinned	½ in.	2½	5	18 tinned	½ in.	3½	4½	18 tinned	½ in.
27.8– 29.9 Mc/s	68	56	2½	3½	18 tinned	⅝ in	2½	4	18 tinned	⅝ in	3½	3½	18 tinned	⅝ in

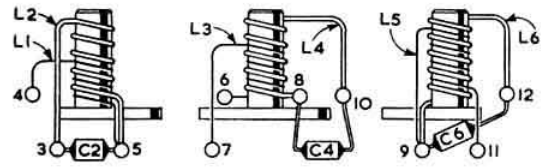


Fig. 4. Method of winding the various coils. The pin numbers correspond with those in Fig. 1 and on the Jones plugs used as coil bases.

The Coil Assemblies

Fig. 2 shows how the Jones plugs are prepared and how the ¾in. outside diameter Aladdin formers are attached to them. The plug is drilled and tapped in five places. It is recommended to use a tapered 6 B.A. tap so that the bolts get a firm grip in the plastic. The two tappings for L3L4 will strike the metal of pins 5 and 9, therefore, these pins have been arranged to be at earth potential. A further tapping is made straight into pin 8. This pin is also at earth potential and the bolt serves to earth the cover at one point only. The two tappings for coils L1L2 and L5L6 are made vertically into the plastic as shown. The formers for these two coils are held by one bolt each. The free ends of the feet are cut off flush with the sides of the plug.

The covers are prepared as shown in Fig. 3. One side is cut in two places and the resulting flap bent up at right angles to clear L3L4. Additional screening of this coil has not been found necessary. Some of the available covers are without the loop which is handy for pulling the plugs out. These loops can be improvised by adding a strip of metal which is screwed to the sides of the cover. In any case the whole covers are easily made of stout tin sheet.

Fig. 4 shows the direction of winding and indicates the pin numbers to which the wire ends are connected. In the case of high frequency coils the enamelled wire is wound between the turns of the thick tinned wire, and is kept in position by a spot of wax. For 1.9 and 3.5 Mc/s the windings with the higher number of turns are wound on first. A layer of paper is stuck round the coil and the secondary wound over it, starting at the bottom, cold end. Winding details are given in Table I.

Construction

The essential details of the layout with the dimensions between valves, Jones socket and tuning condenser are shown in Fig. 5. The earthing points at the valves are clearly marked. The condenser frame is mounted by its feet to the chassis in the usual manner, but the resulting common earth return to the coils and valves is not sufficient and it is important that the earthing tags provided at each condenser section are used as indicated. These earth leads and the distribution of the earthy contacts on the Jones socket make additional screening unnecessary, even with the r.f. gain right up. All r.f. wiring is done with 20 s.w.g. tinned wire, which may be sleeved where required. The fixed tuning condensers are of the silvered mica type. Some ceramic condensers available on the

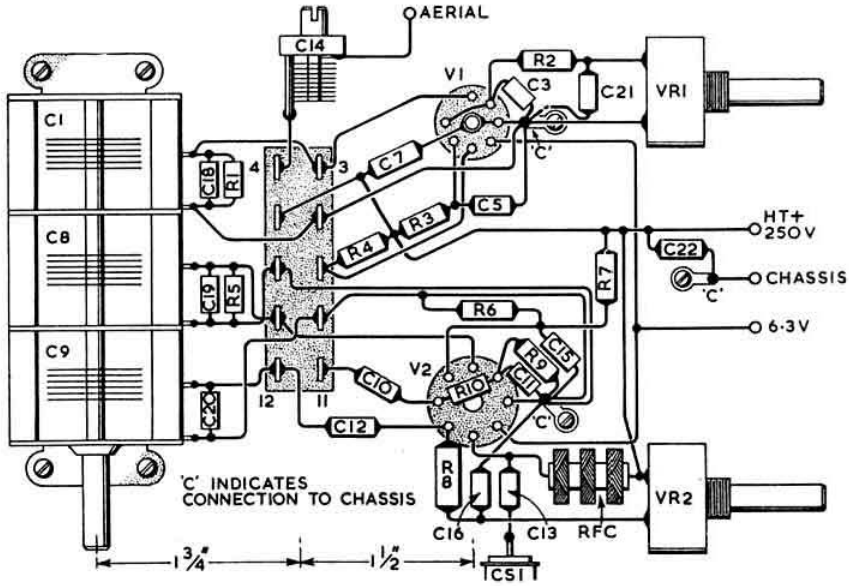


Fig. 5. Layout of the components in the simple converter for use with a domestic receiver.

surplus market have a deliberate or accidental temperature coefficient and are quite useless.

The kind of chassis and the arrangement for the control knobs will depend on personal taste and the desired degree of finish. The L2L3 coils which are at the side of the Jones plug will lie horizontally between the valves. An alternative arrangement would be to mount the valves horizontally on the underside of the chassis, thereby leaving only the coil-plugs accessible from the top. Tuning is achieved via an epicyclic drive, but any other available drive can be fitted. If a combined scale and drive is used the bands can be calibrated in six semi-circles, the innermost for Top Band and the outer for 28 Mc/s.

The arrangement will also depend on whether the converter is to stay a converter or whether it is to be expanded at a later date by adding an i.f. amplifier, which can be designed for a narrow bandwidth, and eventually to be developed, in a number of stages, into a complete receiver.

Alignment

If the specified component values are adhered to, the bands cannot be missed. Nevertheless the newcomer is advised to start with the 1.9 and 3.5 Mc/s bands. If you know a neighbouring amateur ask him to transmit a signal in the middle of the band *e.g.*, on 1.9 Mc/s, turn the dial pointer to 90°, *i.e.*, condensers half out, then adjust the slug L6 until the station comes in. The signal is peaked up with the slugs in L2 and L4 and that is all. 10° on the dial will be about 1.8 Mc/s, 90° exactly 1.9 Mc/s and 170° about 2.0 Mc/s. The other bands are adjusted in a similar way. The slugs may have to be iron-dust or brass. Since the screening can over the coils will reduce the initial inductance, iron-dust slugs are usually required.

Results

This receiving equipment is extremely powerful as one would expect. It must be realized that a four or five valve broadcast receiver now becomes a six or seven valve job as the case may be. DX from all over the globe can be heard. The spreading out of the bands over the whole dial, as compared with a few degrees on some receivers, is a welcome experience. The fact that the bandwidth of the receiver is of the order of 7 to 9 kc/s will not be felt as a serious disadvantage. After all there are still some enthusiasts who will not part with their t.r.f.-receivers and are doing well with greater bandwidths. Once the newcomer can show that the bandwidth is the limiting factor and not his standard of operating, then he is no longer a newcomer, and we have to think again.

The converter was intended originally for use on 1.8 and 3.5 Mc/s, and the other bands were an afterthought. It must be realized that as the frequency goes up the stray capacity of the Jones plug, which lies across L3, must have some adverse effect on V1 although, in the absence of a comparison, it may not be readily noticeable. Of course, this can be avoided by orthodox methods, but for the time being it goes beyond the scope of this article.

Mobile Column

By JOHN A. ROUSE (G2AHL)*

SEPTEMBER 16 is an important date in the mobile calendar in Southern England.

At Stoney Cross Aerodrome (NGR 41/250118), 7½ miles west of Southampton on the A31, Bournemouth Amateur Radio Society is holding a rally for mobile and portable enthusiasts. Three control stations will be in operation from 10.30 B.S.T. G2HIF will be on 144 Mc/s, G3GYK on 3.5 Mc/s, and G3KYU on Top Band. Those who attend—and all are welcome—should bring picnic lunch and/or tea with them. Mobiles are asked to contact the control stations as soon as possible on their way to the rally and to report progress periodically. Further details may be obtained from John Ashford (G3KYU), 119 Petersfield Road, Boscombe East, Bournemouth.

On the same day, about a 100 miles further east, the West Kent Amateur Radio Society is running a mobile rally at the Sports Ground, Tonbridge, which provides excellent facilities for swimming, boating on the Medway, refreshments and even a model railway! There are plenty of parking spaces and many excellent picnic sites. The entrance for cars is by way of Castle Street, on the right-hand side of the High Street travelling from London. The turning is opposite the Rose & Crown Hotel, just past Tonbridge School. An attraction for non-radio visitors will be a visit to the Eridge Castle Museum of Period Costumes.

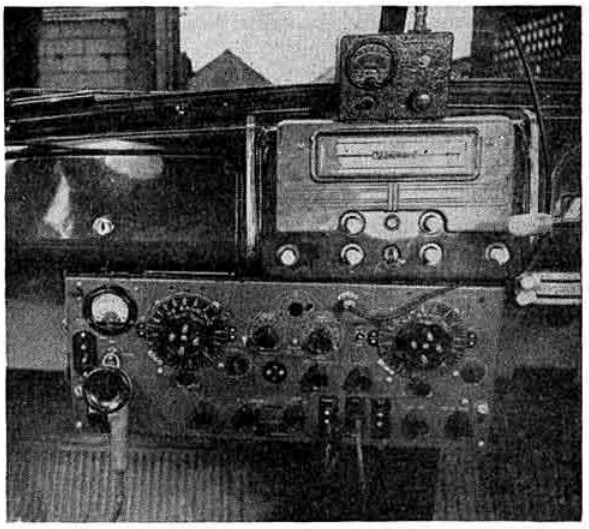
Control stations will be in operation from 12 noon on 1.8 Mc/s (G8TL), 3.5 and 144 Mc/s (G4IB).

One of the difficulties of arranging mobile rallies is the lack of refreshment facilities at most of the more suitable sites. The organizers of the September 16 rallies have wisely made them picnic affairs which should also add considerably to the enjoyment. All that is now needed is fine weather and record attendances.

*R.S.G.B. Headquarters Staff.

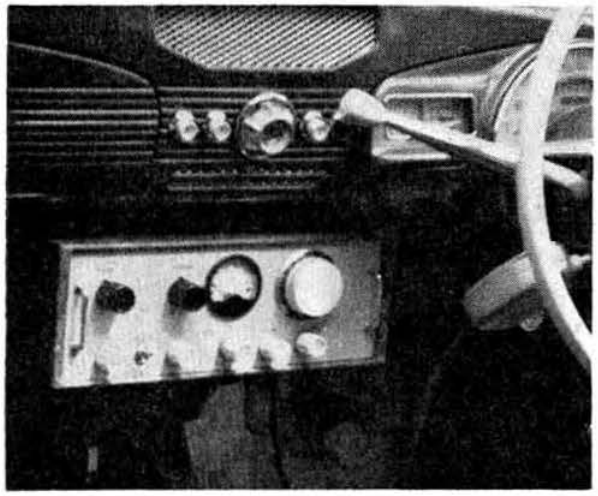
Out and About

One of the neatest mobile installations seen for many a day was G3LB's at the York O.R.M. G3LB is lucky enough to have a Gonset mobile converter (mounted on the steering column), which feeds into a crystal controlled BC453 as the i.f. chain. On the transmitting side, a Viking, which operates on 3.5, 14, 21 and 28 Mc/s,



Although large by usual mobile standards, G3AO/M's ZC1 fits snugly under the dash of his Standard Vanguard. The field strength meter shown is operated by a wing mounted aerial.

is mounted under the dash. A separate Viking v.f.o. is conveniently placed for easy operation. The power supplies are a dynamotor giving 400 volts at 200 mA for the transmitter and a vibrator for the receiver, both mounted under the bonnet of the Isis. A centre-loaded whip is mounted on the rear bumper. G3LB's first mobile contact with this gear was a three-way with G3HWU and ZB1AJX. A few days later W1REP was worked on 21 Mc/s. G3AO/M was worked on 3.7 Mc/s, while in Hove, Sussex, a distance of about 300 miles. G3AO himself uses a modified ZC1 which is mounted *under the dash* of his Standard Vanguard. The neat appearance can be seen in one of the photographs reproduced this month. The ZC1, which has been modified to incorporate a pi-section tank circuit, feeds a base-loaded whip with a capacity "hat." G3AO makes a plea for fixed stations to listen carefully for signals from mobiles, which even with the best of equipment, are still much handicapped on 3.5 Mc/s.



G3IRE's neat installation in his Sunbeam-Talbot.

A recent recruit to the mobile ranks is G3IRE of Hove who uses a home-built rig housed in a case measuring only 12 in. by 4½ in. by 8 in. The line-up of the transmitter, which covers 1.8, 3.5 and 21 Mc/s, is EF91 v.f.o., 12AU7 buffer doubler, 6AQ5 driver and TT11 p.a. with a 6AQ5 clamp valve. The modulator comprises a 12AU7 driving a pair of 6AQ5s in class A. The receiver covers the medium wave, Top Band and 3.5 Mc/s; a converter for 21 Mc/s is under construction. Results have so far been excellent, with G8WC and G3FAN both worked at about 50 miles. G3IRE has daily skeds with G3JZ and G3BF.

These brief descriptions show how three mobile enthusiasts have equipped themselves. No doubt they will give others useful ideas, but many more are needed if *Mobile Column* is to continue to be a regular BULLETIN feature.

Mobile DX Table

G3IRE has suggested that a Mobile DX Table should be published from time to time. Such a Table might do a great deal to convince some of the sceptics that mobile work is worthwhile, provided the frequency used is quoted. Entries should be sent to R.S.G.B. Headquarters as soon as possible.

Safety and the Mobile Operator

The need for great care when operating mobile has been stressed in the BULLETIN many times in the past. The best way to keep out of trouble on the road is of course to be a good driver. *Road Craft* (H.M.S.O.), the manual of driving instruction used at the Metropolitan Police Driving School, is now available to the public price 3s. 6d. and contains an abundance of sound advice on all aspects of driving a car, from starting the engine to getting out of skids.

G3AO/M uses a capacity hat as well as a loading coil on his rear-bumper mounted whip aerial. Using this aerial and the equipment described on this page contacts up to distances of 300 miles have been achieved. The capacity hat is designed to increase the capacity of the aerial, thus allowing the loading coil to be reduced in size.

Contributions—news, views and technical ideas—for inclusion in the next *Mobile Column* will be most welcome and should be sent to R.S.G.B. Headquarters as soon as possible.

Mobile Rallies

SUNDAY, SEPTEMBER 16, 1956

STONEY CROSS AERODROME, NR. SOUTHAMPTON
(NGR 41/250118)

Rally Stations
G2HIF—144 Mc/s G3GYK—3.5 Mc/s
G3KYU—1.8 Mc/s
will be on the air from 10.30 a.m.
Organised by Bournemouth Amateur Radio Society

* * *

SPORTS GROUND, TONBRIDGE, KENT
(Enter by Castle Street, opposite the Rose & Crown Hotel, High Street)

Rally Stations
will be in operation on 1.8 Mc/s (G8TL), 3.5 Mc/s and 144 Mc/s (G4IB) from 12 noon
Organised by West Kent Amateur Radio Society

Principles of Colour Television

Part 2—Practical Systems

By P. S. CARNT, B.Sc. (Eng.), A.M.I.E.E. *

THE first demonstration of a colour system was given by J. L. Baird in 1928. It is a tribute to his work that the Americans recommended the adoption of a basically similar system as late as 1951.

The simplest form of the system employed a disc at the transmitter which carried equal sectors of red, green and blue filters. This disc was rotated in front of a conventional monochrome camera in such a way that for the duration of one frame scan the red filter was in front of the camera, then for the next frame the green filter replaced the red, and finally the next frame completed the cycle with the blue filter in front of the camera. A colour display was obtained at the receiver by rotating a similar colour wheel in front of a " white " tube emitting sufficient radiant energy in the relevant red, green and blue regions of the spectrum, the wheel being synchronized in the correct phase with the transmitter wheel. By a careful choice of the spectral responses of the camera, receiving tube, and filters, excellent colorimetric fidelity can be obtained. However, there are certain disadvantages with this system, apart from the practical inconvenience of a relatively large wheel at the receiver with its accompanying windage noise.

In the first place, if only one primary colour is present in the scene, the frame frequency must be sufficient to prevent flicker. Then the frame frequency per primary should be comparable with a monochrome system, that is, 50 c/s. Hence the basic frame rate must be increased three times, leading to a threefold increase in bandwidth over a conventional 50 c/s frame monochrome system.

As far as compatibility is concerned, while a monochrome receiver operating with three times the usual scanning speed would produce a satisfactory picture from a colour transmission, this would mean considerable modification to existing monochrome receivers, so that it cannot be said that the frame sequential system is compatible.

Although a basic frame rate of 150 c/s is sufficient to overcome flicker effects, it is not fast enough to remove undesirable colour break-up and fringing caused by the strobing which results from a sudden movement of the eyes of the observer, or of the object being televised. However, these disadvantages can be largely overcome by the use of a chromatron tube display, which will be described later.

Simultaneous System

Another type of system in which there was considerable interest was the simultaneous system. The principle here was to have the equivalent of three cameras at the transmitter, one analysing the red content of the scene, one the green, and one the blue. Then each of the camera outputs was amplitude modulated separately on to three different carriers, and at the receiver the red, green and blue information was extracted by demodulation. Finally, this information was fed to a display device, such as an optical combination of red, green and blue receiver tubes.

While this system required more than three times the bandwidth of the conventional monochrome system because a guard space was required between the sidebands of each modulated carrier, at least an element of compatibility was afforded by the use of one of the signals (probably the green) as the monochrome signal. Investigations were therefore made in order to find a way of reducing the bandwidth required, and it was discovered that, owing to the characteristics of human vision, the definition of the blue channel could be cut without noticeable change in subjective quality. Further tests showed that even more bandwidth could be saved by reproducing the fine detail in a picture in black and white, and by " painting in " the colour information with greatly reduced definition. This was the " mixed highs " principle, and children's painting books provide a familiar example of this characteristic of vision.

Finally, it has been found that the human eye is less sensitive to colour detail in purple-greenish hues than to detail in orange-cyan hues, and by a corresponding selective bandwidth limitation of the colour information, still greater bandwidth economy can be achieved.

N.T.S.C. System

The application of the colour acuity properties of vision to the original simultaneous system, together with a band-sharing technique, has resulted in the N.T.S.C. (National Television System Committee) colour system which was adopted in the U.S.A. in December, 1953. A modified form of this system, adapted to British standards, is undergoing tests at the present time with the co-operation of the B.B.C. and industry.

The operation of the system may be described as follows: at the transmitter, from the equivalent of three cameras, three voltages, R, G, B, are obtained which are representative of the red, green and blue content of the scene. Since a compatible signal is required, the signals are mixed in proportion to their luminosity coefficients to give a luminance or Y signal defined by

$$Y = 0.30R + 0.59G + 0.11B.$$

This signal is similar to the output of a conventional monochrome camera, and it is transmitted in exactly the same way. Monochrome receivers can therefore operate satisfactorily with it.

The Y signal supplies one of the three parameters required for a colour receiver. The other two parameters are obtained, like Y, by mixing suitable proportions of R, G, and B, to give the quantities I (in-phase) and Q (quadrature) according to the equations

$$I = 0.59R - 0.28G - 0.32B.$$
$$Q = 0.21R - 0.53G + 0.31B.$$

The coefficients of R, G, and B in these expressions are chosen so that the magnitude of I represents the tristimulus strength at the chromaticity point I on the chromaticity diagram, Fig. 4. Then mixtures of I and Y specify chromaticities along the I axis which passes through the points I and Y. Hence, if only I and Y are present, it can be seen from the centre of gravity rule that the chromaticity will be along the I axis. I may have either sign, so that each side of Y is covered. This I axis is the one along which the colour acuity of vision is greatest, and the bandwidth allocation for I is 1 Mc/s in the British system. Notice that the bandwidth given to Y is much greater, viz., 3 Mc/s.

Similarly, the coefficients of R, G and B in the expression for Q are chosen so that the magnitude of Q gives the tristimulus strength at the chromaticity point Q in

* *Research Laboratories of The General Electric Company, Limited, Wembley, England.*

A paper read to a meeting of the Society held at the Institution of Electrical Engineers, London, on March 23, 1956.

Fig. 4. Again, if only Q and Y are present, chromaticities are specified along the Q axis which passes through the points Q and Y. This Q axis is the locus of least colour acuity of human vision, and the bandwidth allocation for Q is about 0.34 Mc/s.

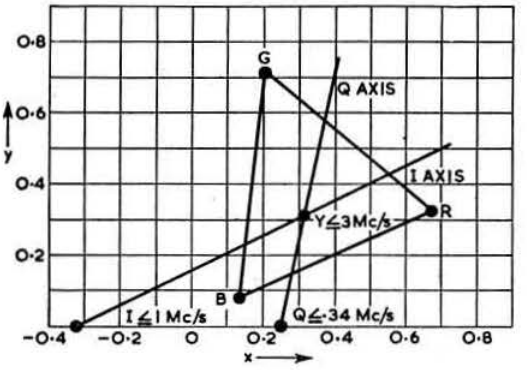


Fig. 4. I, Q and Y chromaticities and bandwidths. Receiver primaries R, G and B. Y chromaticity is " illuminant C " for which x = 0.310, y = 0.316.

The effect of these bandwidth allocations on the transmission of coloured detail can now be discussed. For large coloured areas, the bandwidth will be less than 0.34 Mc/s, so that all three parameters I, Q and Y are present. As coloured detail is reduced, a point will be reached at which Q will vanish, and then the reproduction will be only two colour along the orange-cyan I axis. As the detail is reduced further, I will also vanish, leaving only the " monochrome " Y signal.

Prior to transmission, I and Q are quadrature modulated on to a subcarrier. This is done by taking two outputs in quadrature, cos wt and sin wt, from an oscillator of approximately 2.66 Mc/s in the British system. The cos wt output is amplitude modulated by I, while the sin wt output is amplitude modulated by Q. The amplitude modulation is carried out with balanced modulators which suppress the standing carrier output which a conventional modulator would give. The two modulated signals are then added together to give a composite subcarrier which is, in effect, simultaneously amplitude and phase modulated. Fig. 5 shows the two quadrature com-

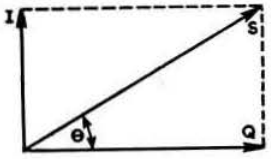


Fig. 5. Addition of I and Q modulated signals.

ponents which add to give a resultant subcarrier amplitude at a certain phase angle to a reference.

For a given luminance level, the subcarrier amplitude and phase have a direct interpretation in colorimetric terms. Fig. 6 shows a chromaticity diagram on which the elliptical loci represent constant values of subcarrier amplitude per unit luminance. Hence, as the phase only is varied, so a given elliptical path is followed. Similarly, the straight lines radiating from the white point are constant phase, i.e., constant hue lines. For a given phase, as the subcarrier amplitude per unit luminance increases, so the distance from the white point increases, and the saturation increases. Notice that for the more common pastel shades the subcarrier amplitude is small, and for white it is zero. In transmission, the modulated subcarrier is added to Y before the latter is fed to the conventional vision modulator. The resulting signal is shown in Fig. 7.

The total bandwidth required is the same as in the ordinary monochrome system because the subcarrier is placed within the Y passband. Hence the subcarrier beat of 2.66 Mc/s will be evident on both monochrome and colour receivers. This beat can be removed from large areas (but not edges) by means of a rejector circuit.

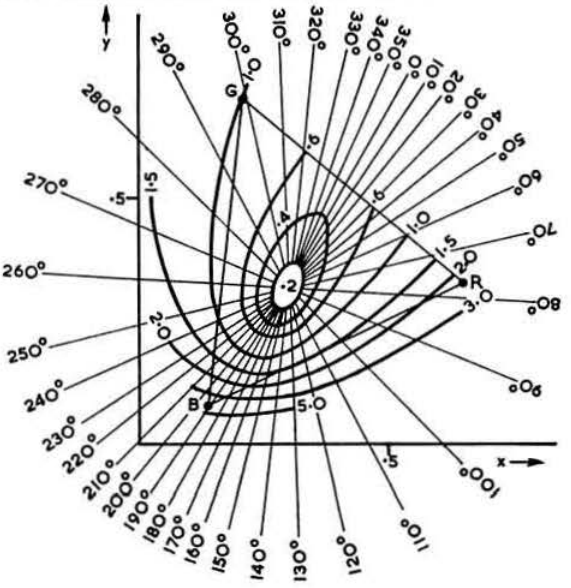


Fig 6. Loci of constant subcarrier amplitude per unit luminance, and constant subcarrier phase.

There are two factors, however, which tend to reduce the visibility of the dot structure caused by the 2.66 Mc/s beat. Firstly, the amplitude of the subcarrier is small for pastel shades and zero for white, so that the dot structure will be observed only in coloured areas and the dot contrast will be greatest only for saturated colours. Secondly, the actual subcarrier frequency of 2.6578125 Mc/s is chosen to be an odd multiple of half the line frequency. This gives a dot pattern which tends to integrate out on both a space and time basis.

It should be noted that Q is transmitted by double sideband, while the extra bandwidth of I is transmitted single sideband. Since Q is double sideband, it will not crosstalk to I, and although I will crosstalk to Q above

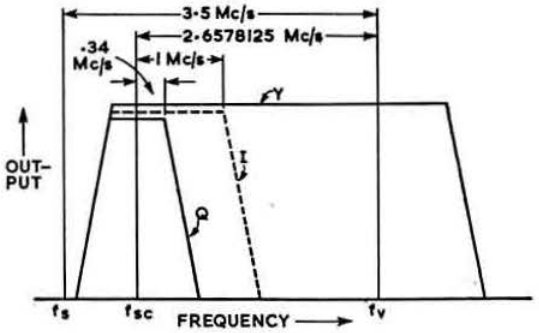


Fig. 7. Band sharing of chrominance signals I and Q and luminance signal Y in transmission.

0.34 Mc/s, a suitable filter will remove this from Q. Hence the colour receiver should be able to receive I and Q free of crosstalk from each other, though, of course, crosstalk to and from the Y signal is unavoidable. This latter crosstalk is reduced by the choice of subcarrier frequency as mentioned above.

N.T.S.C. Receiver

A simplified receiver block diagram is shown in Fig. 8.

The receiver circuit between the aerial and the vision detector can be conventional, but it is important that the video response be maintained to 3 Mc/s so that the subcarrier sidebands are not attenuated. The output from

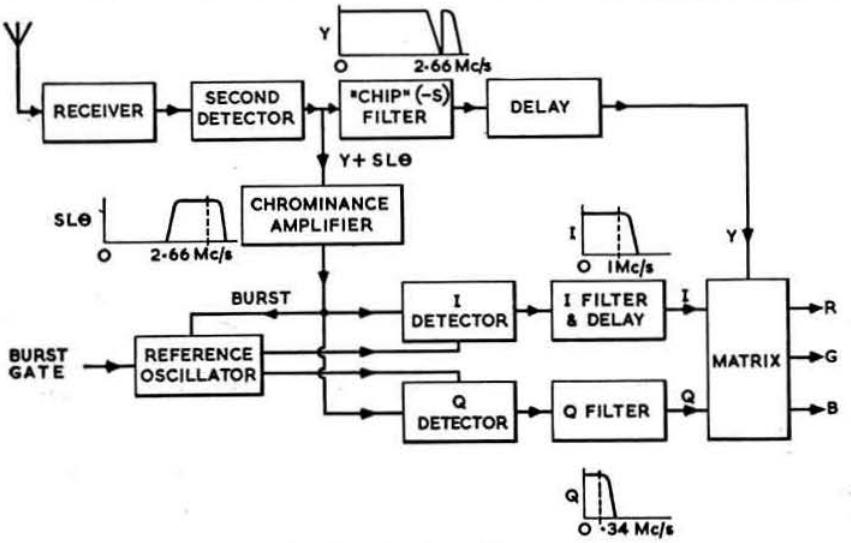


Fig. 8. Receiver block diagram.

the detector consists of the Y signal together with the subcarrier SLθ. This composite signal is fed to two paths:

(a) One path carries Y to the output, and a "chip" filter $-S$ can be included to remove the large area dot structure. Y is then fed to the output matrix.

(b) A second path includes a bandpass filter which removes the l.f. content of the Y signal, and after amplification the subcarrier is demodulated to yield I and Q. The demodulation is carried out by taking two outputs in quadrature from a local 2.6578125 Mc/s oscillator which is locked in frequency and phase with the corresponding transmitter oscillator. Each output is heterodyned with the subcarrier signal, and after filtering I and Q are fed to the output matrix. In order to synchronize the receiver local oscillator, a "colour burst" consisting of about 9 cycles of subcarrier frequency is transmitted during the back porch of the line synchronizing signal.

The output matrix converts I, Q, Y back into R, G, B by means of the relations

$$R = 0.96I + 0.63Q + 1.00Y$$
$$G = -0.28I - 0.64Q + 1.00Y$$
$$B = -1.11I + 1.72Q + 1.00Y,$$

and finally R, G and B are applied to the picture display.

It should be noted that on leaving the transmitter I, Q and Y are arranged to be coincident in time in order to prevent "ghost" dot structures on monochrome receivers. At the colour receiver, I is unavoidably delayed relative to Y by the I low pass filter, and Q is delayed even longer owing to its narrower bandwidth. These delays are equalized by deliberately delaying Y, and to a lesser extent I, to match the time position of Q.

Simultaneous Display

A relatively simple colour display can be made by optically combining the light outputs of three separate red, green and blue receiver tubes. Often the tubes are the small projection types, and "white" tubes can be used in conjunction with suitable dichroic mirrors and coloured filters.

The satisfactory operation of this display is not easy to achieve because of the registration requirement for the three images. While it is not difficult to arrange for a white central spot on the viewing screen by superposition of the three central spots on the tubes, it must be remembered that each tube has to be scanned in both line and frame directions while maintaining the registration. There are necessarily three separate deflection systems, even though common line and frame time bases may be used, and it is necessary that the three scans should have similar amplitude and linearity in both line and frame directions with an error tolerance which is of the order of one picture element.

Nevertheless, good quality pictures have been obtained by this method, and it has the merit of small replacement cost.

Chromatron Tube

The principle of one type of single tube colour display is shown in Fig. 9. This is the chromatron or Lawrence type of tube which is direct viewed.

The face of the tube has strips of alternate red, green and blue light emitting phosphors over its entire area. Just behind the phosphor strips there are two deflection grids of fine wires which are arranged so that one set of wires lies behind the red phosphor strips, while the other set lies behind the blue strips. Each set is brought out to a terminal.

A single gun provides an electron beam as in a conventional monochrome tube, and if no voltage is applied to the deflection grids the electron beam strikes the green phosphor strips only.

If now a deflecting voltage is applied, the electron beam can be made to strike either all the red strips only, or all the blue strips only, depending on the polarity of the deflecting voltage. Hence, by a suitable switching circuit, the red information can be made to modulate the beam while the beam is deflected to the red strips, and similarly for the green and blue strips.

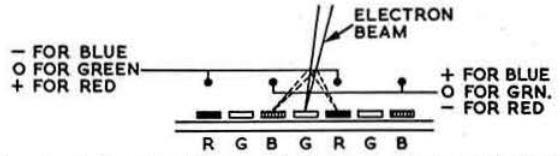


Fig. 9. Section through screen of chromatron showing selection of primary according to polarity of grid structure applied voltage.

For N.T.S.C. operation the beam deflection and switching are carried out at the subcarrier frequency of 2.66 Mc/s. Unfortunately, the deflection grid structure of the tube has appreciable capacitance, and the power required for sufficient beam deflection is about 20 watts.

However, if the tube is operated on a frame sequential system, the large grid capacitance is not embarrassing because the switching rate is far slower. Several advantages are obtained over the rotating colour disc method, for no moving parts are required and much less space is necessary. Also, the phosphor strips of the chromatron can be given suitable afterglow characteristics which greatly reduce colour break-up effects.

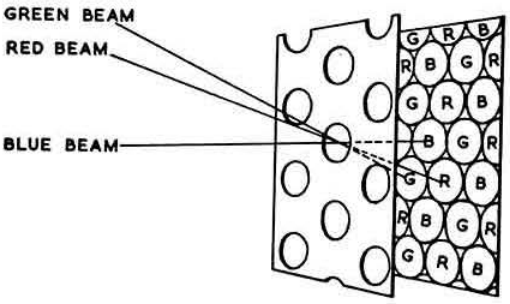


Fig. 10. Geometrical arrangement of electron beams, mask and phosphor dot screen in the shadow mask tube.

Shadow Mask Tube

A type of tube which is very popular in the U.S.A. at the present time is the shadow mask tube. The essential features of the tube are shown in Fig. 10.

The direct viewed screen consists of a glass plate on which are deposited a large number of dots of red, green and blue light emitting phosphors which are arranged at the vertices of tiny equilateral triangles. A metal shadow mask plate, pierced with as many holes as there are triplets of dots, is arranged about one inch behind the screen, and finally three separate electron guns are mounted behind the shadow mask.

The geometrical arrangement is such that the electron beam from any one gun can impinge on all the phosphor dots of one colour only, it being screened from the other dots by the masking action of the plate. The R, G, B information is fed to the appropriate guns, and all three beams are scanned by a common deflection system.

The simplicity of the method is attractive, but the practical difficulties are considerable, for, in order to obtain sufficient definition, the number of triplets of dots must be about one quarter of a million for a 21in. tube. Hence the total number of phosphor dots is three times this number. Also, owing to the relative flatness of the viewing screen, convergence error becomes appreciable as the beams are scanned away from the tube centre, and it is necessary to correct for this by applying suitable current waveforms to subsidiary "dynamic convergence" coils. Normally these tubes are operated with 25kV on the final anode, and it is advisable to have this stabilized to prevent drift of the convergence.

The manufacture of relatively large numbers of these tubes is a striking example of American engineering skill and ingenuity, and considerable effort has been spent on the development of the photographic techniques which are used to construct the phosphor dot screen and the shadow mask.

* * *

To conclude, it would appear that there are two general problems to be solved in colour television at the present time.

Firstly, the adoption of a suitable system, bearing in mind any limitations which it may impose on improved techniques of the future, in the field of circuitry and particularly display devices.

Secondly, a cheap, effective, and reliable display device has yet to be made. While good results have been obtained with the three types of display which have been mentioned, all of them tend to fall short of the definition and brightness which can be achieved on a conventional monochrome tube, yet they are probably the most practical and satisfactory devices which have emerged so far from a study of a very large variety of displays, by both British and American engineers.

TV-DX

FROM the June, 1956, issue of the Circular Letter issued by the Radio Society of East Africa, we learn that on several occasions during April, 1956, Peter Pegrume (VQ4CT) of Isiolo, Kenya, heard the London B.B.C. Television Station at good strength. VQ4EO at Macalder Mines and several other amateurs in the Nairobi district also heard the transmissions from London. The vision carrier was identified by its 50 c/s frame pulses and 10.125 kc/s line pulses, which at DX sound like a buzz-saw superimposed on a ringing whistle with the picture detail as background mush or "birdies."

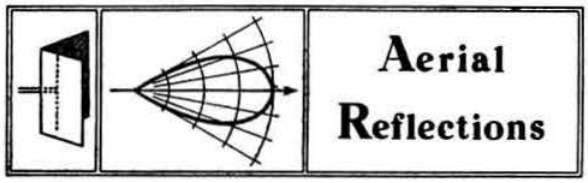
If signals are strong enough the picture detail may be heard up to 3 Mc/s below the vision carrier centre frequency. Negligible picture detail should be heard on the r.f. side of the vision carrier because the vision carrier has its h.f. sideband suppressed.

VQ4EV, who contributed the Editorial to the June Circular Letter, asks the question "Is anyone in these territories interested enough to build a TV receiver"? The possibilities for the fascinating art of DX-TV reception are very great and the results in this country would, I think, be the first of their kind." Incidentally, VQ4EV is a Founder Member of the British Amateur Television Club.

Long Distance Reception of B.B.C. Television

AS a result of the seasonal upward trend of maximum usable frequencies, accentuated by the approach of sunspot maximum, reception of the B.B.C.'s Band 1 (Sound 41.5 Mc/s, Vision 45.0 Mc/s) television transmissions may be possible in various parts of the world during the autumn and winter months of the next three years. During September reception is likely to be confined to the African Continent, but during subsequent months reception in the Americas and Asia should be possible. It is known that a number of overseas members are interested in experimental television reception, and in order to give them some guidance a footnote to the monthly frequency predictions will indicate the approximate times when television reception may be possible in various areas. The following are the predictions for September, 1956: Accra—15.00/18.30 G.M.T., Capetown—15.00/17.30 G.M.T., Johannesburg—15.00/18.30 G.M.T., Nairobi—15.00/17.00 G.M.T., Salisbury—15.00/18.00 G.M.T.

HAVE YOU ENROLLED A NEW MEMBER THIS MONTH?



Aerial Reflections

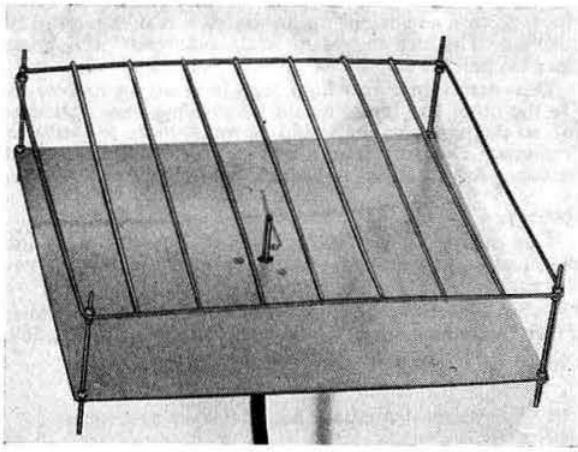
By F. J. CHARMAN, B.E.M. (G6CJ)*

THE Reflex Aerial is a new type of array which should be very useful in the u.h.f. bands. It was originally described in German, and a scale model for 3000 Mc/s has satisfied the writer that the claims made for gain and beamwidth are justified. Its construction is quite straight-forward, and it has that great advantage always sought after in aerials—a single radiator and feed point. The immediate success of the model shows that there will be no difficulty to get it going well on the u.h.f. amateur bands.

Performance

The aerial, a model of which is shown in the photograph, is in effect a kind of Yagi array, but instead of a row of directors, use is made of multiple reflections between a main reflector sheet and a grating. The effect is rather similar to that produced by two parallel mirrors; the infinite series of images represents a long line of directors in front of the aerial.

The original published figures, which were obtained at 940 Mc/s using reflector and grating about one wavelength square, are half-power beamwidth about 40°



This photograph shows the author's Reflex Aerial for 3000 Mc/s which was used to check the performance. The construction is clearly shown.

and gain 11 db. With the area increased to two wavelengths square, the performance was improved, the beamwidth being 35° (*E*-plane) and 40° (*H*-plane), the gain 13 db, and the back-to-front ratio over 20 db. The impedance of the radiator was 120 ohms.

The patterns obtained with the writer's models were rather sharper than those quoted for the original. This is probably because the grating was adjusted to a somewhat higher reflection coefficient, resulting in more partial reflections and a longer equivalent array.

*Orchard Cottage, Wexham Street, Stoke Poges, Bucks.

Fig. 1 shows the *E*- and *H*-plane patterns of the 2 wavelength-square model, the half-power widths being 26° and 30° respectively. There were no appreciable minor lobes to the pattern, and the back-to-front ratio was 27 db. The gain calculated from this pattern is 16 db. A smaller model one wavelength square had a noticeably wider pattern, with small minor lobes (−10 db) about 120° off the main beam axis; the gain was, of course, lower.

Construction for 440 and 1250 Mc/s

The dimensions below are scaled from the 3000 Mc/s models, and aerials made to them can certainly equal the performance of the original, and could equal that of the models. None of the dimensions is critical, except possibly those of the grating, as discussed later.

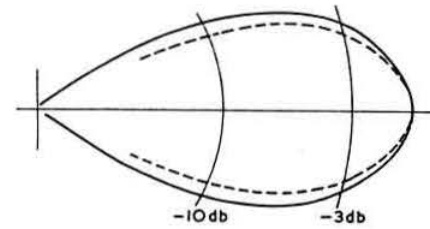


Fig. 1. Measured radiation patterns of scale model Reflex Aerial.

For 440 Mc/s a frame 30in. square will give an aerial with a gain of 11 to 12 db, but a 4ft 6in. square would give the higher performance, and is still quite a practicable size. In either case the grating could be made from ¼in. diameter tubes or 1in. wide foil strips placed 7½in. apart, five bars being needed for the former and eight for the larger model.

In order to minimize windage (and cost) the reflector can be constructed from 1in. mesh galvanized wire netting mounted on a wood or metal frame. Four corner posts can support two bars for holding the grating 12in. ahead of the reflector. The whole of this frame and grating can be metallically joined, as was done in the models, without ill-effect. The dipole driving element, say, ¼in. tube 12¼in. long, is mounted in the centre of the frame with its conductor parallel to the grating bars, about 7½in. from the reflector.

For 1250 Mc/s everything would have to be scaled down in the wavelength ratio. The frame would be 18in. square, the grating would be of $\frac{5}{32}$in. diameter rods or $\frac{5}{16}$in. wide foil, and set 4in. from the reflector, whilst the dipole would be about 2½in. from the reflector. Half-inch mesh netting will be fine enough at this frequency to prevent any leakage to the back.

The performance of the 3000 Mc/s model was not particularly affected by variation of dipole/reflector spacing, and therefore it may be possible to adjust the feed-point impedance nicely by such an operation, though this has not been tested. The claimed impedance of 120 ohms could be matched by quarter-wave transformer to a lower value, using 80 ohm twin to reach about 50 ohms, or 95 ohm (Telcon B.A.3) screened twin to match to 70 ohms. In either case a balun would be needed if concentric main feeder were used. The velocity factor of both these cables is 2/3, so the quarter wavelength would be 197/*f* inches, or ¼in. for 440 Mc/s and 1½in. for 1250 Mc/s; the shortest possible joints should be used.

Principle of Operation

In order to see how the aerial works, it is necessary to understand the behaviour of a grating. On long wavelengths a grating of conductors laid parallel to the elec-

tric field of a wave acts as an almost perfect reflector. As the wavelength is reduced there comes a time when the wave is small enough to pass between the bars; for wavelengths shorter than, say, the spacing of the bars, the grating is as transparent as a glass window. It thus behaves like a high-pass filter, and we can, in fact, study it in terms of filter theory—the duality is mathematically exact. When the conductors are parallel to the electric field, currents are induced to flow along them, just as they are in a dipole, and the inductance of the bars produces an inductive shunt impedance to the wave which is trying to pass through, and which is a short circuit at very low frequencies. The grating can thus be compared to a high-pass filter in mid-shunt connection (Fig. 2).

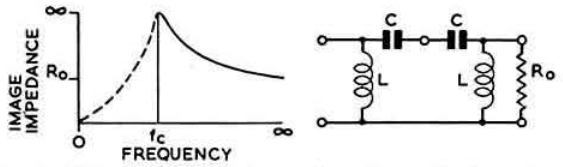


Fig. 2. High-pass filter equivalent of the grating, and its image impedance. L represents the inductance of the bars and C the capacitance between the bars.

It will be seen from the circuit of Fig. 2 that at the lowest frequencies the filter offers a short circuit, because the inductive reactance of the coil is substantially zero, and therefore that any energy applied to the input terminals is reflected. At a frequency known as the cut-off frequency, where the inductance is balanced by the series capacity (which corresponds to the capacity between the bars) a transition takes place from reflection to transmission and above this point energy will pass through the network.

The nominal impedance R_o of the filter is $\sqrt{L/C}$ but its image, or matching impedance, only has this value at infinite frequency; towards cut-off it rises to high values, and below cut-off is inductive. The grating behaves in the same way. The impedance of space (considered as a transmission line) to a radio wave is 377 ohms, and this is the R_o value of the grating filter. Thus, near the grating cut-off, where its wave impedance is high, wave and grating are badly mismatched and reflection takes place; some energy passing through, but the greater part being thrown back. Because the impedance of the grating or network is inductive near cut-off, the phase angle of the reflected wave is not quite 180° as it would be for a perfect reflector or a short circuit. In the aerials described above the reflection coefficient has been adjusted to 0.7 to 0.8 with corresponding phase angles of 135° to 145°. Rather more than half the incident energy is reflected. The phase must also be allowed for in spacing the grating from the main reflector, in order to bring the multiple reflected components into phase in the forward direction.

In the aerial, if the reflection coefficient is 0.7, half the incident power passes through the grating, and half is returned to the back wall, whence it comes forward again to have another "go" at the grating, the process being continued indefinitely until effectively all the energy is radiated. If the spacing of reflector from grating is correct, then all these components will add up to make a strong signal in the forward direction. It will be seen, therefore, that the grating is used many times, and the aerial acts as though it were extended forward, with a series of progressively weaker images of the grating acting as a row of directors. For this reason it has been called the Reflex Aerial.

Fig. 3 illustrates this. All forward components A, A', A", etc., are in phase, each one 70 per cent of the amplitude of its predecessor. The vector sum of all these reflections (the sum of an infinite geometric progression) is a straight line of length 3.4 x A. This, plus 3 db for the main reflector, is roughly the gain of the aerial—13½ db.

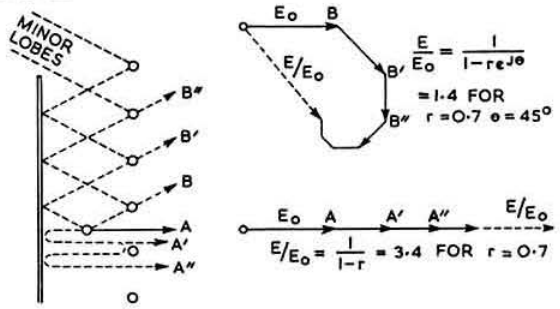


Fig. 3. The principle of the Reflex Aerial.

In the oblique direction B the components lag behind each other because the path length between reflections is greater. The vector sum of the components (Fig. 3) for a phase lag of 45° is only 1.4, i.e., 8 db less than the A-total. This is not strictly true because the reflection of the grating increases at oblique angles and is always 100 per cent at grazing incidence. Although this helps to sharpen the beam, it can also result in minor lobes of radiation if the grating is not adequately large.

There is room for some experiment with the effect of varying the grating. The reflection coefficient depends on the ratio of conductor diameter and spacing to the wavelength. By making the grating more "dense" to bring the reflection coefficient up to, say, 0.9, it is theoretically possible to reduce the beam width below 20° and bring the gain near 20 db.

The correct spacing would then be nearly a half-wave. On the other hand, one would be working very near cut-off, so the performance would be much more sensitive to frequency change. There would also be an increased tendency for the signal to leak sideways.

Reference

The theory of the Reflex Aerial, together with the practical results quoted above, are given in the following paper:

G. von TRENTINI. "Reflex- und Leitscheiben-Antennen für Dezimeterwellen," N.T.Z. November, 1955, p. 569.

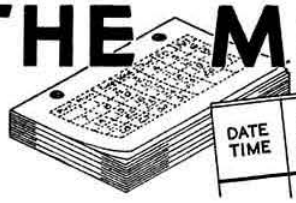
International Amateur Sound Recording Contest

THE British Sound Recording Association has made available in English the rules for the Fifth International Amateur Sound Recording Contest. Copies may be obtained by sending a stamped addressed envelope to H. J. Houlgate, 12 Strongbow Road, London, S.E.9. The closing date for entries for the contest is September 15, 1956.

Visit of Portuguese President to Mozambique

DURING the visit of His Excellency the President of the Portuguese Republic to Mozambique, the national society, Liga dos Radio Emissores de Mocambique (L.R.E.M.) will operate its Headquarters station CR7BS on phone and c.w. in all amateur bands. A special QSL card will be used to confirm all contacts made between August 7 and October 31, 1956.

THE MONTH ON THE AIR



DATE TIME	FREQ.	STATION CALLED	CALLED BY	STATION HEARD OR WORKED R	S	T	kc/s OR DIAL	IF QSO RESULTED MY SIGS. R	S	T	TIME OF ENDING QSO	REMARKS

By S. A. HERBERT (G3ATU)*

ONCE again we are experiencing the throes of a British summer, complete with the usual quota of cloudbursts, thunder-storms and poor conditions which typify the season. Anyway, DX-minded holiday makers can relax in the certainty that they are not missing too many rare ones! Some of our newer members are getting worried because ten metres has subsided after throwing up all kinds of choice stuff last Winter and Spring, but they can take comfort in the fact that ten *always* behaves thus. Even at the peak of the cycle, things are normally dead until late August or early September—apart from short-skip openings—but once the band does open, anything is liable to happen. Listen this autumn and you may see what we mean. So much for the future—now to find out what has been going on.

Twenty Metres

The big snag at this time of the year is the tremendous amount of short-skip which clutters the band for most of the day. Sporadic E openings are also fairly common and when they occur, the appearance of S9 plus G, GI, GM, GW, ON and PA signals makes DX chasing something of a fruitless occupation, but twenty being what it is, there are still times when the tumult and the shouting die down (unless, of course, some rare DX shows up!) and life begins to look rosy once more.

G3AAE (Barnet) found things improving recently, after being subnormal for most of the summer. John worked YK1DF for a welcome addition on phone, as were PJ2MC, FG7XC and HI8FR on c.w., but he is still in the queue for VP5RR (14085), FL8AB, YA1AA and sundry other mouth-watering items. Ws were heard calling VK9TW (Nauru), who is Danny Weil, late of VR1B. A recent visitor to the '3AAE shack was Bill of ZD3BFC fame, at present on leave. Don, ZD2DCP, was on leave too, but he should be back in Nigeria by now. CN8MM is supposed to have some QSLs from XW8AB, although cards from that station apparently are not yet passing through the bureau. G3AAE understands that XW8AC is now on 14 Mc/s, making one more possibility. **G6CJ** (Stoke Poges) has a QSL from ZE3JO which confirms that he will operate VQ1JO on 14 Mc/s c.w. with 20 watts input during the period between August 13 and September 4. **G3JEA** (London, W.2) has been doing well with a ground-plane. He can work all W areas without trouble and QSOs with W5s around midnight give promise of improving conditions. Eric was lucky with the rare PJ2MC and also worked VK3PG (21.45), AP2CH (22.50) (who is G3FYF) in Lahore, YA1A and UJ8AF (Stalinabad). Interestingly enough, the UJ8—who is himself very near to Afghanistan—confirms that YA1A is quite genuine.

G6YQ (Liverpool) continues to hammer away successfully at the rare ones, his latest being PJ2MC, who was easy, and YV0AA, who was far from it. George was almost on the point of giving up when he finally broke through the usual disorganised pile-up. YA1AA was worked and has been QSLd as requested via A.R.R.L.—with fingers appropriately crossed! (He's probably quite genuine—at least, all the signs point that way.) BV1US is often to be found on 14030 kc/s, around 21.00-21.30. Contact was also made with Louis Varney, VP6RV, and Jim Kirk, CE3ZO, who is putting as potent a signal into U.K. as he used to put into Chile from G6ZO. '6YQ now has cards from ZD1DR, CR10AA, HI8FR, W4IKC/KW6 and JZ0AG and will doubtless have one delivered in person by OA4ED, who is due in Liverpool shortly. G3AAE has also worked CE3ZO.

B.R.S.20317 (Bromley) has reached 178C this year, recent additions being YV0AA, KW6CD (11.30), KH6s (19.00-21.00), UA0KJA, '0AA, UH8 on c.w. and HC8GI (Galapagos Is., 14110 kc/s, 00.30), VP5RR and ZA1UB on phone. **B.R.S.20135** (Parkhurst, I.o.W.) found the band spoiled by non-DX phone, but stayed on long enough to log HZ1TA, YI2AM, UC2, UQ2 and BV1US. **B.R.S.20135** (Melton Mowbray) has been on holiday in F, ON, LX, DL, OE, HB, I and YU—lucky man—and so had little listening time, but UA, UB, UC, UR, 4S7YL and ZL2ASQ were noted on phone. **B.R.S.20487** (N. Finchley) listened to phones FF8AK, VK3AWD, VK3XI, VQ5FS between gardening sessions, while **A.1328** (London, W.1) tried out his converter on KV4BB, ET2PA, LU6AT and other phones. **B.R.S.20106** (Petts Wood), with 199C this year, still likes twenty, short-skip or no. Among the rarer c.w. calls he heard were VK1IJ, VK9AW (13.20), FL8AB (21.00), FB8BI (Jan de Nova Is.?), FB8BR (calling ZD9AE), DU7SV (08.20), YV0AA, FS7RT, FG7XC, CE0AC (04.45) and 3A2GG. JA6AK was calling HS2FK and Ws were heard calling KX6NC, VR3D and the mysterious KT3MD in the early morning. Phone produced YV0AA, CR5SP, YK1AC, XE2AW, '3AF, OA5G (03.45), TG9AL, '9AD some VK and ZL and the Ecuadorian expedition station HC1ARE, while KC4USV is reported on 14280 kc/s at the dreadful hour of 03.15 G.M.T.

B.R.S.19107 (Beckenham) passes on some interesting DX snippets: 3W8AA wants QSL's to Box 109B, Hanoi, Viet Nam, marked "via Moscow and Pekin". Cards otherwise go via Saigon, which apparently is not a Good Thing! UA1KAE is not "just another UA1": it is the U.S.S.R. Expedition Headquarters station at Mirny, Antarctica. UA0OM is at Gorodok, Buryat-Mongolia. VP5MS (Turks Is.) asks for QSLs via W0BTX and VS4BO can be reached at Box 203, Singapore, or via the R.S.G.B. Bureau. John is particularly interested in the latter, having himself been in a Jap P.O.W. camp at Kuching. After the war he was hoping to go on the air from there, but the only gear he found was a few BC348s—unfortunately, no transmitting gear was discovered. As to DX heard of late, FB8BI, FE8AE (Marcel Veber, Box 408, Douala, Fr. Cameroons), YV0AA and CE0AC are notable on c.w. as are the YV0 and UA9KAB on A3. **G3DOG** (Walton-on-Thames) was the first G to work Jim Kirk from CE3ZO. Jim sends 73 to his G friends and is looking for them on the bands with the old G6ZO rig. FL8AB is now being hounded around 14040 kc/s, but he doesn't seem to appreciate company and is apt to retire if he hears much noise. The two

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

ops at YA1AA are made of tougher stuff—the one that worked '3ATU was positively conversational—to the displeasure of several gentlemen waiting in the queue! FP8AP has reappeared on c.w. and comes through at odd times during the day. Ws have been trying to attract the attention of CR10AA quite regularly, around 13.00, which is too early for Europe to hear him. 15.00 to 16.00 G.M.T. was the best time to work him when he was active some years ago. VP8BS (South Shetland) was worked on 14100 kc/s and asks GM3CDL and G4NT to look for him there as he cannot use 21 Mc/s at present.

Ten and Fifteen Metres

Both bands are grouped this time, but most comment concerns fifteen, which has shown again that it can be very good and would be better if free from the awful noises caused by idling jammers or whatever the things are. We register a pious hope that before long the entire boiling will blow up and leave us all in peace.

B.R.S.19107 says he only hears "the usual phone stuff, KZ6ZB, VS5BO, BV1US, ZD8SC, PJ2MC, FS7RT, OY2A, CR5SP, etc"! On c.w., PK5BA could be a good one, sounding right and coming in at the same time as 3W8AA and VS6s, while KW6CA (ex-W4IKC/KW6) has been good quite often around 14.00, mixed up with short-skip stuff. **B.R.S.20317** tried his new converter and found FQ8AQ, PJ2MC, PX1YR, VP7, VS6 and VKs (20.00) on phone. **B.R.S.20135** came upon a variety of phone DX, hearing VK9DB, VS4BO, CR9AH, VP9BO, VU2BK, OY7ML, I1BRN/M1, ZD2JHP, VS1, VS2, VS6 and VK. He even found an opening on ten which produced VK6FL, MP4KAC, ZE1JE, ZS1JA and a UB5. **B.R.S.20106** remarks on the renewed 21 Mc/s evening openings to VK, when VK3, VK4 and even VK1GU (22.45) have been heard. Norman logged ST2NG, VK9DB, KW6CA, ET3AF, HZ1HZ, EL12P, ZS7C and the rare ones already mentioned, all on c.w., and his phone list specifies CE6AB, KG4AN, 4S7YL, VP4TO, ZD4BQ, '4CF, VS6CT, MP4KAC (02.30) and the rest. **B.R.S.20487** lists ZL4GC, CR6BH, EL2D, MP4BBL, 'BBW and OQ5 on phone.

G2WQ (Manchester) found conditions good for most of the month and worked XE1PJ, CE2AT, EA6AW, ON4CK/LX. Archie had QSOs with 36 Pacific Coast Ws, using 14 Mc/s before breakfast and 21 Mc/s in the evenings and now needs only Utah and South Carolina for W.A.S. W5DXW lent a helping hand here by sending "CQs" to both those States. Good show. **G3AAE's** excitement was confined to the raising of W6ITH from both sides of St. Martin—PJ2MC on phone, FS7RT on c.w., plus a KW6 on c.w. and an HH on phone and many chats with Stan, ZD8SC, who is always very, very loud.

On 21 Mc/s, G2ACC had a contact with G5RV/PJ2AA on the Island of Aruba in the Netherlands Antilles at 21.10 G.M.T. on July 24. Louis has official permission to operate in PJ2 and will be there again in two to three months' time, using 21 Mc/s phone and 14 Mc/s c.w. He has already operated as VP6RV and hopes to get a VP4 call shortly.

Louis Varney has written to G6CL on the wonderful help and hospitality afforded him during his recent visit to Barbados. The Government Engineering Dept. not only issued his VP6RV licence within two days, but also lent him an SX28 receiver! VP6CS provided a mobile transmitter which he stripped from his car and as the little rig worked either from a.c. mains or a 6-volt battery, Louis was able to work N.F.D. stations as VP6RV/P. Later, from the house, he made a phone W.A.C. on 21 Mc/s in four days, using 25 watts input. Grateful thanks from '6RV to VP6CS and VP6WR. All stations worked will receive a special QSL and cards may be sent either via VP6AM or to Apartado 3443, Caracas, Venezuela.

Forty Metres

Forty is in poor shape, even with the lessening of the broadcast menace—though **B.R.S.20847** heard a very loud transmission on 7051 kc/s, churning out dance music

Frequency Predictions for September, 1956

PREPARED BY J. DOUGLAS KAY (G3AAE)

BAND	NORTH AMERICA	CENTRAL AMERICA	SOUTH AMERICA	SOUTH AFRICA	NEAR EAST	MIDDLE EAST	FAR EAST	AUSTRALIA
28 Mc/s	1800—1830	1100—2000	1000—2030	0700—1900	0730—1900	0730—1630	0800—1700	0800
21 Mc/s	1030—2330	0900—2300	0900—2200	0630—2130	0630—2100	0630—1900	0700—1900	0700—1500 1930—2230
14 Mc/s	1000—0200	ALL DAY	ALL DAY	0600—0000	ALL DAY	ALL DAY	0600—2300	0000—0200 0630—1100 1400—1900
7 Mc/s	2220—0600	0200	0400	0400	0200	0200	0100	1800
3.5 Mc/s	0200	0200	0400	0400	0200	0200	0100	1800

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

Between approximately May and September Sporadic E reflection may result in short skip conditions on the higher frequency bands. The incidence of Sporadic E is unpredictable but is most pronounced around mid-day and dusk.

with French announcements—but low activity rather than poor conditions is probably the reason. **B.R.S.19107** often hears VQ2J's c.w. and although his signal seems almost too good to be true, he may be all right, as he's been active for months on the band. **B.R.S.20317** heard his first CE and UD on 7 Mc/s with CE3AG and UD6KAB, which is all there is to say at the moment.

Eighty Metres

The situation here seems to be improving and the keen-eared types are raising some real DX. **G3FPQ** (Bordon) has worked LU3MAH, PJ2AA, PY6AK, ZD4BQ and ZD4CF. ZD4CF is often on 3.5 and 7 Mc/s at about 22.00 G.M.T. and is also looking for Gs on 21 Mc/s phone at 16.00 daily. VQ5GC wants it known that he hears Gs regularly on eighty around 23.00 G.M.T. and he will be on as VQ3GC during August. **B.R.S.20106** has been hearing strong Ws—W1AW at S9, W2SUG at S9 plus—which suggests that Top Band might have had possibilities. **B.R.S.20317** dug out UC2, UB5, UP2 and W9OPY, but he hands the prize to a friend of his who heard VK5KO on c.w. between 20.30 and 21.00 G.M.T.

Top Band

The only comment comes from **G3IDG** (London, S.W.12), who is operating with G3IDF from Anglesey from August 5 until August 19. GW3IDF/A on phone and GW3IDG/A on c.w., will transmit on 1809.5 kc/s. QSLs should be sent via the Bureau.

Overseas News

ZE3JM (ex-G4JF) sends news that a specially licensed station, ZE1JUM, will operate from August 16 to 18 from the annual agricultural show in Umtali. ZE1JUM will use 14, 21 and 28 Mc/s, c.w. and phone, depending on conditions and calls on frequency will not be answered. A special QSL will confirm QSOs. **G2MI** has learned from PZ1AH (ex-PZ1BS) that PZ calls have been altered and reissued. Active stations are PZ1's 'AA, 'AC, 'AD, 'AH, 'AI, 'AJ, 'AK, 'AM. The QSL Manager is PZ1AH, Box 848, Paramaribo, Surinam.

VP5KT (ex-G3KKT, VP6KT) has arrived on Turks Is. where he swells the amateur population to four—the other three being on U.S. bases. He is on 14, 21 and 28 Mc/s A1 and A3 and he has plans for an expedition to the Caicos group, where there is at present no activity. **VS2DQ** is QSL Manager for M.A.R.T.S. '(P.O. Box 600, Penang) and is anxious to know the present addresses of ex-VS2DJ, VS2EM, VS2ES and ZC2PJ, so that he can forward their QSLs still held at the bureau. Piracy is on the increase and cards are arriving for VS4AD, VS5NN, VS5PM, ZC2FM and ZC5AB, who can be regarded as highly suspicious. All VS2 calls now issued begin with F (i.e., VS2FE) and all others (except VS2UW and VS2RO) are pirates. Ex-ZC3AB is VK2DI, leaving ZC3AC active. Ex-VS1GN, VS4BD, VS5BS, ZC5GN is now G3JFC and the former VS4, VS5, ZC5CT, ex-VS5KU, ex-ZC5CA and ex-ZC5VM are in the U.K. and may be reached via G2MI.

Ray Edginton (G3AEF) is back again in Cyprus with his old call, **ZC4GF** and using a c.o./p.a. on 7, 14 and 21 Mc/s. He is still keen on Top Band and has an 1830 kc/s crystal, so we should be hearing him again this winter. ZC4JJ is QRT, but '4CA is active and, of course, several new calls are also very much in use on the island.

B.E.R.S.928 (R.A.F., Nicosia) constitutes one-half of the operating team at ZC4AM and expects his own call soon. He remarks how easy it is to work the U.S.S.R. from there (or how difficult to avoid working 'em, to put it another way!); UA3, '4, '6, UB, UC, UF, UO and UA0 have requested the usual via Box 88.

Mitch Powell, **VE8WN,** spent the winter at isolated Isachsen, on Ellef Ringnes Is., about 680 miles from the North Pole, where he made some 1,500 QSOs. Now a little nearer to civilisation he has been able to order a supply of Kodachrome QSLs which will shortly be arriving via the various bureaux. Mitch hopes to be on this winter from the main Weather Base at Resolute Bay, to renew acquaintances on 14 and 21 Mc/s. **HC1ARE,** already mentioned, was the club station of the Ecuador Society (A.R.E.) and was active from just outside Quito, on a position exactly on the Equator, during July 14, 15. The 50, 28, 21, 14, 7 and 3.5 Mc/s bands were used and the first amateur in each continent to QSO will receive a miniature trophy in silver with a base of Ecuadorian marble. Sorry the news arrived too late for publication (it was radiated over GB2RS), but we would be very interested to learn who turned out to be the lucky ones!

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Things are now back to normal once again as far as production schedules are concerned and the writer would be happy to have reports and comment for the September *M.O.T.A.* to arrive by August 21. Lots of DX and good hunting. 73.

Good News for Rhodesian Amateurs

ADDRESSING a conference of the Amateur Radio Association of Rhodesia in Gwelo, Southern Rhodesia, recently, the acting Postmaster-General of the Colony told delegates that a new Telegraphy Act is about to be drafted and he invited them to submit any suggestions they might have as soon as possible so that the appropriate Committee can give them due consideration. He also made it clear that his Department would not consider lowering the Morse reception standard from 5 minutes at 12 words a minute. He considered this to be a very reasonable requirement and it must stay.

The retiring President of the Association, Captain Dick Parry, told the meeting that relations with the Postmaster-General's Department had improved greatly during the past 12 months.

At the beginning of the year eleven stations were off the air while the Association discussed a Post Office ruling that all amateurs renewing licences would be required to pass the Morse examination again. The ruling had now been rescinded and all the stations are working again. Permission is to be sought, and it is confidently expected that it will be granted, for Rhodesian amateurs to use single sideband and narrow-band f.m. for experimental purposes.

The Association has already been informed that it is now looked upon as being a most valuable adjunct to the communications of the country in case of emergency. Of its 127 members 54 were present at the Conference, including two lady members. A further 24 members were represented by proxies.

The Committee for the current year is:—President, Bob Hill (Salisbury); Vice-president and Chairman, Dick Parry (Bulawayo); Vice-chairman, Peter Carey (Salisbury). Committee members: Bill Bluett (Bulawayo); Jack Harper (Bulawayo); Arthur Vincent (Bulawayo); and Ivan J. Wood (Salisbury). The Headquarters of the Association for the current year is in Bulawayo.

Mrs. Molly Henderson, who had been Honorary Secretary for a number of years, was elected a life member of the Association on her retirement from the post.

(The above interesting report reached Headquarters from Mr. B. Cahill, c/o *Gwelo Times,* P.O. Box 66, Gwelo, S. Rhodesia.)

TWO METRES AND DOWN

By F. G. LAMBETH (G2AIW)

ALTHOUGH at one time quite a number of new licensees commenced operations on 2m and 70cm rather than on the DX bands, it has been obvious for some time past that very few newcomers are now appearing on the v.h.f. bands. The usual population of about 400 or so regular operators has not materially increased lately although it must be admitted that conditions have by no means been at all encouraging—they have certainly been very poor compared with last year, although the period of the R.S.G.B. 144 Mc/s Contest (July 7-8) was a glittering exception to this, and brings us again to the supposition that the bands would never have been so bad as they appear if more people would appear on them! Quite a number of stations were working DX of 200-300 miles on 2m with what appeared to be little difficulty; it seems strange that the "good conditions" just happened to coincide with the contest. On the other hand, of course, conditions were poor during the *Short Wave Magazine* Contest the following weekend, when little or no DX was to be heard in the Home Counties.

Now, however, is the time to tell all interested newcomers (to whom this piece is mainly directed) that if they have any difficulty in providing themselves with simple gear both for receiving and transmitting on the v.h.f. bands there is a wealth of information readily available to them in both R.S.G.B. and London U.H.F. Group publications, to say nothing of excellent newsletters such as the *Lea Valley Reflector*.

Two Metre News

Conditions for the R.S.G.B. Contest on July 7-8 were excellent, and contacts were made over long distances. Nobody in the south appeared to work or hear any GMs, but Northern Ireland came into the picture for one of those rare events which add spice to v.h.f. working. North (Cumberland and Durham) to south QSOs were legion, and altogether the occasion was fast and furious for many stations. This contest was obviously very much enjoyed.

B.R.S.6327 (Earlsfield) now has a 5 element Yagi plumber's delight up to 32ft rotatable from inside the shack. Many DX stations have already been heard on it. **B.R.S.16075** (Shirley, Southampton) says that the small portable/mobile rig made by G2DSW works very well on test; a good report was received from GC3EBK. Conditions, as elsewhere, have been good to terrible according to the weather.

B.R.S.21034 (Lymington) reports for the first time with quite a good list of "Stations Heard." He has been listening on 2m since 1951, and wishes he could hear some of the DX he logged then! Three converters are available: (1) an all push-push 12AT7 affair, (2) a cascode, and (3) one of "rather doubtful design." The aerial is a 4 element wide spaced Yagi fixed at 30ft; there is another rotatable array at only 20ft. 98 stations have been heard in 27 counties this year. During the last 2m Field Day the gear was taken to Walbury Hill 7m south-west of Newbury, where G3HKT/P was encountered, and the original site relinquished for one about half a mile to the north, where 47 stations were logged in less than 4 hours. During the fixed stations contest conditions were much better and many DX stations were heard. G5YV was so strong that recordings were made. **B.R.S.19162** (Dewsbury) raised his slot for the test and found great improvement. The aerial is 50ft above ground and fairly in the clear. The first GM has been logged, and the "open" directions are better, but the "difficult" channels still remain so. Apart from the Contest, conditions have not been very good, nor has activity seemed great.

B.R.S.18572 (Mitcham) sends an imposing list of calls heard, most of which, being locals are not published under our rules. The station is only 33ft a.s.l. Much time has been spent listening for these stations and '18572 thinks it is a great pity that it takes a contest to bring them out, and make the band interesting. **B.R.S.20133** (Melton Mowbray) also says the Contest brought the only real activity. Surrey has been heard for a new county, making 12 in all since March 5 with 2 countries to boot.

G5BM (Highnam) had no difficulty in working G-DX in most directions during the Contest; the best were G3BW, and G3KEQ/P in Caernarvonshire and in Flint, during the latter's recent portable journey. GW3BOC/P was also out portable on Hope Mountain 4 miles north of Wrexham (in Flintshire), and '5BM accordingly had another "exotic" QSO.

G5MA (Great Bookham) who is a very strong and consistent signal by all reports, has worked GI3GXP (Kilkeel), G3BW (Whitehaven), G2DKH/P (Co. Durham) and GW8SB/P (Anglesey). G3KEQ/P's tour has also been carefully followed, QSOs being made from Hereford, Brecknock, Radnor, Montgomery, Caernarvon and Flintshire. Bob remarks that he missed Merioneth and says there is only one good portable site there, i.e., Bwlch-y-Groes 1790ft a.s.l. which he used successfully four years ago. Three counties this year (Co. Down, Anglesey and Brecknock) have never before been worked by '5MA. **G3KSR** (Southampton) says that he is now operating on 2m. He hopes to go portable soon and is looking for contacts.

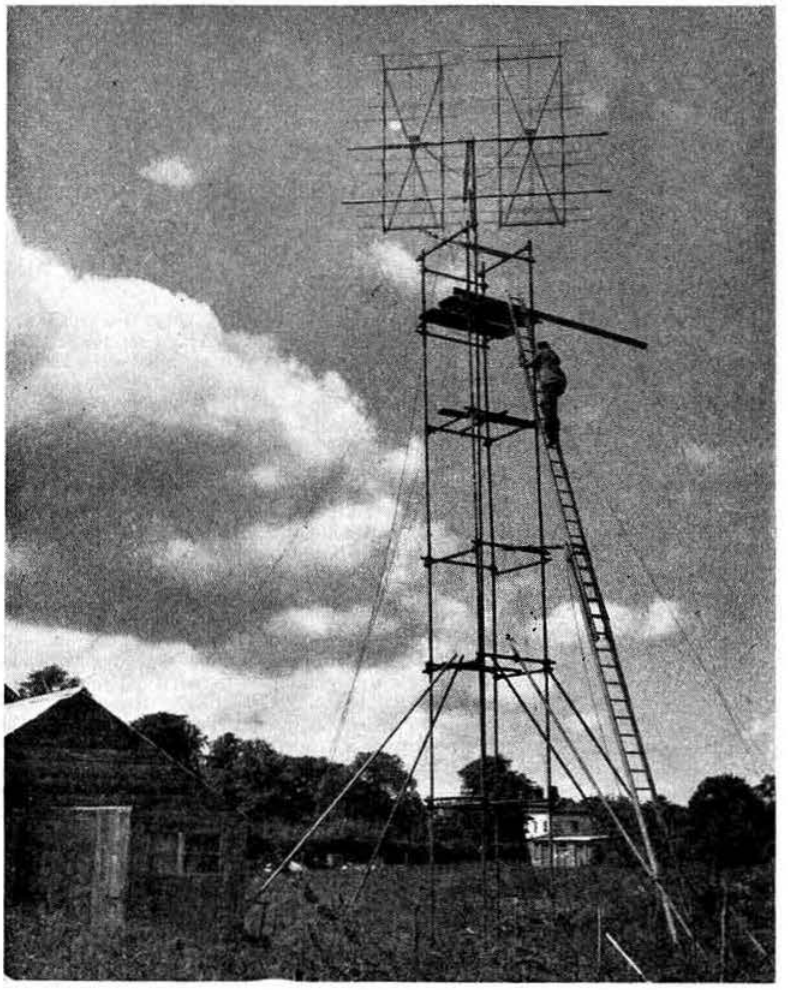
G2CIW (Cambridge) had some excellent QSOs during the Contest including G3BW, '2DKH/P, F9EA/P and GC3EBK as well as three Devon and three GW stations. **G5MR** (Hythe, Kent) thinks he never heard DX and semi-DX G stations coming through so well as at the time of the Contest. The French stations were also strong and keen to co-operate, but the activity there was generally low and only seven were worked and one other heard. '5MR had worked Regions 1 to 10 within the first eight days of July including a contact with G3IUD/P for the first, Region 1. The new ECC84 cascode converter previously mentioned is working excellently. Although little difference is noted with strong signals, weaker ones seem to stand out better. '5MR reminds us that HB1RD will be on 145.01 for the Region I Contests on September 8 and 9.

*21 Bridge Way, Whitton, Twickenham, Middlesex.

G3JGJ (Plympton) now has a 16 element 2m stack on top of a 48ft steel tower. The activity and interest on 2m in Plymouth are quite good. The GC2FZC sked is still running, and '2FZC recently had a personal QSO with '3JGJ, G3FZL, '2FKZ and '3IWA have also called there recently. The following Plymouth stations are looking for Welsh contacts: G3JGJ, '3KDK, '3GRA (18.00 to 19.00 G.M.T. for '3JGJ). **G2CZS** (Chelmsford) reports after a long period and has a new aerial (3-over-3-over-3) using three T-matched Yagis which was raised to 34ft a few hours before the start of the Contest on July 7. Results have been very encouraging. In a very short period of the Contest 19 stations were worked, at an average of 100 miles, the best being GW3KEQ/P (Radnor) and other stations in the west and north-west. On July 9, on a very empty band, a long-standing ambition was achieved by working G2BMZ (Torquay) at S8 phone for a first contact with Devon. During the *Short Wave Magazine* Contest conditions were not so good, but even so G4GR (Marshfield) was worked for a new county.

G8LN (Plumstead) says what a blessing contests are, even if they do make work for the Contest Committee, as numerous 2m stations come out of hibernation and exchange brief QSOs. 8LN worked F8GH and '9EA/P although the latter disappeared in QSB. '5MR and the south coast, were as usual easily worked and the whole period was very enjoyable. The '3ANB sked still runs regularly and '3FIJ (Colchester) has restarted and is getting into London. G3INU has been worked for the first time. '8LN is another who advocates more c.w. in contests—many weak carriers would be workable on the key.

G3KEQ (Sanderstead) went to Wales accompanied by G3JQN, with a Hamobile and a 4-over-4 slot fed Yagi. The station was operated in eight counties altogether, six being in Wales. The emphasis was on contacts back home to the London area, and for this reason they apologise to Midlands and northern operators who may have called without result. Most of the sites were chosen to enable London working from the more difficult counties (Brecon, Montgomery and Merioneth). No less than 66 different stations were worked and 135 QSOs were made during the fortnight—the best DX was with G5MA and '8AL when situated 3m north-east of Aberavon in Caernarvonshire. The best signal at all times was G6NB, still S9 in Caernarvon! In fact they couldn't get far enough away from '6NB to get the signal down.



The 32 element phased array for 144 Mc/s at EI4E, Killarney. An earlier 16 element array was shown on page 179 of the October, 1954, issue.

G3EMU (Canterbury) has had a poor month; even in the contest only five stations were worked, of which three were locals! The annual visit of G3CCH duly took place, but once again no signals were audible for a demonstration. **G3FKO** (Bristol, 6) made a trip, with G3GMN (Gloucester) into Montgomeryshire, where both operated /P. The visit was not too successful owing to the short time it was possible to operate, but a good site was found 1500' a.s.l. 5 m south-east of Newton. Conditions on July 7-8 were very good, and G3GMN/P was operated into the small hours, G3FKO/P taking over late morning and mid-day. GW8SB/P (Anglesey) was hooked on Sunday morning. Outstanding signals were G5MA and '3FAN, S9 and consistent. '3FKO suggests that stations going portable should give advance notice of their intentions to avoid "doubling-up" in the counties. (Such trips will be listed in this column if information is received in time.) By the way, G3BOC says that he will be **GM3BOC** in Brora, Sutherland, from August 26 till September 7 inclusive, and in Kinross on August 25 and September 8-9, operating on 2m only.

G3HHY (Bristol, 6) has his 3 element Yagi tuned "spot on" and the 6AK5-Z77 head amplifier (on which an article is promised later) is behaving very well, but activity on the band has been spasmodic due to all the building.

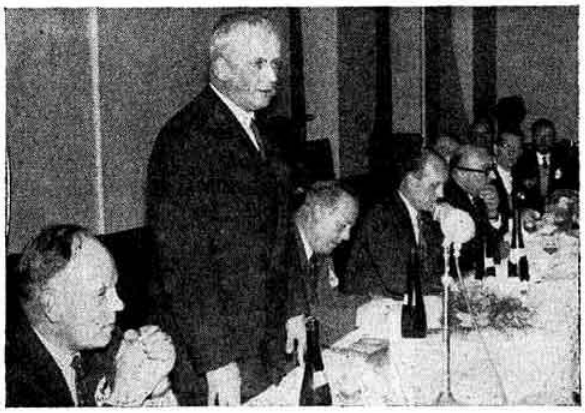
G2XV (Cambridge) found July 6-8 quite interesting, although he could not give much time to it. However, good contacts were had with GW3KEQ/P (Radnor), GC3EBK, and GI3GXP for a new country.

During the second week-end of the *Short Wave Magazine* Contest (July 21-22) conditions were much better and some excellent overall scores were made.

On August 25 and 26 the Danish society, E.D.R., is holding its annual Scandinavian V.H.F. Contest. Although only stations in Denmark, Finland, Norway and Sweden may take part as contestants, contacts with amateurs in other countries will be appreciated.

Two Metre News from Wales

GW3GWA (Wrexham) says conditions there haven't been too good lately, but a few new contacts have been made. On July 8 '3GWA was on the top of the Vron. Conditions were *good* to the south but not to the east. G2FJR was again the only contact in that direction. QSOs overseas were with EI9C, GI3GXP and F9EA/P,



Dr. R. L. Smith-Rose, Director of Radio Research D.S.I.R., speaking at the London V.H.F./U.H.F. Convention. Others in the picture include G5CD, G2AIW, G4KD, F8NH, and F9CQ.

which seems very good going. The latter gave a report of 589 on c.w. so phone was tried. It would have been satisfactory but for local (French) QRN which caused a little to be missed. Phone to Wales was not so good and only call-signs were heard. The most consistent distant signals were G5DW and '3FAN.

GW8SU (Porthcawl) has been on 2m every evening and late at night and sometimes the only signals were G6NB and '5MA. '8SU would like a c.w. only session or a part of the band exclusively for c.w. There are so many stations using phone and it is, of course, very difficult to copy weak ones. If they would either use or sign on c.w. 50 per cent more could be heard at '8SU. More suggestions from '8SU are for "more articles or hints and tips on v.h.f. fundamentals, and the need for a complete modern v.h.f. receiver." In the list of calls heard, only G6OX was on c.w.! Observations would be appreciated from v.h.f. men on their experience with various types of beams.

Two Metre News from Scotland

GM6WL says local activity has been well maintained but DX conditions still seem to be poor. Some of the newer recruits are waiting for good conditions in order to make their first contacts outside Scotland. EI2W was heard S9 for a short period on June 22. GM6WL got a reply but lost touch.

GM6XW (Larbert) also heard EI2W who, however, faded out very quickly. G5YV (Leeds) was heard the same evening working GM2FHH (Aberdeen) and GI3GXP. On June 23 G5YV worked GM2FHH again but conditions were not so good. After this QSO GM6WL worked G5YV on c.w. During the week-end July 14-15, GM3DIQ (now in Edinburgh) worked GI3GXP. When '3DIQ was at Stevenston (Ayrshire) he could work GI any day. He is now putting a strong signal into Ayrshire to GM3FMD (Maybole) and '4PW (Prestwick) both of whom contact Edinburgh fairly often. GM3DDE and '3DIQ have both worked a newcomer, GM3FDD (Jedburgh) who used to be in London and is keeping the flag flying with a 6J6 transmitter (4 watts).

GM3DYC (Glasgow) is getting out much better since he found out how to get his aerial on to the roof! The GM stations "heard" at Tomtain during Field Day were all worked, says '6WL. Old-timer GM6SR (Edinburgh) has put a new beam up and can be heard fairly regularly in Glasgow on 2m.

Seventy Centimetre News

G2XV (Cambridge) has heard G3CCH (Scunthorpe) for the first time and at last has had a QSO with Suffolk (G3KBS/P). **G8PX** (Oxford) had a cross band QSO with G2CIW (Cambridge) who was inaudible on 70 at '8PX.

GM3DYC, '3NG and **'6WL** were on 70 cm on July 15 and 16 "just to keep the band alive," good strong signals being exchanged. GM6ZV is busy building a 70 cm transmitter with QQV03-20 valves.

G2RD (Wallington, Surrey) reports the following stations active: G2AIM, '2DD, '2HDJ, '2HDZ, '2RD, '2WJ, '2XV, '3CGQ, '3ECA, '3EOH/P, '3EYV, '3FD, '3FP, '3FZL, '3GDR, '3GTH, '3HBW, '3IRW, '3KEQ, '3KBS/P, '3MI, '5CD, '5DS, '5DT, '5KW, '5RD, '5UM, '6JI, '6LL, '6NB, '6NF, '8AL,' 8KZ, '8SK, '8SK/P.

Twenty-three Centimetres

G3HBW (Bushey) and **G3GDR** (nr. Watford) are working regularly now in the 1297 Mc/s region (crystal controlled) with DET24 power triplers. It is believed that this is probably the first time crystal controlled working has been achieved on the band in England. On July 7 **GM2CHN** and **'6WL** went to Eaglesham (almost 10 miles from Glasgow) and GM3INK operated '6WL's transmitter in Glasgow. The travellers had a lovely afternoon in the open air and were gratified to receive S9 ++ phone signals at a good location. This also proves that the receiver is working satisfactorily after conversion from mains to battery operation. It is expected that such strong signals will be receivable further afield.

European V.H.F. Contest

The European V.H.F. Contest, organized this year by D.A.R.C., will be held on September 8-9, 1956, when it is hoped that activity will be at the usual high contest level. If conditions are anything like reasonable there should be plenty of opportunity to work some real DX with stations all over Europe taking part. Operation will be on 144, 420 and 1250 Mc/s.

Rules and full details will be found on page 285 of the December, 1955, issue of the BULLETIN.

LONDON MEMBERS' LUNCHEON CLUB

will meet at the Bedford Corner Hotel, Bayley Street, Tottenham Court Road, at 12.30 p.m. on Fridays, August 17 and September 21, 1956.

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

Expedition near-Sark

BY "AYTOWEN"

MANY Top Band county chasers never knew how near they were to a very rare one on the night of June 21, 1956. And the reason that so few knew about it was because the final decision to take a portable rig to Sark was not made until the afternoon of that day, when GC3KAV organized the transport and supplies, G2BDQ gave his portable-mobile gear its final check up, and G8ON offered his customary gratuitous advice.

This happy band, with two ladies, KAV's son, and the o/c motor launch, set out with high water and high hopes from St. Peter Port, Guernsey at 6 p.m. A few hours later both tide and hopes were much lower. The weather was excellent, the sea very calm and the cigarettes only 1s. 5d. for twenty. So we gladly sallied forth without even the eight discs allowed us by the B.B.C. for such occasions.

The lovely isles of Herm and Jethou had been left astern, and Sark ahead began to look even more enticing, when a dry coughing noise was heard. A rapid check-up ensured that it did not come from any of the personnel, and a repeat performance enabled it to be traced to the engine. But it didn't cough for long. Soon it had ceased to do anything. The launch came to a standstill and its simple harmonic motion became less simple and more noticeable.

Our skipper, knowing that petrol was low in the tank did not bat an eyelid, and produced a spare can, and the absence of engine noise was seized upon by BDQ to check the receiver end of the ZC1 Mark II TX/RX, while KAV hoisted a kite aerial to about 50 feet.

With the engine again churning merrily, the kite rising faster than the cost of living, and our objective a quarter of a mile away, all seemed set for a hectic evening. Then the dry cough was heard again, and the engine subsided into stony silence from which it refused to be coaxed. This time it was clear that, like Robinson Crusoe, transport was our greatest difficulty. A few tests carried out by those versed in such matters proved that a non-co-operative attitude on the part of the magneto was the cause of the trouble.

Interest was added to the situation by the announcement of our mariner that we were adrift in a nasty tideway, and that we might reach the middle of the English Channel by daybreak. With thoughts of Captain Bligh in our minds we decided against this, and a pair of huge oars were produced. In 'ON's opinion they were far too large and heavy, but the Guernseymen did not seem to think so. The painful crawl out of the tideway took the best (or worst) part of an hour of strenuous pulling. Even a drifting wooden box seemed to be gaining on us much of the time. A few passing seagulls screamed at us, but whether in encouragement or derision was not clear because of the language difficulty. Inch by inch we tugged ourselves to safety and cheated the luscious lobster of a salt ham supper. An anchor went overboard, and the minds of the landsmen were not eased by the length of rope which followed it.

We were now anchored inside one of Sark's lovely bays about a hundred yards or so from the shore. They were very wet yards, and by now the shades of night were having it all their own way. A break for tea and sandwiches (thanks, Mrs. KAV) was followed by a council of war ('ON doing well this time with his gratuitous advice) and it was decided even could we row ashore we should have to carry the gear up rough steps cut in the cliff face in near-darkness. The formula for the steps, said KAV was $N = \pi \times 10^2$, "and beside it lay the sea."

From this point the movement became a retirement. But just how to retire without motive power was the burning question. Not a living thing was in sight except a seagull calling CQ and getting no replies. It was decided that in the interests of personal safety the transmitter must be used even though we were not ashore.

A call to GC3EBK was made, with the help of G3GGK/M on Portland Bill. Our aerial was about forty feet of wire strung around the boat, held aloft only by two hams in parallel and an oar in series, and GGK's report of 5 and 6 was gratifying under the circumstances, but set us thinking what we could have done if . . .

Then the boat rocked to the breezy tones of 'EBK high up in his eyrie on Jerbourg Point. On learning that we were in no immediate danger his tone changed from concern to amusement and the air became more full of cracks than a plastic mac. He agreed to stand by on the frequency in case the weather deteriorated or urgent help was needed.

Meanwhile a tiny black speck had appeared on the grey sea a few miles to the north, and was identified by our skipper as a friendly craft. 'ON, having pretty good eyesight himself, is firmly convinced that these Guernseymen can see over the horizon if put to it! Next came the job of attracting attention, and frequency was changed to the myria megacycle bands, using two torches in push pull, BDQ providing the dashes and 'ON the dots. Our skipper's friends, having headed away from us for five anxious minutes, decided that nobody would blink *two* torches for fun, and came up at a worthy rate of knots to investigate. With much amusement, coupled with knowing headshakes concerning magnetos, we were taken in tow and the Retreat from Sark had begun. "And so we say farewell to this island paradise."

Out on the dark waters, fortunately still as smooth as Somebody's Shaving Cream, we listened to 'EBK telling hams all over Southern England what had happened to Expedition Sark. Our red faces were due not only to the Guernsey sun.

While expressing our regrets to the many who listened in vain for GC2BDQ/Sark, we can only say that before criticizing one should try rowing a twenty foot motor launch against a strong tide. 'ON hasn't got his breath back yet.

And next year we shall try to get to Alderney, which will make it even farther to row.

London Members' Luncheon Club

ALL Continents for W.B.E. purposes were represented at the July gathering of the London Members' Luncheon Club. Visitors from overseas included ZC4IP and ZC4RX (Cyprus), VK2DA (Australia), ZD3BFC (Gambia), ZS4JE (South Africa), VE3DRS and VE6HM (Canada) and VP6FO (Barbados). ZC4IP was accompanied by his wife (who assists him in the running of the ZC4 QSL Bureau) and VK2DC (licensed 1925) by his wife and daughter. All were warmly welcomed by the chairman of the Club, Stanley Vanstone, G2AYC, who had the support of G2MI and G2CL. After lunch several of the visitors spoke briefly about Amateur Radio conditions in their own country.

The Club will next meet on Friday, August 17, when Society members and amateurs from abroad will be warmly welcomed. Reservations should be made as early as possible to the Hon Secretary, Frank Fletcher, G2FUX (Ruislip 2763) or to Miss Gadsden, R.S.G.B. Headquarters (HOLborn 7373).

Special Feature for the Newcomer

A Beginner's Guide to DX Listening

BY J. DOUGLAS KAY (G3AAE)*

AMATEUR Radio is not the prerogative of those who hold a transmitting licence; it is a hobby that is open to anyone who owns or can build a receiver covering one or more amateur bands. A broadcast receiver and a picture-rail aerial are sufficient to listen to the 20 and 40 metre transmissions of the fellow down the road, but if it is DX (long distance) you want then the receiving installation—receiver and aerial(s)—should be as efficient as that of the transmitting amateur: possibly more efficient as there is no transmitting equipment to worry about.

Short wave receivers are not difficult to construct, and there are many two or three valve straight circuits capable of giving excellent results. However, in these days of increased congestion on the amateur bands many advantages can be gained by using a superhet receiver, and while this type of receiver is not beyond the scope of many amateur constructors, it is considerably more difficult to build and adjust than a straight receiver. Let it be said though, that if you really want to get a good grounding and appreciation of Amateur Radio there is no better way than by building your first receiver. Another method is to use a simple converter such as that described elsewhere in this issue.

For those who prefer the commercial product there are still plenty of good communications receivers available at reasonable prices, and every month the advertisement columns of the BULLETIN list a number of such receivers. Some of them will have seen a lot of service however, and may need new valves and re-aligning before being put into service. If there is a transmitting amateur in your district he may be willing to help by comparing the performance of your receiver with his own. Remember that some of these receivers need only a few pounds spending on them to bring them near to the manufacturers' specification. When purchasing choose with care though, and do not buy a receiver which has been maltreated or exposed to the weather—no technical knowledge is needed for this—just eyesight.

The choice of aerial(s) to be used depends largely on the location of the receiving station, and all the constructional articles on transmitting aerials apply equally well to receiving aerials. In fact most transmitting stations use the same aerial for both transmitting and receiving, using a change-over relay to switch the aerial from transmitter to receiver.

Having equipped your station you are ready to start monitoring amateur transmissions. Presuming that you have made the installation as efficient as possible the next thing is to learn how to get the most out of the receiver, when and where to listen. There is really no short cut to acquiring the art of listening, and the only way is to learn by experience. Patience and the skill gained by experience will open your shack to the far corners of the world. An approximate idea of when the various bands can be expected to be open to different parts of the world can be obtained by referring to the Frequency Prediction Tables published monthly in the BULLETIN (an explanation of the way to use these tables appeared in the March, 1955, issue), and a great deal can be learned by listening on the various bands and making notes on the stations heard. There are several types of transmitting type log-books on the amateur market, and these are quite suitable for use as listening logs.

On being elected to membership of R.S.G.B. you are given either a BRS (British Receiving Station), BERS (British Empire Receiving Station), FRS (Foreign Receiving Station) or A (Associate—on request only) number for identification purposes. It is usual to have cards printed bearing this number and other information so that you can send listener reports to the stations heard. It is all very well saying that you have heard so many countries, but it is far more satisfying if it can be proved by producing QSL cards verifying that you have done so. Additionally, by obtaining these cards you will be able to work for the special listening awards offered by the R.S.G.B. The HBE (Heard British Empire) award is well known to listeners, and the R.S.G.B. will shortly be awarding a new certificate to be known as the DX Listeners' Century Award. The latter award will be of handsome contemporary design, and will be the yardstick of DX listening in the same way as the DXCC award is for the transmitting amateur. The LCA will initially require confirmation of reception from at least 100 countries (based on the ARRL country list), and it is probable stickers will be available for 125, 150, 175, 200, 225 and 250 countries verified.

While the primary object of short wave listening is to enjoy the hobby you can, at the same time, be of great assistance to amateurs all over the world. In sending reports always be sure that they include all the information that the transmitting stations will want to have. It is quite useless sending a listener report to a Brazilian station who is putting a very strong signal in to England and working a string of British stations. Rather listen for the weak stations, who call CQ and get no replies—they will be thrilled to learn from your reports that their signals were reaching Europe, and the chance of getting their QSLs is consequently much better.

Fig. 1 shows the layout of a typical listener report card containing all the basic information that a transmitting station would need for the report to be of any use to him. The height of your location above sea level, or the barometric pressure, etc., may be included, though these details will probably be of no interest to the recipient.

There are always a few outstanding signals coming from each country, and of course the operators of these stations are invariably inundated with listener reports. The chance of receiving verification of reports to these stations is therefore slender, but there are several things you can do to increase it. Do not send a report based on a single

BRS 3789

18 FAIRFIELD WAY, BARNET, HERTS., ENGLAND.

To Radio.....your.....Mc/s phone/cw
signals received here at.....GMT on.....195...
You were calling/working.....and you were RST.....
QRM..... QRN..... Conditions.....
Other countries audible at time were.....
Receiver..... Aerial.....
Remarks .....
.....
I hope this report is useful. Do you need further reports?
Please QSL direct or via R.S.G.B. 73. J. Douglas Kay.

Fig. 1. Layout of a typical short wave listeners' QSL card.

*18 Fairfield Way, Barnet, Herts.

transmission. Observe the station over a period of days, and at various times. Having taken observations on, say, 10 occasions prepare as useful a report as possible. You will obviously not be able to get all the information on a standard report card, and the system illustrated in Fig. 2 is therefore suggested. During the period covered by this report the station may have changed his equipment, and if he is using a rotary beam the signal strength reports when he is working different countries will give him useful information on the characteristics of his beam. He will also see that you have gone to some trouble in trying to be helpful, and he should certainly send a verification. On the whole though, try and concentrate more on the weaker signals and not only will your reports be more valuable, but the more exotic will be the DX heard.

Besides listening and reporting on stations heard the BRS member can render valuable service to amateurs in several other ways.

1. By contacting any fairly local stations who are keen on working DX, and by listening obtain data on the frequencies, times of operation, etc., of stations in any country they may be anxious to contact. You can easily arrange to let them know when you hear anything, and you will find that in co-operating with someone else your own listening will be all the more enjoyable.

2. By reporting any unusual propagation openings—openings outside the periods indicated on the monthly frequency prediction tables—to R.S.G.B. Headquarters.

3. By immediately sending reports to any stations whose transmissions are defective. Such things as over-modulation, key clicks, rough notes, varying frequencies and poor quality should be reported frankly to the stations concerned. Any amateur worth his salt will appreciate helpful critical reports.

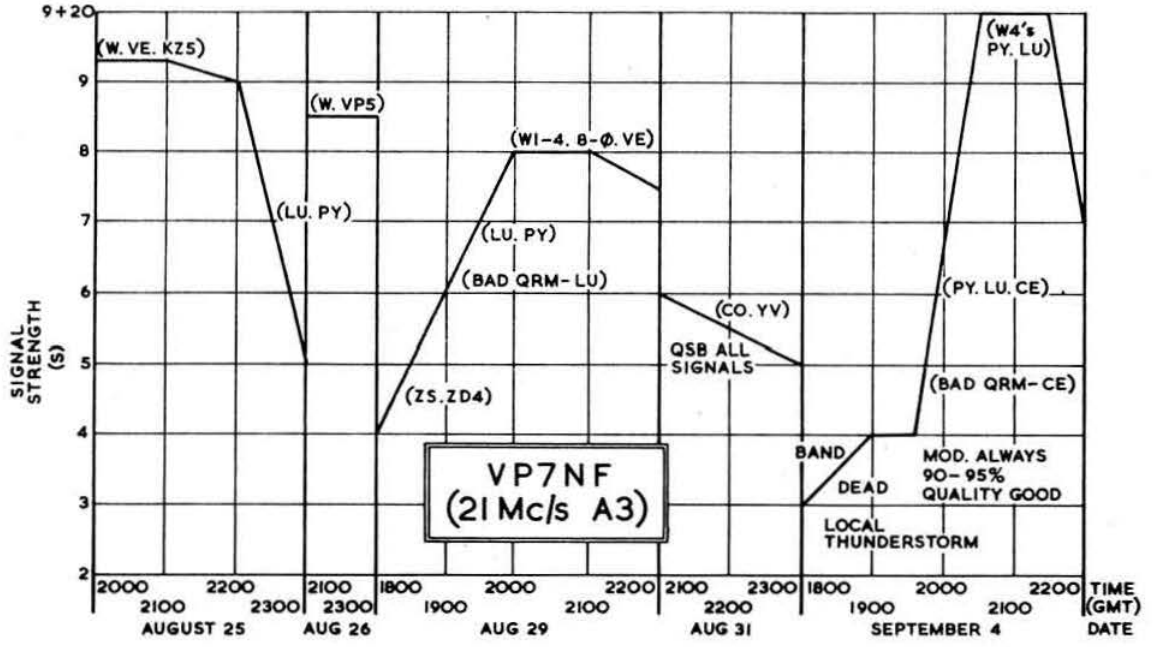


Fig. 2. Signal strength report graph showing observations over a period of several days.

The addresses of British amateurs can be found in the *R.S.G.B. Amateur Radio Call Book*, and those of amateurs throughout the world in the *Radio Amateur Call Book Magazine*. When sending reports it is a good idea to enclose either an Imperial Reply Coupon (price 3d.) for use in the British Commonwealth, or an International Reply Coupon (price 9d.) for use anywhere in the world. An addressed envelope will save the other fellow time and make him more inclined to send his card. Best of all send him a stamped addressed envelope—the stamps can be obtained from a stamp shop, and the dealer will generally be pleased to advise on the face value of the stamps required for each country. Any amateur will be very hard-hearted if he does not acknowledge a useful report *and* a stamped addressed envelope.

R.S.G.B. members can, of course, send and receive their cards through the R.S.G.B. QSL Bureau, but these facilities are confined to cards, and exclude graphs, coupons and return envelopes. Report cards should be of standard size and not larger than 5½ in. x 3½ in. They can be forwarded to the Bureau in batches together with a supply of self-addressed stamped envelopes for any incoming cards.

The majority of amateurs are usually building new equipment and trying out different types of aerial. They will be only too pleased to find someone who can give them reports on test transmissions, and probably delighted to find someone who can lend a hand at erecting a pole or mast. It is not all one sided either, for in helping the local amateur you may not only be gaining a friend for life, but opening the door leading to the obtaining of a transmitting licence and a new thrill in Amateur Radio.

Burton-on-Trent Exhibition Station

BURTON-ON-TRENT and District Radio Society will be operating an Amateur Radio station from the Adult Education Exhibition from September 24 to 29, 1956. The station will be on the air from 12.00 G.M.T. to 21.00 G.M.T. daily. It is anticipated that a special QSL card, reminding amateurs of Burton's famous beverage, will be available for the confirmation of all contacts made.

Stresa (I.A.R.U.) Conference

Part 2—Technical Committee Deliberations—Final Plenary Assembly Decisions

The July 1956 issue of the R.S.G.B. Bulletin carried an article which described the work done at the first Plenary Assembly of the Second Triennial Conference of Region I I.A.R.U. Societies held in Stresa, Italy, from June 12 to June 16, 1956, and by the Administrative Committee. The work done by the Technical Committee and at the final Plenary Assembly of the Conference is described in the article which follows.

TECHNICAL COMMITTEE

MEETINGS of the Technical Committee were held throughout Wednesday, June 13, and Thursday, June 14. The Chairman of the Committee was Mr. H. A. M. Clark, B.Sc.(Eng.), M.I.E.E., G6OT (who was the official R.S.G.B. representative on the Committee) and the Secretary, Mr. Harry A. Laett (HB9GA). The President of the R.S.G.B., Mr. R. H. Hammans, G2IG (who was present as a Member of the International Committee) also attended meetings of the Technical Committee.

Current Licence Position

After expressing disappointment at the poor co-operation from Member Societies in compiling comprehensive information on licensing in Region I, Mr. Milne, Secretary of the International Committee, announced that some countries are still not yet applying the Atlantic City Allocations; in some countries, for instance, the v.h.f. amateur bands are less than the international allocations for no obvious reason. Mr. Milne suggested that the Administrations concerned should be urged to implement the Atlantic City Plan fully.

The R.E.F. delegate said that the 70 Mc/s band, available to French amateurs (and Russian—EDITOR), was proving most interesting, particularly for mobile work.

A long discussion followed in which licensing conditions in Region I were reviewed. From this it appeared that conditions are comparable in most countries, especially in so far as obtaining licences and power input are concerned. In the U.K. licensing conditions laid down by the Post Office for s.s.b. stations follow very closely the Lausanne recommendations.

Intruders

The question of stations other than amateur operating in amateur bands was discussed in the Administrative Committee but the Chairman asked that the technical aspects of the means to be adopted to improve the situation should be considered.

G2IG emphasised the importance of a uniform logging system in reporting intruders. Such information should clearly indicate the accuracy of frequency measurements without which such reports are practically useless. The ensuing discussion mainly stressed the need for very close co-operation between Member Societies and their respective licensing authorities.

DL1WA stated that the German Post Office makes official measurements of the frequencies of intruder stations. In Scandinavia, however, there are no monitoring stations but in France an amateur-operated D/F service is being established for 7, 14 and 21 Mc/s. Attention was drawn to the fact that in some countries it is extremely difficult to ask official stations operating in exclusive bands to change frequency without awkward consequences for the amateurs. On the other hand, in Switzerland, Italy and Yugoslavia official receiving stations are most helpful.

The Belgian delegate remarked that the quality of transmission from some of the intruders is much below the standard required of amateurs.

The Secretary of the Committee (HB9GA) gave a brief review of the "exclusiveness" of amateur bands. It appeared that 1.8 Mc/s is allocated to amateurs in very few countries in Region I; 3.5 Mc/s throughout the Region is on a shared basis; 7 Mc/s has a 100 kc/s exclusive amateur allocation, the rest being on a shared basis with broadcasting having priority. 14 Mc/s is an exclusive amateur band except that in the U.S.S.R. 14250 to 14350 kc/s may be assigned to other services.

A discussion then ensued between the U.K. and the Federal German Republic delegates as to what categories of intruding stations should be logged for a start. It was pointed out that if all intruder stations were logged from the very beginning the Secretariat of Region I would be overloaded and it would therefore seem wise to limit the logging to stations with a regular schedule of operations.

After some discussion it was agreed to:—

(*a*) *Recommend the Plenary Assembly that for the first six months only broadcasting and commercial stations which can be positively identified by the I.F.R.B. list shall be reported.*

HB9GA explained two possible ways of channelling the information so gathered:—

(1) from the amateur society of one country to the respective Administration, with a copy of the letter to I.A.R.U. Region I Bureau;

(2) from the amateur society of a country to the Administration of the same country to take action on intruder stations belonging to another country, or by letter between the two respective Administrations.

Whether one or the other channel was used depended on the relationship between the amateur society and the organization of a country.

The importance of proper channelling of information on intruder stations was clearly demonstrated by an example cited by the German delegate regarding commercial Austrian stations working in the 3.5 Mc/s band on which the Austrian Society could do nothing. Through the intervention of the German Society (D.A.R.C.) however, it was found possible to eliminate them.

W1LVQ informed the meeting that in the U.S.A. commercial stations are using single sideband in ever-increasing numbers to make better use of the frequency spectrum available, and suggested that amateurs, in self-defence, might have to adopt similar measures.

The Technical Committee decided to advise all societies to secure the closest possible relations with official Post Office or other State receiving stations in logging intruder stations in amateur bands.

Study Papers

Amateur Television

G2IG introduced an R.S.G.B. paper on Amateur Television and amplified it by answering technical questions put by the meeting. The French delegate proposed a band plan whereby between 434 and 436 Mc/s only narrow-band transmissions would be allowed, the upper and lower segments thus being set aside for Amateur Television.

PA0NP presented a report on Amateur Television in the Netherlands. Although a uniform Amateur Television standard was desirable, for economic reasons it has so far been necessary to use local commercially available receiving equipment.

Single Sideband Transmission

G2IG introduced an R.S.G.B. paper on s.s.b. after which each delegate reported on single sideband activity in his country. Although single sideband technique is well established in the U.S. and is gaining popularity in the U.K. and Denmark, there is very little activity in the other countries of Region I. In all cases the phasing method seems to be predominant in amateur circles.

The V.E.R.O.N. delegate moved, and the Committee unanimously agreed to:—

(*b*) *Recommend the Plenary Assembly to urge radio telephony amateurs to replace double sideband plus carrier transmission by the single sideband suppressed carrier mode of emission. In order to assist amateurs during the transition period it is further recommended that through the medium of Amateur Radio magazines information should be made available on single sideband, especially on the construction of equipment.*

Television Interference

G2IG introduced an R.S.G.B. paper on TVI and reported that in his opinion television interference was keeping thousands of amateurs off the air daily in the U.K.

Delegates from most other countries represented were of the opinion that while TVI is still prevalent to some extent, the technical methods for avoiding it are now well established and that in their opinion the matter is no longer of great seriousness.

The Chairman referred to a valuable set of documents entitled "TVI Committee Operations," issued by A.R.R.L. W1LVQ (the A.R.R.L. observer) offered to send a copy to all delegates.

Radio Amateur Emergency Network

An R.S.G.B. paper on the Radio Amateur Emergency Network was introduced by G2IG while other delegates reported on similar activity in their own countries. Beside the U.K., Holland, Norway and Italy have already well organized amateur emergency networks; Switzerland is just establishing a similar one.

The portable equipment used in such emergency networks, could with advantage use transistors and the Committee unanimously agreed to:—

(*c*) *Recommend the Plenary Assembly that, in order to improve the reliability of Amateur Emergency Networks, it should urge greater attention be given to the use of transistors, with their smaller power requirements, in portable equipment.*

Exchange of Technical Information

All delegates recognized the importance of the free exchange of technical information between Member Societies. A great number of suggestions as how best this could be done were put forward and after a lengthy discussion the Committee agreed by eleven votes to three to:—

(*d*) *Recommend to the Plenary Assembly that in order to facilitate the exchange of technical information, both theoretical and practical, between Member Societies, each society should prepare abstracts in English of articles published in its magazine and that these abstracts, together with a copy of the appropriate issue, be sent to each Member Society.*

The Finnish delegate thought that a simpler way of ceding copyright than by asking for written permission for each article should be introduced.

Review of Lausanne (1953) Conference Technical Committee Recommendations

It was considered advisable to review the recommendations made at Lausanne in the light of the events of the past three years. All the Lausanne recommendations were confirmed with the following exceptions:—

(1) Whereas the R.S.M. Code has had applications in contests there was no indication that it was likely to come into common use. It is recognized that a verbal description of modulation quality is more acceptable to amateurs for general work. Emphasis, however, was laid on the importance of technical honesty in such descriptions.

(2) In accordance with the progress of s.s.b. technique the demarcation frequency between the use of upper and lower sideband should be 10 Mc/s. It was recognized that there is now no point in recommending a sub-carrier frequency.

Possibility of Special 50 Mc/s Licences

The Swedish delegate drew attention to the valuable work done in 1948 on 50 Mc/s and asked what possibilities there were to use these bands occasionally in view of the sun-spot peak to occur in the next geophysical year. In the view of most delegates there was no hope, due to the extensive use of this frequency band for television broadcasting.

Official Receiving Stations for Intruder Monitoring

In complying with a request by the Administrative Committee it was agreed that the following characteristics should be specified by an official receiving station when reporting to the respective P.T.T. Administration:—

(1) Image response at the frequency of reception;
(2) Response to spurious heterodyne products;
(3) Response to two signals separated by the intermediate frequency;
(4) Cross modulation;
(5) Frequency measurement accuracy.

International Geophysical Year

The A.R.R.L. observer, W1LVQ, reported on an appeal by his Government for co-operation by amateurs during the Geophysical Year (July 1, 1957, until December 31, 1958) in reporting abnormal propagation and the reception of signals from, and the possible tracking of, the earth satellites. A similar appeal had reached the D.A.R.C. delegate.

FINAL PLENARY ASSEMBLY

The President of the Conference (R.S.G.B. President R. H. Hammans, G2IG) presided at the final Plenary Assembly which commenced work at 8.30 a.m. on Satur-

day, June 16, 1956. All six members of the International Committee were present together with representatives of twelve Region I Societies, who between them held votes and proxy votes for seventeen Societies.

Recommendations of the Administrative Committee

The Recommendations of the Administrative Committee in respect of (a) the European Band Plan, (b) reciprocal arrangements, (c) emergency networks, (d) the band 72-72.8 Mc/s, (e) the paper submitted by S.R.J., (f) the reporting of "intruders" (as set out in the Report of the Committee, on pages 26, 27 and 28, of the July, 1956, BULLETIN) were approved.

A recommendation that the frequency of 14195 kc/s should be designated an emergency calling frequency was approved.

Official Liaison

A memorandum prepared by PA0DD and G6CL explaining the reason for the importance of societies making effective liaison with Government officials was submitted.

Mr. Budlong amplified the remarks he had made before the Administrative Committee regarding the manner in which I.T.U. Radio Conferences are organised. He pointed out that if the Administrative Council of I.T.U. decide in April 1957 that a Radio Conference shall be held during 1959, the various Administrations will almost immediately begin to review their requirements. It is, therefore, imperative that each society shall do its utmost to enlist the sympathy of its own Administration, so that the proposals framed by that Administration may be as favourable to amateurs as possible.

A proposal that all societies in Region I should be urged to contact their respective Administrations and to do their utmost to ensure a sympathetic understanding of their case, was approved.

A formal vote of thanks to Mr. Budlong for his assistance to the Stresa Conference was carried unanimously.

A proposal that all societies in Region I should encourage their members fully to occupy the apparently empty spaces in the "shared" bands, was approved.

Recommendations of the Technical Committee

The Recommendations of the Technical Committee in respect of (a) intruders in amateur bands; (b) the use of single sideband transmission; (c) the use of transistors in connection with Amateur Radio emergency networks; (d) dissemination of technical information among Member Societies (as set out in the Report of the Committee on pages 70 and 71) were approved.

Recommendations of the International Committee

The Hon. Treasurer (G6CL) reported that A.R.I. had estimated that the cost of organizing the Stresa Conference would be £313. The major items of expense would be salaries for interpreters (£120), hotel accommodation for interpreters (£50), A.R.I. staff (£50).

The Hon. Treasurer (G6CL) moved and the delegate of U.S.K.A. seconded that contributions to Fund 1 be reinstated; that Fund 1 be used for the purpose of financing the costs of operating the Region I Bureau and for meeting the cost of organising future Region I Triennial Conferences; that a further sum of £150 (£50 had already been paid) be transferred to A.R.I. from Fund 1 towards the cost of organising the Stresa Conference; that the generous offer of A.R.I. to contribute a further £113 towards the cost of the Stresa Conference be accepted with gratitude. The motion was carried by 13 votes to 1.

The Hon. Treasurer (G6CL) proposed and the delegate of the R.S.G.B. seconded that the amount of money to be contributed to the Region I Funds shall remain at £1,200 per year, but that the proportions shall be changed to £300 for Fund 1, £500 for Fund 2 and £400 for Fund 3. (At Lausanne it was agreed that the proportions should be £400 Fund 1, £400 Fund 2, £400 Fund 3.) An amendment proposed by U.S.K.A. and seconded by S.R.J. to increase the total to be paid each year to £1,500 was defeated by 8 votes to 7.

The original motion was then put to the meeting and carried by 14 votes in favour to none against, with one abstention.

The Hon. Treasurer (G6CL) submitted a table showing the proposed amounts to be paid annually by each Society in Region I during the period July 1, 1956—June 30, 1959. Mr. Clarricoats explained that each society had been asked to state the number of licensed members on its books as at January 1, 1956. The grand total of 19,000 had then been used as a basis for calculations. The number of licensed members in each society had been converted to a percentage of 19,000 and this percentage had been applied in proportion to the figure of £1,200.

There is no record in the official Minutes to show that the recommendation associated with the table of proposed amounts was voted upon at the Conference. The reason for this appears to be due to the fact that the delegate of U.B.A. at this point proposed that Region I funds should be transferred from England to Switzerland in accordance with the decision reached at the Lausanne Conference. Mr. Milne explained that it had become necessary in order to effect transfers of money to members of the International Committee to obtain approval from the Bank of England. This had necessitated retaining the funds in England, a step which had been approved by the International Committee.

The Chairman ruled that further discussion on this matter should be deferred until the Hon. Treasurer had been elected.

The Chairman informed the Assembly that the International Committee had examined Article 7 of the newly approved Rules of Region I Division and had discovered that as they stood there was no way of limiting the number of persons who could serve on the International Committee. He therefore suggested that the words "and not more than four" be added after the words "not less than one". The Article would then read "At each Conference an International Executive Committee consisting of a Chairman, Vice-Chairman, Honorary Secretary, Honorary Treasurer and not less than one and not more than four members shall be elected. . . ."

A motion to amend Article 7 as indicated was carried unanimously.

U.H.F./V.H.F. Committee

DL3FM submitted the Report of the ad hoc Committee which had been set up to discuss u.h.f./v.h.f. contests and other relevant matters.

The following Recommendations of the Committee were approved:

(a) that a permanent Region I V.H.F./U.H.F. Committee shall be formed;
(b) that the Committee shall meet once a year except in those years when there is a Region I Conference;
(c) that societies sending members to meetings of the Committee shall pay the expenses of such members.

The Assembly then considered how the V.H.F./U.H.F. Committee should be constituted. After discussion it was agreed to appoint DL3FM as Chairman. ON4BK was elected Hon. Secretary by 8 votes to 6 cast for PA0LR.

Rules for the V.H.F./U.H.F. Contests (as drawn up by the ad hoc Committee) were accepted by 13 votes to 1 abstention (I.R.T.S.).

International Committee

The Chairman of the International Committee (SM2ZD) stated that the six members of the Committee (SM2ZD, PA0DD, G2MI, G6CL, G2IG and HB9GA) offered themselves for re-election. The delegate of V.E.R.O.N. proposed and the delegate of S.A.R.L. seconded that the offer be accepted. The proposal was defeated by 11 votes to 3.

The delegate of U.B.A. proposed in the name of the delegate of A.A.E.M. (who had left the Conference) and the delegate of R.E.F. seconded that the International Committee shall consist of not more than one person from any National Society. Mr. Milne spoke in the strongest terms against this proposal. He warned the Assembly that by adopting such a policy they would be placing a limit on their ability to ensure that the best men were elected to the Committee. Such a suggestion was many years out of date. There should be no "nationalities" present. We were all radio amateurs with a "common enemy" i.e. those who were trying to deprive us of our privileges. If it so happened that several men from one National Society were deemed by their colleagues to be the most suitable persons for the Committee, it would be folly for the delegates to tie their hands so that they could use the talents of only one.

Mr. Milne's eloquent plea was, however, rejected by many of the delegates with the result that the motion proposed by A.A.E.M., supported by U.B.A. and R.E.F., was carried by 9 votes to 8.

Nominations were then invited for the office of Chairman of the International Committee. The then Chairman Capt. Per-Anders Kinnman (SM2ZD) was proposed by V.E.R.O.N. and seconded by the R.S.G.B. Mr. H. Laett (HB9GA) was proposed by U.B.A. and seconded by U.S.K.A. The ballot proved to be in favour of HB9GA who reserved the right to decline to fill the post until the rest of the Committee had been elected.

Nominations were then invited for the office of Hon. Secretary. Mr. Milne was proposed but he stated he was not prepared to accept nomination. Upon being pressed for his reasons, he stated that he had come to the meeting prepared not to stand again. He had, however, been deeply moved by the confidence shown in him but he felt so strongly regarding the resolution that only one person from any one national society may be elected to the Committee that he would not consider allowing his name to be put forward so long as the resolution stood.

The delegate of U.S.K.A. then asked Mr. Milne if he would be prepared to accept the office of Hon. Secretary if the meeting rescinded the resolution. Mr. Milne stated that he would.

The delegate of U.S.K.A. then proposed, the delegate of S.S.A. seconded and it was resolved to rescind the resolution that only one person from any one National society may be elected to the International Committee.

Mr. Milne thereupon accepted the office of Hon. Secretary.

Nominations were then invited for the office of Hon. Treasurer. The then Hon. Treasurer (Mr. John Clarricoats, O.B.E., G6CL, General Secretary, R.S.G.B.) was proposed by V.E.R.O.N. and seconded by S.S.A. F9DW (who was not present) was proposed by A.R.I. and seconded by U.B.A. F9DW was elected by 9 votes to 8.

Nominations were then invited for the four ordinary members of the International Committee. The following were nominated:—

CALL	PROPOSED BY	SECONDED BY
DL1KV	S.S.A.	S.R.J.
G2IG*	R.S.G.B.	S.A.R.L.
G6CL*	S.A.R.L.	R.S.G.B.
I1XX†	A.R.I.	R.E.F.
PA0DD*	V.E.R.O.N.	E.D.R.
SM2ZD*	D.A.R.C.	E.D.R.
YU1AA	S.S.A.	D.A.R.C.

*Members of the 1953-6 Committee.

†I1XX was not in attendance at the Conference.

As the result of a ballot the following were declared elected: D1LKV, I1XX, SM2ZD, YU1AA.

(Although the motion "That not more than one person from any National Society shall serve on the International Committee" was withdrawn, in point of fact the societies concerned with the motion achieved the same result.—EDITOR.)

It was then proposed by U.B.A. and seconded by the R.E.F. that Region I funds be banked in Switzerland. The motion was carried by 12 votes to 5.

At this point HB9GA stated that he would accept the office of Chairman of the International Committee.

Venue for Next Conference

As no offer was forthcoming, the Secretary asked the German delegation whether D.A.R.C. would be prepared to undertake the organization of the 1959 Conference. The German delegation agreed to discuss the matter with the Council of D.A.R.C. and to report to the International Committee.

QSL Cards

The Secretary drew attention to the fact that the Administrative Committee had recommended that the decision at Lausanne to seek confirmation from the Universal Postal Union that QSL cards could be sent in bulk by commercial paper rate postage, should be rescinded. The Secretary stated that he had taken advice on this matter and had convinced the Administrative Committee that any approach to U.P.U. would be highly undesirable.

It was agreed to accept the recommendation of the Administrative Committee.

Courtesies

The Chairman asked for a cordial vote of thanks to be recorded to the President, Officers and Members of A.R.I. for organizing the Conference. The proposal was unanimously adopted.

On behalf of the Yugoslav Society the Chairman presented a carved wooden casket to Mr. Sesia (President of A.R.I.). Mr. Sesia expressed his appreciation of the gift. The Yugoslav delegation then made a similar presentation to Mr. Milne who thanked them for their kind thought.

The delegate of Holland proposed a vote of thanks to Mr. Hammans for his patient and unruffled handling of the meeting throughout its long session. This was greeted with applause.

The Chairman asked the meeting to show its appreciation of the excellent services of the interpreters and clerical staff. This too was greeted with applause.

The Assembly completed its business at 2.50 p.m. after sitting for 6 hours, 20 minutes.

Tests and Contests

First 144 Mc/s Field Day, 1956

"THE best 2-metre Field Day yet!" commented one entrant for the first of the 1956 field events held on May 6: and certainly the very high level of activity—some 250 stations, including over 55 portables and 10 mobiles, took part—and the sunshine must have made many others echo these sentiments. Tempted out-of-doors by the excellent weather (apart from the high winds in some areas) two metre enthusiasts were early at work erecting beams on hill tops throughout Great Britain. At least two portable stations were operating as far north as the Aberdeen area, though the bulk of activity was to be found in a wide sweep across southern England, from Kent to Somerset.

Although conditions were none too good for extreme inter-G or Continental working (PE1PL, EI9C and a half-dozen French stations were contacted), it is a good indication of the general reliability now attained with 144 Mc/s portable equipment that 27 out of the 29 entrants had contacts over spans exceeding 100 miles, whilst 15 exceeded the 150-mile mark. A few years ago, results such as these would have been beyond the most sanguine expectations. The leading scores, however, were down on those achieved during the excellent conditions of the second 1955 Field Day. Best contact of the day was between G3CGQ and PE1PL.

Leading Stations

The leading station, GW3GWA/P, atop Vroncysyllte Hill, 8 miles south-west of Wrexham, entered by Robert G. Goulding, made 62 contacts (all on telephony, 24 exceeding the 100-mile mark) with a 20 watt transmitter—5763/5763/5763/832 modulated by a pair of 6L6s—energizing a four element Yagi (T-match), 18ft high. On the receiving side, his rig was EC91/EC91 g.g.t./6AK5/12AT7/13D3 into a BC348. '3GWA/P made contact with 26 other portable and five mobile stations and his final score of 8,178 points gave him a clear thousand point lead over his nearest rival.

The runner-up, G8UQ/P, at Yarnhams Farm, 7 miles south-east of Basingstoke, was operated by G8UQ and G5US, with the able assistance of G8UQ/XYL as log-keeper and general manageress. The rig, entirely home constructed, was a 6AQ5/12AT7/12BH7/832A transmitter modulated by 12AT7/12AT7/p.p.EL84, running 17 watts input, with a ten element stacked array, 34ft high. Front end of the receiver had three grounded-grid triodes (EC91s), crystal oscillator, tunable i.f. of 16-18 Mc/s, followed by 465 kc/s i.f. and audio. Power supply was by means of rotary converters from separate 12-volt accumulators. Morse was used during two out of the 75 contacts.

It is interesting to note that more variety is becoming evident in transmitter design for this band: although the ubiquitous 832 remains by far the most popular power amplifier valve: an analysis of the entries reveals, fourteen 832 or 832A; seven QV04/7; two 6AK5 in push-pull; and one each of QQV06-40, QV06-20, QQV03-20A, QQV03-10 and 2E26. Of the leading ten stations, three used four element Yagis, one a six element Yagi and one a 4-over-4 Yagi; two used 16 element stacks, one a 12 and another a 10 element stack; one double skeleton slot was used, and there was one other single skeleton slot to double with a Yagi.

Comments

An ideal contest would presumably bring forth zero comment on the rules: in this event the Contests Committee has come extremely near to bringing this off, at least as far as the main section was concerned. G3CKQ (2nd operator of G6YU/M) wonders why contacts between portable stations should carry a double scoring rate, whilst G3BOC would like to see more than two field events each year. Other points mentioned include a plea from G3MA that only larger towns should be used as reference points to aid those without a full set of Ordnance Survey maps, whilst GC2FZC wishes that more beams had been pointed in his direction. G3CGQ/P took a couple of hours off from 144 Mc/s to try out his 1250 Mc/s rig and put down solid S9 signals over a 16 mile path with the aid of a modulated 703A.

Mobile Section

This new section produced a most disappointing entry, but then, as was pointed out, "it takes time to introduce a new idea." That this section could be as interesting and as exciting as the main event is borne out by the excellent log submitted by G3BOC, who made 40 contacts (5 over 100 miles) using a 10 watt Hamobile rig with dipole and single slot beams. '3BOC makes the interesting suggestion that mobile stations should be required to change locations at least once during the contest, and perhaps have to make at least one contact whilst travelling.

Psn.	Call-sign	Approximate Location	Contacts	Best QSO (miles)	Points
1	GW3GWA/P	Wrexham	62	179	8178
2	G8UQ/P	Basingstoke	75	192	7163
3	G8SB/P	Oakham	69	230	6883
4	G3JWQ/P	Buxton	64	168	6837
5	G2HIF/P	Blandford	56	229	6576
6	G2DSW/P	Southampton	59	160	6275
7	G3GOP/P	Ludlow	55	117	5835
8	G5ML/P	Coventry	65	120	5576
9	G3FKO/P	Taunton	42	187	5333
10	G3MA/P	Gloucester	47	120	5140
11	G3ION/P	Shaftesbury	46	165	5066
12	G2AK/P	Birmingham	71	109	4657
12	G5BM/P	Mitcheldean	52	141	4657
14	G3XC/P	Watlington	64	159	4629
15	G3HSD/P	Bristol	45	164	4485
16	G3FD/P	Dunstable	57	133	4381
17	G3HKT/P	Newbury	51	136	4311
18	G3JHN/P	Wendover	51	134	4258
19	G3IRA/P	Swindon	50	116	4170
20	G3KEQ/P	Woldingham	60	170	4165
21	G8QY/P	Birmingham	52	135	4048
22	G3CGQ/P	Luton	50	280	3859
23	G3EOH/P	Wycombe	50	89	3068
24	G6MN/P	Sheffield	35	185	3042
25	G3GGR/P	Birmingham	47	103	2861
26	G5LK/P	Reigate	54	165	2309
27	G3IEY/P	Burton Bassett	24	71	1557
28	GM3INK/P	Kilsyth	17	161	889
29	GM2FHH/P	Cairn-o-Mount	6	170	665
Mobile Section					
1	G3BOC/M GW3BOC/M	Chester/ Llangollen	40	167	4328

Check logs from G2QY, '2YB, '2AHL, '3FWW, '3HBW, '5DW, '6YU/P and GC2FZC are gratefully acknowledged.

South Manchester D/F Event

FIVE competitors and their parties braved a heavy downpour to compete in the third of the 1956 series of qualifying events, organized by the South Manchester Radio Club, which took place on June 24.

The transmitter was located some 850 feet a.s.l. on a rough cart-track ascending from the Cheshire Plains near Bollington to the moors of Dale Top and Sponds Hill,

just under ten miles from the starting point. The weather forced the operators to abandon the position originally chosen in favour of the shelter of their car, which was partially concealed by bends in the track and by the stone walls skirting the track. The signal at the start was rather weak and variable, this being attributed to the hilly terrain as full input and a long aerial were being used.

Group photograph of the competitors and their parties and the organizing team taken after the South Manchester D/F Qualifying Event.

First to arrive at the transmitter, at 15.18, was N. Ashton (G3DQU) of South Manchester Radio Club, closely followed by G. T. Peck (High Wycombe) at 15.19. Third to arrive was J. J. Grant (B.T.H., Rugby) at 15.25, after some rather hard going over swampy ground. G. C. Simmonds (Slade Radio Society) arrived at 16.15 after some difficulty with sense bearings had led him through the clouds on Dale Top; the last competitor, B. Currey (South Manchester Radio Club) arrived at 16.25.

A salad tea was enjoyed afterwards, and the organizer wishes to thank all involved for their show of good spirit under the rather trying circumstances of the day.

Messrs. Ashton, Peck, Grant and Simmonds qualified for the National Final to be held on September 9.

The winner (J. K. Finch) and his party at the start of the High Wycombe D/F Qualifying Events.

High Wycombe D/F Event

TWELVE competitors assembled near Tring for the High Wycombe qualifying event which took place on July 8 on what proved to be the hottest day of the year, in contrast to the torrential rain of the previous year's contest. The transmitter was very well concealed in thick undergrowth on National Trust land, on the lip of an old quarry just south of the Thames near Marlow, and was over fourteen miles from the start in an area notable for its numerous lanes and outstanding scenery.

The difficulties facing the competitors were reflected in the comparatively small number of successful entrants and the unusually long time before the first arrival. J. K. Finch (High Wycombe) did well to reach the transmitter at 15.34, followed only four minutes later by J. D. Charlton (Twickenham). T. C. Reynolds (B.T.H., Rugby) arrived at 15.42, followed by C. H. Young (Slade) at 15.52. Messrs. Finch and Young qualified for the National Final, Messrs. Reynolds and Charlton having qualified in earlier events. The only other successful party was a team of four local enthusiasts led by W. Rayner. Between them, during the previous week, they had obtained a receiver, passed a driving test, borrowed a car, and with no previous experience whatever would have qualified for the Final if they had had time to join the R.S.G.B.!

Most of the successful competitors found the last 100 yards very difficult going, and with temperatures well in the 80's arrived in a somewhat exhausted condition. Mr. Finch came in from an unexpected direction, considered impracticable by the organizers because of the presence of a large bull which was, however, so overcome by the heat that it disregarded the party until they left by the same route to make their exit in very good time and with a slight lead!

A total of forty-five people sat down to tea at the Little Abbey Hotel, Great Missenden, where later the High Wycombe Challenge Trophy was presented by Mrs. G. T. Peck to Mr. Finch, who thus regains it locally for the second time. Prizes kindly donated by Norman Turner (G4NT) were presented to the first three successful competitors and to Mrs. Reynolds as the first lady in a successful party.

The unsuccessful competitors were Messrs. Drury (Romford), Evans and Harding (B.T.H., Rugby), King (G5FW, Dagenham), Seabrook (Southend), Simmonds (Slade) and Walford (Grafton). The event was organized by G. T. Peck and the transmitter, G8VZ/P, was operated by J. Redrup.

First 420 Mc/s Contest, 1956

A STUDY of the entries and results of all the 420 Mc/s contests so far held shows a very steady pattern. Numbers of entrants, of other stations active, of contacts made, and of long-range contacts (over 100 miles) remain closely similar throughout.

As is to be expected, the actual call-signs reported also remain much the same, with a few newcomers and a few dropping out. Equipment, too, has become fairly stereotyped. Receivers use crystal-controlled injection to a crystal mixer, followed by a low-noise preamplifier feeding a communications receiver at from about 10 to 30 Mc/s. R.f. stages are only mentioned in two logs. G3HBW used two stages, and G5CD three.

On the transmitter side, the QQV03/20 was the most popular output stage. G3HBW and G5CD used higher power coaxial stages, with an ACT22 and a 4X150A respectively. G3HAZ's final stage was unusual, using an 8012 earthed grid tripler, driven hard but without h.t., to produce about 15 watts of r.f.

Stack arrays were the most commonly used aerials, with a few Yagis, and an increasing number of slot arrays, some stacked and some used Yagi-fashion.

Conditions were generally described as bad. The three contacts exceeding 100 miles were between G6NB—G3IOO (119 m.), G3HAZ—G3KEQ (110 m.) and G2XV—G2DDD (105 m.).

Leading Stations

G6NB. Transmitter—QQV06/40 tripler.
Receiver—Crystal mixer, crystal controlled injection, head amplifier, HRO.
Aerial—32 element stack.

G2XV. Transmitter—QQV06/40.
Receiver—Crystal mixer, crystal controlled injection, 6BQ7 head amplifier, SX28.
Aerial—20 driven elements with 20 reflectors at 40 ft.

G3KEQ. Transmitter—QQV03/20 tripler, QQV03/20 p.a.
Receiver—Crystal mixer (G3BKQ type converter), HRO.
Aerial—4 skeleton slots, full wave spacing, 20 ft high.

Results of the First 420 Mc/s Contest, 1956

Psn.	Call-sign	Location	Contacts	Points
1	G6NB	Brill, Bucks.	21	1026
2	G2XV	Trumpington, Cambs.	16	798
3	G3KEQ	Sanderstead, Surrey	27	686
4	G3HBW	Bushey Heath, Herts.	29	650
5	G5KW	Chelsfield, Kent	22	599
6	G2HDZ	Pinner, Middx.	25	509
7	G3IRW	Hoddesdon, Herts.	18	471
8	G8SK, G8SK/P	Waltham Abbey, Essex } Upshire, Essex	20	386
9	G5UM	Knebworth, Herts.	12	336
10	G3HAZ	Northfield, Birmingham	8	300
11	G2RD	Wallington, Surrey	17	286
12	G3CGQ	Luton, Beds.	5	121
13	G8PX	Oxford	3	114

Check logs are gratefully acknowledged from G2WJ, G5CD.

Other stations reported active during the contest were as follows: G2AIH, '2CIW, '2DCI, '2DDD, '2DUS, '2HDJ, '3FP, '3MI, '3EJO, '3ENY, '3EOH/P, '3EYV, '3FUL, '3FZL, '3GDR, '3GOZ, '3GTH, '3IOO, '3KBS/P, '3KFD, '3KKD, '4KD, '5CM, '5DS, '5DT, '5ML, '5RD, '6LL, '6NF, '6YU, '8AL, '8KZ, '8QY/P.

Second 420 Mc/s Contest, 1956

THE rules for the Second 420 Mc/s Contest, to be held on September 9, 1956, will be the same as those published for the first event on page 431 of the April, 1956, issue. The last date for posting entries will be Monday, September 17, 1956.

1956 B.E.R.U. Contests Results

IT is regretted that in the results table for the Senior B.E.R.U. Contest, 1956, the "final placings" for the following stations were shown incorrectly: G2DC should be 9 (not 10); VE2NI should be 10 (not 9); VE2JR should be 54 (not 55); and ZB1ZR should be 55 (not 54). In the Junior Event, the final placings of VQ4KPB and DL2UY should have been ninth and tenth respectively. Scores for the above stations are as given in the July issue.

D/F National Final

FULL details of the D/F National Final, to be held on September 9, 1956, will be sent direct to all those who have qualified, by the organizing group, B.T.H., Rugby.

Low Power Contest 1956

AS a result of the numerous comments made with the logs received for the 1955 contest it has been decided to revert to the old scoring system, with the maximum scoring rate for input power not exceeding 0.5 watt. In accordance with the general practice for all contests, the rising serial number has been added.

Rules

1. The Contest is open to all fully paid-up members of the R.S.G.B. resident in Europe.
2. The Contest will run from 18.00 to 23.30 G.M.T. on Saturday October 6 and from 08.00 to 20.00 G.M.T. on Sunday October 7, 1956.
3. Entries must be set out in the form below, using one side of the paper only:—

LOW POWER CONTEST, OCTOBER 6-7, 1956

Name:..... Claimed score:.....
Address:..... Code No.:..... Call-sign:.....
.....
Transmitter : .....
Aerial:..... Receiver:.....

Time GMT	Input power	Call-sign of stn. worked	My report on his sigs.	His report on my sigs.	Points claimed	Code No. of stn. worked
18.10	0·5	G3XYZ	589001	559002	20	12
18.17	0·5	G3ZYX	449002	449001	20	17
18.24	1·0	G5ZZ	569003	449005	10	20

Total: ... ...
..... Code areas worked × 20 = ...
Total claimed score ... ...

Declaration: I declare that my station was operated strictly in accordance with the rules and spirit of the contest, and I agree that the ruling of the Council of the R.S.G.B. shall be final in all cases of dispute.

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

4. A circuit diagram of the transmitter and power supply must be given on a separate sheet, signed by the competitor. Competitors using grounded grid p.a. stages must add for the purposes of calculating power input to the p.a. 50 per cent of the input power to the stage driving the p.a.
5. All contacts must be made between 3500 and 3600 kc/s.
6. The power input to the transmitter shall not be intentionally varied during any contact.
7. The contest is confined to two-way telegraphy (A1) contacts and any competitor receiving tone reports lower than T9 may be disqualified.
8. Only one contact with a specific station will be allowed to count for points.
9. Power input, in watts to the p.a. stage (but see Rule 4), must be recorded in the second column at the time of the contact.
10. No preceding stage may have a power input in excess of that to the p.a.
11. Scoring will be as follows:—

Watts input to the p.a. stage	Up to 0·5	To 1	To 2	To 3	To 4	To 5 watts
Points per contact	20	10	5	3	2	1

A bonus of 20 points may be claimed for the first contact with each different Code Area, as listed at the end of these Rules.

12. If different power is used at various times during the contest, the scoring must be altered accordingly.
13. Competitors should call "CQ CQ CQ QRP de (call-sign) AR".
14. An exchange of RST, a three-figure serial number beginning between 001 and 100 and increasing by one for each contact, and Code Numbers—all of which must be acknowledged by the signal R—will be required before points may be claimed (e.g. RST 579001 NR 17). Where non-competitors do not give a Code Number, this may be inserted, provided this fact is indicated on the log sheet.
15. Proof of contact may be required. Contacts with unlicensed stations will not count for points.
16. Only the competitor may operate the station during the contest period.
17. Entries must be addressed to the Hon. Secretary, R.S.G.B. Contests Committee, Radio Society of Great Britain, New Ruskin House, 28/30 Little Russell Street, London, W.C.1, and must bear a postmark not later than Friday, October 19, 1956.

Code Numbers

A list of Code Numbers is set out below.

England (G).

1. Bedford	15. Hereford	28. Nottingham
2. Berkshire	16. Hertford	29. Oxford
3. Bucks	17. Huntingdon	30. Rutland
4. Cambridge	18. Kent	31. Shropshire
5. Cheshire	19. Lancashire	32. Somerset
6. Cornwall	20. Leicester	33. Stafford
7. Cumberland	21. Lincoln	34. Suffolk
8. Derby	22. London (Postal Districts)	35. Surrey
9. Devon		36. Sussex
10. Dorset	23. Middlesex	37. Warwick
11. Durham	24. Monmouth	38. Westmorland
12. Essex	25. Norfolk	39. Wiltshire
13. Gloucester	26. Northampton	40. Worcester
14. Hampshire	27. Northumberland	41. Yorkshire

Scotland (GM).

42. Aberdeen	54. Fife	66. Renfrew
43. Angus	55. Inverness	67. Ross & Cromarty
44. Argyll	56. Kincardine	68. Roxburgh
45. Ayr	57. Kinross	69. Selkirk
46. Banff	58. Kirkcudbright	70. Shetland
47. Berwick	59. Lanark	71. Stirling
48. Bute	60. Mid-Lothian	72. Sutherland
49. Caithness	61. Moray	73. West Lothian
50. Clackmannan	62. Nairn	74. Wigtown
51. Dumbarton	63. Orkney	
52. Dumfries	64. Peebles	
53. East Lothian	65. Perth	

Wales (GW).

75. Anglesey	79. Carnarvon	83. Merioneth
76. Brecknock	80. Denbigh	84. Montgomery
77. Cardigan	81. Flint	85. Pembroke
78. Carmarthen	82. Glamorgan	86. Radnor

Northern Ireland (GI).

87. Antrim	89. Down	91. Londonderry
88. Armagh	90. Fermanagh	92. Tyrone

Channel Islands (GC).

93. Alderney	95. Jersey	96. Sark
94. Guernsey		

97. Isle of Man (GD) 98. All Stations outside the United Kingdom.

Contests Diary

1956

August 18–19	-	Region I V.H.F. Contests[1] (organized by individual national societies)
August 19	-	144 Mc/s Field Day No. 2[2]
September 2	-	Low Power Field Day[3]
September 2	-	1250 Mc/s Tests[4]
September 8–9	-	European V.H.F. Contest[1] (organized by D.A.R.C.)
September 9	-	D/F National Final
September 9	-	420 Mc/s Contest No. 2[7]
October 6–7	-	Low Power Contest
October 6–7	-	VK/ZL DX Contest[5] (organized by N.Z.A.R.T.)
October 13–14	-	VK/ZL DX Contest[5] (organized by N.Z.A.R.T.)
November 10–11		Top Band Contest No. 2
November 24–25		21–28 Mc/s Phone Contest[6]

Unless otherwise indicated all contests are arranged by the R.S.G.B.

[1] See page 285, December, 1955, and page 386, March, 1956.
[2] For rules, see page 34, R.S.G.B. Bulletin, July, 1956.
[3] For rules, see page 532, R.S.G.B. Bulletin, June, 1956.
[4] For rules, see page 532, R.S.G.B. Bulletin, June, 1956.
[5] For details, see page 538, R.S.G.B. Bulletin, June, 1956.
[6] For rules, see page 480, R.S.G.B. Bulletin, May, 1956.
[7] See page 76

Empire DX Certificate Holders

THE following are additions to the list of Empire DX Certificate Holders published in the July, 1955, issue.

·ON	Name	Call-sign
	1955	
104	J. Drudge-Coates	DL2RO
105	T. Higginson	GW3AHN
106	Everett W. Mayer	KP4KD
107	Juan B. Castanera	KP4CC
108	J. Shepherd Nicholson	VU2JP
109	J. Douglas Kay	G3AAE
110	T. E. Wilson	G6VQ
111	J. Mahieu	ON4AU
	1956	
112	V. G. Mellor	G5MR
113	H. Biltcliffe	G5HB
114	J. Drudge-Coates	G2DC
115	G. A. Wafer	VQ2GW
116	D. E. Scarr	G6XX
117	D. L. Courtier-Dutton	G3FPQ
118	Eric Neal	G8GP
119	J. N. Walker	G5JU
120	H. L. Wilson	EI2W
121	Felix Suter	HB9MQ
122	V. J. Williams	VE3KE

The certificates listed above were issued between July 1, 1955, and June 30, 1956.

Major Drudge-Coates is the only amateur so far to receive two Empire DX Certificates. He qualified for the first (whilst serving in Germany) under the call DL2RO., and the second under the call G2DC.

Eastern Regional Meeting

MORE than 70 members and friends attended the Eastern Regional meeting at Cambridge on July 1, 1956. Council was represented by C. H. L. Edwards (G8TL) and W. H. Matthews (G2CD). The lecturer was Frank Hicks-Arnold (G6MB) who gave his popular talk on "The Antennamatch."

At the business meeting, during which the Council representatives answered many questions on Society affairs, the Regional Representative, T. A. T. Davies (G2ALL), announced that a V.H.F. Convention would be held in Cambridge during 1957. The R.R. also stated that the Granfield Trophy, presented before the war by Stan Granfield (ex-G5BQ) would be awarded to the member in Region 5 who, in the opinion of the R.R., C.R.s and T.R.s, as a Committee, had made the most outstanding contribution to Amateur Radio in the Region up to July 1, 1956, and that in future it would be awarded annually for that distinction. Local groups and clubs in the Region were asked to forward nominations. It was emphasized that the achievement need not be technical—anything which furthers the cause of Amateur Radio would be considered.

While the business meeting was in progress, Mr. A. Porter conducted a party round the colleges.

B.B.C. V.H.F. Sound Broadcasting

THE B.B.C. has announced that it is to proceed with the building of a further six v.h.f. stations constituting the second stage of the plan to provide nation-wide coverage on v.h.f. of its three sound programmes. These additional stations, together with the ten stations already authorised, will provide interference-free reception on v.h.f. of the Home, Light, and Third Programmes for about 96 per cent of the population of the United Kingdom.

Radio Amateurs' Examination

City and Guilds Radio Amateurs' Examination

A TOTAL of 518 candidates—nearly 100 more than in 1955—sat for the Radio Amateurs' Examination, conducted by the City and Guilds of London Institute, last May. Of this number 458 (88.4 per cent) passed and 60 (11.6 per cent) failed.

The examiner reports that the overall standard of work was good. The only criticism that could be offered was that the answers to that part of question 3 which relates to harmonics, were couched in very general terms. All the other questions were reasonably well answered by all candidates.

In his report to the Institute the examiner remarked that the arithmetical calculations were done much more satisfactorily than has been the case in the past.

The examining body comments " it is evident that many more students are taking courses of instruction rather than relying upon private study."

Of the 518 candidates, 4 were blind and 2 were bedridden. In these cases special arrangements were made for the examination to be taken at home.

A copy of the paper follows:—

EIGHT *questions in all are to be attempted, as under:*
ALL FOUR *in Part* 1 (*which carry higher marks*) *and* FOUR *others from Part* 2.

Part 1

1. Licence Conditions. What are the requirements in respect of the following:—
   (*a*) Operators and access to apparatus,
   (*b*) Inspection,
   (*c*) Retransmission of recorded messages,
   (*d*) Types of messages which may and may not be exchanged between amateur stations? (15 *marks*).

2. If the d.c. feed to the final stage of a transmitter is 500 volts, 80 milliamperes and the r.f. current in the artificial aerial load resistor of 750 ohms is 0.2 ampere, calculate:—
   (*a*) The power input,
   (*b*) The power output,
   (*c*) The efficiency of the stage,
   (*d*) The anode dissipation. (15 *marks*).

3. (*a*) State what precautions should be taken in a radio transmitter to avoid:—
   (i) Radiation of harmonics,
   (ii) Key clicks and thumps.
   (*b*) With the aid of a diagram describe a simple form of detector circuit for checking harmonic radiation. (15 *marks*).

4. (*a*) What are the relative advantages and disadvantages of a variable frequency oscillator over a crystal controlled oscillator for use in an amateur's transmitter?
(*b*) Describe, with the aid of a diagram, a variable frequency oscillator for generating a stable frequency. (15 *marks*).

Part 2

5. Describe two types of feeders used in a transmitter aerial system. State what steps must be taken to ensure maximum transference of energy to the aerial. (10 *marks*).

6. Explain the meaning of the following terms as applied to a radio receiver:—
   (*a*) Selectivity
   (*b*) Bandwidth
   (*c*) Sensitivity (10 *marks*).

7. Two capacitors of 4 and 12 picofarads are connected in series; two others of 8 and 24 picofarads are also connected in series. What is the equivalent capacitance if these series combinations are connected in parallel? (10 *marks*).

8. Explain with the aid of a circuit diagram and characteristic curves the action of one form of valve detector circuit. (10 *marks*).

9. Define the following and state briefly their uses:—
   (*a*) Auto-bias,
   (*b*) De-coupling (10 *marks*).

10. What value of inductance is required in series with a capacitor of 500 picofarads for the circuit to resonate at a frequency of 400 kc/s? (Assume no resistance). (10 *marks*).

Instruction Courses

COURSES of instruction for the Radio Amateurs' Examination, and for those who wish to study radio, have been arranged at the colleges and evening institutes listed below:—

Birmingham. Information may be obtained from the Chief Education Officer (F.E. Dept.), Education Office, Council Office, Margaret Street, Birmingham, 3.

Bognor Regis Technical Institute, Southway, Bognor Regis. Enrolment for courses in radio, including R.A.E. and the Morse test, will take place on September 10, 11 and 12 from 6.30 to 8.30 p.m. Further details may be obtained from the Principal.

Bradford. Classes for the R.A.E. will be held at Bradford Technical College, Haton Road.

Brentford Evening Institute. The following courses will be held during the coming session:—
   (i) R.A.E. Course for students wishing to take the exam. in May, 1957 (Wednesdays).
   (ii) Beginners' Morse class (Thursdays).
   (iii) Advanced Morse class (Tuesdays).
   (iv) Mathematics for students of radio courses (Thursdays).
   (v) Radio Servicing—first year (Mondays).
   (vi) Radio Servicing—second year, including television (Tuesdays).

No previous knowledge is assumed for courses (i) and (v). All classes are held between 7 and 9 p.m.

Cannock, Staffordshire. Instruction for both the R.A.E. and Morse test will be given by C. J. Morris (G3ABG) on Tuesdays and Thursdays from 7 to 9 p.m. commencing early September at Walsall Road School, Cannock, under the auspices of the Staffordshire Education Committee (Evening Institutes). Further information can be obtained from Mr. Morris at 24 Walhouse Street, Cannock.

Stevenage, Herts. The English Electric Stevenage Amateur Radio Section has arranged a course of instruction for the May, 1957, R.A.E. which will commence at 7.30 p.m. on August 22 at Half Hyde House, Largwell, Stevenage. Although the course is specifically for members of the Company's staff, associate members of the Section will be welcome. Full details may be obtained from J. Kenton (G3HVQ), 104 Holly Leys, Longmeadow, Stevenage.

Ilford Literary Institute (High School for Girls) Cranbrook Road, Ilford. (Adjacent to Gants Hill station, Central Line.) Enrolment for the Radio Amateur's Examination and Morse classes will take place from 7 to 8.30 p.m. on September 10-13. Students from other areas will be admitted as out County Students provided the Local Authority is informed. Those who intend to enrol are advised to send their names to C. H. L. Edwards, A.M.I.E.E. (G8TL), 28 Morgan Crescent, Theydon Bois, Essex, at once so that a place may be assured.

Islington L.C.C. Men's Evening Institutes, Grafton School, Eburne Road, Holloway, London, N.7. A course of instruction for those who wish to take the Radio

Amateurs' Examination, will be given on Mondays (Radio Theory, 7-9 p.m.; Morse, 9-10 p.m.) from 7 to 10 p.m., commencing September 24. The instructors will be S. H. Iles (G3BWQ) and L. Barber. Applications should be made in the first instance to A. W. H. Wennell (G2CJN), Hon. Secretary, Grafton Radio Society, 145 Uxenden Hill, Wembley Park, Middlesex.

Northwood Evening Institute, Potter Street School, Northwood Hills, Middlesex. Enrolment for a course of instruction for the R.A.E. will take place on September 10 (5.30 to 8.30 p.m.), September 11 and 12 (6.30 to 8.30 p.m.). Classes will commence on September 20. The instructor will be G. P. Anderson (G2QY).

Wembley Hill Evening Institute, Copland School, High Road, Wembley. Classes in preparation for the R.A.E. and Morse test will be held on Mondays and Thursdays, commencing September 17. Morse practice will be from 7 to 8 p.m. and Radio Theory from 8 to 10 p.m. Enrolment will take place from 7 to 9 p.m. on September 10-13. Alan Baylis (G8PD) will be the instructor.

Course Fees. The Ministry of Education recently advised Local Education Authorities that course fees were to be increased for the 1956/57 session. In Middlesex the course fee for a single subject will probably be 20s. for one subject.

Additional Centres. In addition to the centres mentioned above, courses of instruction in preparation for the Radio Amateurs' Examination are held at the under-mentioned venues:—

Allan Glen's School, Glasgow
Army Apprentice School, Arborfield, Berks
Barrow-in-Furness College of Further Education
Bath Local Amateurs' Radio Club
Bolton Technical College
Burnbank School of Engineering, Glasgow
Cambridgeshire Technical College
Coleraine Technical School, N. Ireland
Constantine Technical College, Middlesbrough
Coventry Technical College
Derby Technical College
Dudley & Staffs Technical College
Dumfries Further Education Centre
E.M.I. Institutes, London
Exeter City Technical College
Farnborough (Hants) Technical College
Flintshire Technical College
Gravesend Technical College
Grimsby College for Further Education
Guildford Technical College
Hastings Technical College
Huddersfield Technical College
Hull College of Technology
Ilkeston College of Further Education
Lauder Technical College, Dunfermline
Leicester College of Technology
Londonderry Municipal Technical College
Loughborough College of Further Education
Northern Polytechnic (London)
Oldham Municipal Technical College
Plymouth Technical College
Preston Technical Institute
Rotherham Technical College
Royal Naval College, Dartmouth
Rutherford College of Technology, Newcastle-on-Tyne
Salisbury Technical College
Southampton University
South East London Technical College, London, S.E.4
South Manchester Radio Club
States of Jersey Evening Institute
Stowe College, Bucks
Swansea Technical College
Swindon, The College
Walsall Technical College
Wellingborough Technical College

Radio Amateur Emergency Network

By C. L. FENTON (G3ABB)*

ALL E.C.O.s will by now have received the good news that the Postmaster-General has agreed to participation by the Radio Amateur Emergency Network in British Red Cross Society rescue work and relief exercises run by the Red Cross.

Although members of the R.A.E.N. Committee had known for some months that negotiations were in progress they could not let knowledge of that fact leak out until the discussions had reached an advanced stage and the news could be released simultaneously by the R.S.G.B. and the B.R.C.S.

Under the new arrangements, members of R.A.E.N. will be permitted to take part in exercises organised by the B.R.C.S., which means that they will be allowed to handle third party messages on behalf of the Red Cross subject to certain restrictions. Full details of these arrangements will be published as soon as possible, in the meantime the R.A.E.N. organisation expresses its warm appreciation to the Post Office officials for their assistance in bringing the plans to such a successful conclusion.

In the near future, B.R.C.S. headquarters will receive the names and addresses of all E.C.O.s. At the same time E.C.O.s will be supplied with information in respect of their local B.R.C.S. officials. Once this has been done it will be the responsibility of E.C.O.s to establish contact with their nearest B.R.C.S. Headquarters, and to organize a local network to meet their needs.

Now that this stage has been reached, R.A.E.N. can move forward and establish itself on a nation-wide basis. Members in all areas are asked to ensure that their mobile and portable equipment is ready for immediate use. The call for assistance may come at any time, and the inland areas are no less likely to be called upon than the coastal areas. It should be remembered that the British Red Cross Society is on the scene at most major incidents involving danger to human life, and that R.A.E.N. will now become an important means of communication. Let us show that R.A.E.N. can live up to its promises in all parts of the British Isles.

Call for Volunteers

The need for more members and for more Emergency Communications Officers becomes urgent with this new development. In particular E.C.O.s are required throughout the Greater London area, the Midlands, the North, and Scotland. Volunteers are invited to contact the writer who will be pleased to advise them as to the qualifications needed.

International Red Cross Radio Broadcasts

As an immediate job to assist the International Committee of the Red Cross, members are invited to monitor and report on certain trial broadcasts which are to be made during the current month. Transmissions in English will take place on the 14th, 16th, and 18th of August, at 07.30, 13.00, 16.30 and 22.00 Central European Time (B.S.T.), on a frequency of 7210 kc/s, the first two transmissions being with a power of 100 kW, and the last two with 25 kW. All reports will be appreciated, and should be sent to the British Red Cross Society, 14 Grosvenor Crescent, London, S.W.1.

* "Niarbyl," Gay Bowers, Danbury, Chelmsford, Essex. (Phone: Danbury 518)

Society News

Talking Book Service for the Blind

THE Society has been asked by the Nuffield Talking Book Library for the Blind to appeal for further volunteer helpers for the Talking Book Service. The Talking Book itself is a long playing type of record which is operated in conjunction with a simple type of amplifier. For the past five or six years R.S.G.B. members and others have been helping the Talking Book Library by maintaining the essential equipment. This form of social service has been warmly appreciated by the Royal National Institute for the Blind and St. Dunstan's. It has also proved a boon to the blind people themselves.

Assistance is required in the following areas of the British Isles:—

Cambridgeshire: Isle of Ely. *Cumberland:* Whitehaven, Cockermouth, Maryport, Keswick. *Dorset:* Weymouth. *Durham:* Sunderland, Stockton-on-Tees. *Gloucester:* Cotswold and Forest of Dean Districts. *Hampshire:* New Forest Area (Ringwood, Lyndhurst, Fordingbridge), Andover, Newbury. *Isle of Wight. Herefordshire* (excluding Hereford). *Hertfordshire:* Hatfield and Bishop's Stortford. *Kent:* Margate, Ramsgate, Hythe, Folkestone, Canterbury, Sevenoaks, Ashford. *Lancashire:* Barrow-in-Furness, Carnforth, Lancaster, Preston, Rochdale, Oldham, Blackburn, Manchester. *Leicestershire. Lincolnshire:* Skegness, Grantham. *Norfolk:* Norwich, Sheringham, Cromer. *Northumberland:* North and South Shields, Tynemouth, Whitley Bay. *Oxon:* Henley-on-Thames, Thame, Banbury. *Somerset:* Bath, Yeovil, Shepton Mallett, Taunton. *Staffordshire:* Leek, Stoke-on-Trent, Burton-on-Trent, Wednesbury, Wolverhampton. *Suffolk:* Lowestoft, Ipswich, Bury St. Edmunds. *Surrey:* Camberley, Bagshot, Guildford, Godalming, Haslemere, Hindhead, Dorking, Redhill, Lingfield. *Sussex:* Hastings, Bexhill, Hove, Worthing, Littlehampton, Bognor. *Warwicks:* Warwick, Stratford-on-Avon. *Westmorland:* Windermere, Kendal. *Wilts:* Salisbury, Wilton, Bradford-on-Avon, Trowbridge. *Worcestershire. Yorkshire.* York, Whitby, Northallerton, Ripon, Pontefract, Barnsley. *Pembrokeshire:* Haverfordwest, Milford Haven. *Monmouthshire:* Newport.

Offers of help should be addressed to Mr. E. Read-Jones, Nuffield Talking Book Library for the Blind, Abbey Estate, Mount Pleasant, Alperton, Wembley, Middlesex.

R.S.G.B. Certificates

AS from August 15, 1956, all claims for R.S.G.B. Certificates should be sent direct to Mr. Ron Perks (C4CP), 74 Long Lane, Newtown, near Wallsall, Staffs, and not to R.S.G.B. Headquarters.

Members who wish to claim R.S.G.B. Certificates are invited to write either to Mr. Perks or to Headquarters for a copy of a leaflet setting out the rules and other information.

Mr. Perks, who is the Society's Honorary Certificates Manager, will also check claims for W.A.C. certificates received from members of the R.S.G.B. resident in the United Kingdom.

R.S.G.B. Operating Certificates

NOW that U.K. registration fees have been doubled and costs in general have increased, the Council have decided that as from September 1, 1956, the charge made to non-members for R.S.G.B. operating certificates shall be fixed at 7/- ($1).

Certificates and Awards

A NEW R.S.G.B. booklet entitled *Certificates and Awards* is due to be published on the opening day of the National Radio Exhibition—August 22, 1956.

The booklet has been compiled by the Society's Honorary Certificates Manager (Mr. Ron Perks, G4CP) and contains full details of all major operating awards offered by I.A.R.U. Member Societies as well as information on a number of certificates offered by commercial organizations such as *The Short Wave Magazine* and *CQ Magazine*. The text is so arranged that ample space is available to enter the call-signs of stations which have been worked towards a particular award. The A.R.R.L. List of Countries runs to six pages and is fully comprehensive.

Mr. Douglas Kay (G3AAE) contributes an article entitled "A Guide to DX Operating" which should interest all who aspire to gain operating certificates and awards.

Pre-publication orders for this new booklet may be sent to R.S.G.B. Headquarters, New Ruskin House, Little Russell Street, London, W.C.1. The booklet will sell at 2/6 (by post 2/10).

N.F.D. Leading Stations

Overall leaders: (1) Bristol; (2) Stourbridge and District; (3) Coventry. Leading "A" station: Coventry. Leading "B" station: Croydon. Leading 1.8 Mc/s station: Coventry. Leading 3.5 Mc/s station: Croydon. Leading 7 Mc/s station: Gravesend. Leading 14 Mc/s station: Bristol. Leading Scottish station: Edinburgh: Leading single-station entry: Boston.
All the above are subject to final confirmation. Full report and placings next month.

Amateur Television Convention

THE British Amateur Television Club is to hold an Amateur Television Convention in the Temple Room at the Bonnington Hotel, Southampton Row, London, W.C.1, on October 27, commencing at 9 a.m. Full details may be obtained from Don Reid, 4 Bishop Road, Chelmsford. Tickets will be on sale at the door, price 3s. 6d. each.

Amateur Radio Exhibition

COUNCIL wish to make it clear that the decision not to hold an Amateur Radio Exhibition in London during 1956 was not taken on the advice of the Exhibition (Home Constructors' Section) Committee.

Membership Drive

Every copy of this issue of the R.S.G.B. BULLETIN contains an application form. It is suggested that all members should endeavour to enrol at least one friend or acquaintance interested in Amateur Radio. Licensed amateurs who are not yet members of the R.S.G.B. should be reminded that in organization there is strength and that for more than 40 years the Society has been the radio amateurs' champion at home and abroad.

Further supplies of application forms can be obtained from Headquarters on request.

Council Proceedings

Résumé 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, June 25, 1956, at 6 p.m.

Present.—The President (Mr. R. H. Hammans in the Chair), Messrs. W. H. Allen, C. H. L. Edwards, K. E. S. Ellis, F. Hicks-Arnold, R. G. Lane, W. H. Matthews, W. R. Metcalfe, L. E. Newnham, W. A. Scarr, J. Taylor, John Clarricoats (General Secretary) and John A. Rouse (Deputy General Secretary).

Apologies.—Apologies for absence were submitted from Messrs. H. A. Bartlett, D. A. Findlay, J. H. Hum and A. O. Milne.

* * *

Membership

(a) *Resolved* (i) to elect 87 Corporate Members and 11 Associates; (ii) to grant Corporate Membership to 3 Associates who had applied for transfer.

(b) The Secretary reported that of the 594 members whose subscription became due on March 1, 1956, 73 became 3 months overdue on May 31, 1956. Of this number 16 were London, 42 were Country and 14 were Overseas Members and one was an Associate. Of those overdue 11 London, 27 Country and 11 Overseas members held call-signs.

The Secretary drew attention to the fact that for the first time for many years the number of persons elected to membership had exceeded the number of members who had become overdue.

(c) The Secretary reported that 20 of the 73 members referred to in (b) above wrote to resign during the six weeks ended June 23, 1956. Of this number 5 gave no reason for resigning, 9 stated they had lost interest in Amateur Radio, 2 gave personal reasons, 2 had resigned for financial reasons and 2 on the ground of ill-health. Letters had been written to 9 of the persons concerned inviting them to continue in membership.

Applications for Affiliation

Resolved to grant affiliation to the Marconi Apprentices Amateur Radio Club of Chelmsford and the West Lancashire Radio Society.

Regional Meetings

Resolved that in addition to the two Council delegates appointed to attend each O.R.M. the appropriate Zonal Representative shall also be authorized to attend.

Amateur Radio Exhibitions

Consideration was given to proposals put forward by Mr. P. A. Thorogood for organizing an Amateur Radio Exhibition in London during 1957.

Resolved to invite Mr. Thorogood to meet the President and other members of the Council to discuss the proposals.

The President submitted a letter from the Croydon T.R. in which he stated, *inter alia*, that the Croydon Group deprecated the decision of the Council not to hold an Amateur Radio Exhibition in London during 1956. The President agreed to reply.

A.G.M. Venue

It was reported that in future it will not be possible for outside bodies to use the Institution of Electrical Engineers for business meetings.

The Electric Lamp Manufacturers' Association of Great Britain, Ltd. (whose offices are in the same building as the Institution of Electrical Engineers) had offered to provide accommodation in their Lecture Theatre for the Society's Annual General Meeting on December 14, 1956.

Resolved to accept the offer made by E.L.M.A.

R.S.G.B. BULLETIN

A letter was submitted from Haycock Press, Ltd., intimating that as from June 4, 1956, all work done for the Society would be subject to a further "uplift" of 10 per cent making a total uplift of 20 per cent for the current year.

Resolved to inform Haycock Press, Ltd., that the Society accepts with apprehension the uplift of 20 per cent.

(An announcement concerning this matter appeared in the July issue of the R.S.G.B. BULLETIN.—Ed.)

Stresa (I.A.R.U.) Conference

After the President, Mr. Scarr, and the General Secretary had reported on matters connected with the Stresa (I.A.R.U.) Conference it was

Resolved to discuss Conference matters as a separate agenda item at the meeting of the Council to be held on July 16, 1956.

V.H.F. and U.H.F. Bands

The Secretary reported that the G.P.O. had been asked to give consideration to a suggestion that U.K. amateurs be permitted to use the bands 72-72.8 Mc/s and 1260-1380 Mc/s, the latter in place of the present 1215-1300 Mc/s band which is not related harmonically with the 420-460 Mc/s band.

Cash Account

Resolved to accept and adopt the Cash Account for May, 1956, as prepared and submitted by the General Secretary.

Reports of Committees

R.A.E.N. Committee

Resolved (a) to accept and adopt, as a Report, the Minutes of a Meeting of the R.A.E.N. Committee held on May 5, 1956.

(b) to authorize the G.P.O. Liaison Committee to invite the Chairman, Vice-Chairman, and Honorary Secretary of the R.A.E.N. Committee to join them when they meet representatives of the Post Office to discuss R.A.E.N. matters.

(c) not to accept a recommendation of the Committee that copies of the Minutes of Committee Meetings be sent to County Controllers who are not members of the Committee.

(d) to inform the Committee that the Council would raise no objection to the Hon. Secretary issuing a Report to County Controllers who are not members of the Committee provided no information of a confidential nature is disclosed.

V.H.F. Committee

Resolved to accept and adopt, as a Report, the Minutes of a Meeting of the V.H.F. Committee held on May 16, 1956. The Report contained no recommendations.

Contests Committee

Resolved to accept and adopt as a Report the Minutes

of a Meeting of the Contests Committee held on May 17, 1956. The Report contained no recommendations.

Maitland Trophy

The President submitted correspondence from Mr. Bartlett regarding the Maitland Trophy.

The Secretary reported that as the negotiations in respect to the Trophy had been carried out between the Society and Mr. D. Macadie, GM6MD (Region 14 Representative) the Council's thanks to Mr. Maitland had been conveyed in a letter to Mr. Macadie who had been asked to bring them to the notice of Mr. Maitland. The Council's thanks to Mr. Maitland were also recorded in the January, 1955, issue of the BULLETIN.

The Trophy was formally handed to Mr. Hicks-Arnold (representing the Council) at the Glasgow O.R.M. in October, 1955. The Trophy had been retained in Glasgow for presentation.

Technical Committee

Resolved to accept and adopt, as a Report, the Minutes of a Meeting of the Technical Committee held on May 24, 1956.

Resolved to accept a recommendation of the Committee not to proceed with plans to produce a booklet dealing with "The Elizabethan" transmitter and associated equipment.

Exhibition (Home Constructors' Section) Committee

Resolved to accept and adopt, as a Report, the Minutes of Meetings of the Exhibition (Home Constructors' Section) Committee held on May 28 and June 18, 1956.

Action was taken on various matters referred to in the Reports.

Finance and Staff Committee

Resolved to accept and adopt as a Report the Minutes of a Meeting of the Finance and Staff Committee held on May 31, 1956.

A recommendation to advertise for an editorial assistant at a salary of £450 p.a. was referred back to the Hon. Treasurer.

In supporting reference back members of the Council pointed out that since the recommendation was adopted Haycock Press, Ltd., had notified the Society of a further increase in printing charges.

A recommendation that the fee to be paid by affiliated societies who can certify that at least 75 per cent of its members are members of R.S.G.B., shall be 5s. per annum, was adopted.

Bankers' Orders

The Secretary reported that letters had been sent to 167 persons whose subscription originally became due in June, July, August and September but who had failed to amend their Bankers' Order to the new subscription rate. In each case the person concerned had failed to cancel his Bankers' Order although he had not been receiving the BULLETIN. To date only 14 persons had replied to the letter; of this number 9 had sent new Bankers' Orders and 5 had written cancelling their Bankers' Order.

The meeting terminated at 9 p.m.

Can You Help?

● Dr. C. J. Rabie (ZS5VR), Tembuland Hospital, Umtata, Transkei, South Africa, who requires an instruction manual for the R109 receiver?

● C. Sadler (G3JEO), 5 Westfield Crescent, Patcham, Brighton, 6, Sussex, who wishes to obtain the circuit diagrams for the ex-R.A.F. transmitter type T.1131, particularly the power supply, modulator and control deck?

R.S.G.B. News Bulletin Service

GB2RS		3600 kc/s
10.00 B.S.T.	Sundays	12.00 B.S.T.

Regional & Club News

Bournemouth Amateur Radio Society. — Full details of meetings, which are held on the first Friday of each month at The Cricketers' Arms Hotel, Windham Road, at 7.45 p.m., may be obtained from the *Hon. Secretary:* John Ashford (G3KYU), 119 Petersfield Road, Boscombe East, Bournemouth.

Brighton & District Radio Club.—Home and overseas visitors to Brighton are invited to attend club meetings which are held on Tuesdays at 7.30 p.m. at the Eagle Inn, Gloucester Road. The A.G.M. will be held on September 25 at 8.15 p.m. *Hon. Secretary:* J. Trangmar, 33 Lennox Street, Brighton.

British Amateur Television Club (Midlands Group).—The telecine equipment is now working and construction of a " live " camera has started. The club will next meet at the White Swan Inn, Edmund Street, Birmingham, on September 13, at 7.45 p.m. All interested in Amateur Television are invited to attend. *Hon. Secretary:* F. J. Rawle (G3FHZ), 16 King's Road, New Oscott, Sutton Coldfield.

Bristol.—More than 50 members were present on July 20 when J. G. Downes of Pye Ltd. lectured on " Industrial Television ". A working demonstration of the complete equipment from camera to monitor was given and a film shown illustrating some of the industrial applications of television. On August 24 R. G. Lane (G2BYA) will lecture on " Keying ". *Hon. Secretary:* D. F. Davies (G3RQ), 51 Theresa Avenue, Bishopston, Bristol, 7.

Cardiff.—Activity continues at a high level and it is hoped this will soon be augmented by a number of members who have recently passed the P.O. Morse test. Town Representative: Roy Morris (GW3HJR), " The Shack ", St. Cenydds Road, Caerphilly, Glam.

East Kent Radio Society.—Membership continues to increase. D/F is one of the main activities and in a recent test two teams were organized by G3JES and G3KNR. The transmitter was operated by G3EMU. Meetings are held in the Technical College, Longport Street, Canterbury. Prospective members may obtain further details from the *Hon. Secretary:* D. Williams, Llandogo, Bridge, near Canterbury.

Norwich & District Radio Club.—Meetings are held on Fridays at the " Golden Lion ", St. John's Maddermarket, where a small room is used as the " shack " for the club station, G3JGI, which is active on 1.8 and 3.5 Mc/s c.w. and phone. A larger room is used for meetings and lectures covering a wide variety of subjects. G3HKD won the last building contest with a 420 Mc/s crystal controlled converter. *Hon. Secretary:* D. C. Youngs (G3JIE), 53 Salisbury Road, Thorpe Road, Norwich.

Ravensbourne Amateur Radio Club.—The club's recent exhibition was very successful, with G3HEV, G3FTI/A and G2DHV/A in operation on all bands from 1.8 to 21 Mc/s. The next meeting will be held on September 5 at Durham Hill School, Downham, Kent. The club station G3HEV is doing well on 21 Mc/s. *Hon. Secretary:* J. H. F. Wilshaw, 4 Station Road, Bromley, Kent.

Stockport Radio Society.—At the meeting, on August 29, mobile equipment will be demonstrated, while on September 12 a talk will be given on ten metre operation. The Society meets at the Blossoms Hotel, Buxton Road, Stockport. All members who took the May R.A.E. passed. *Hon. Secretary:* G. R. Phillips (G3FYE), 7 Germans Buildings, Buxton Road, Stockport.

Slade Radio Society.—Meetings at the Church House, High Street, Erdington, are arranged for August 31, September 14. (Lecture on " Automation " by P. Huggins of T.I. (Group Services), Ltd.), and September 28 (Film Show). Interest in Amateur Television is growing rapidly. As the Local Education Authority runs an excellent course for the R.A.E. the society only offers Morse practice. Further details may be obtained from the *Hon. Secretary:* C. N. Smart, 110 Woolmore Road, Erdington, Birmingham, 23.

South Shields & District Amateur Radio Club.—Meetings are held at Trinity House Social Centre, Laygate, South Shields, on the last Wednesday in each month, commencing at 7 p.m. The club room is open every Friday evening. A party of 28 attended the York O.R.M. On August 24, 25 and 26 the club will be operating GB3SFS on all bands from 3.5 to 28 Mc/s at the local flower show in Bents Park. QSL cards should be sent via the R.S.G.B. QSL Bureau, or c/o the Entertainments Manager, Pier Pavilion, South Shields. The T.R. is E. Smith (G3JMT), 12 Stevenson Street, South Shields.

Worthing & District Amateur Radio Club.—The A.G.M. will be held at the Adult Education Centre, Union Place, Worthing, on September 10 at 8 p.m. *Hon. Secretary:* J. F. Wells, 37 Salvington Gardens, Worthing.

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R.S.G.B. Representatives and the Hon. Secretaries of Affiliated Societies are asked to submit reports for this feature not later than the 22nd of the month preceding publication.

Those groups and clubs which have not yet sent details of their activities to Headquarters for use on the R.S.G.B. stand at the National Radio Show are asked to do so immediately.

Affiliated Societies

THE following are amendments to the list of Affiliated Societies published in the October, 1955, issue of the BULLETIN:

The Honorary Secretary of Lothians Radio Society is now A. A. Dewar (B.R.S.18777), 37 Calder Circle, Edinburgh 11.

The call-sign of the Grammar School Radio Society, Burton-on-Trent, is G3KZA.

Representation

THE following is an addition to the list of County Representatives published in the December, 1953, issue.

Region 10—Glamorganshire
V. J. Bartlett (GW5BI), 171 City Road, Cardiff, S. Wales.

Changes of Address

The address of Mr. T. Hughes (GM3EDZ), T.R. for the City of Glasgow (Postal Districts) is now 53 Ancroft Street, Glasgow, N.W. The address of Mr. E. Batty (G3DGB) T.R. for Leeds is now 7 Burley Wood Lane, Leeds, 4.

Eddystone Receiver Stolen

CHESTER and District Amateur Radio Society report that an Eddystone 740 type receiver, believed to be serial number /CO407, has been stolen from their club room.

North Eastern Scotland Regional Meeting

SATURDAY, SEPTEMBER 29, 1956
IMPERIAL HOTEL,
STIRLING STREET, ABERDEEN

Programme

Assemble	2 p.m.
Business Meeting	2.30 p.m.
Tea	4 p.m.
Lecture " The Antennamatch " by Frank Hicks-Arnold, G6MB	4.30 p.m.
Dinner	7.30 p.m.

Tickets price 15/- can be obtained on application to the Region 12 Representative, Mr. Len Hardie, GM2FHH, 91 Inchbrae Drive, Aberdeen, or other local representatives. Last date for applications September 25, 1956.

Messrs. K. E. S. Ellis, G5KW, and J. Taylor, GM2DBX, will represent the Council at the Business Meeting.

Forthcoming Events

REGION 1

Blackpool (B. & F.A.R.S.).—August 28, 7.30 p.m., 5 Albion Avenue, Blackpool.
Bury (B.R.S.).—September 11, 8 p.m., George Hotel, Kay Gardens.
Chester (C. & D.A.R.S.).—Tuesdays, 7.45 p.m., Tarran Hut, Y.M.C.A.
Crosby. — Tuesdays, 8 p.m., over Gordon's Sweetshop, St. John's Road, Waterloo.
Lancaster (L. & D.A.R.S.). — September 5, 7.30 p.m., George Hotel, Torrisholme.
Liverpool (L. & D.A.R.S.).—Tuesdays, 8 p.m., Room "G", Wavertree Community Centre, Penny Lane, Liverpool, 18.
Manchester (M. & D.R.S.). — September 3, 7.30 p.m., Brunswick Hotel, Piccadilly.
Manchester (S.M.R.C.). — Fridays, 7.45 p.m., Ladybarn House, Mauldeth Road, Manchester, 14.
Preston (P.A.R.S.).—Wednesdays, 7.45 p.m., 48 High Street, off Lancaster Road.
Rochdale (R.R.T.S.).—Fridays, 7.45 p.m., 1 Law Street, Sudden.
Southport. — Thursdays, 8 p.m., Sea Cadets' Camp, Esplanade.
Stockport (S.R.S.).—August 15, 29, September 12, 26, 8 p.m., The Blossoms Hotel, Buxton Road.
Warrington (W. & D.R.S.).—August 16, September 6, 20, 7.30 p.m., King's Head Hotel, Winwick Street.
Wirral (W.A.R.S.).—August 15, September 5, 19, 7.45 p.m., Y.M.C.A., Whetstone Lane, Birkenhead.
Region 1 O.R.M.—November 11, Bradford Hotel, Liverpool.

REGION 2

Barnsley.—Summer recess.
Bradford. — July 24, 7.30 p.m., Cambridge House, 66 Little Horton Lane.
Doncaster.—Summer recess.
Gateshead.—Mondays, 7.30 p.m., Mechanics' Institute, 7 Whitehall Road.
Hull.—Second and last Tuesdays, 7.30 p.m., Rampant Horse, Paisley Street.
Leeds.—Wednesdays, 7.30 p.m., 4 Woodhouse Square.
Middlesbrough. — Thursdays, 7.30 p.m., Joe Walton's Boys Club, Feversham Street.
Newcastle.—August 7, 7.45 p.m., Liberal Club, Pilgrim Street.
Pontefract.—August 2, 16, 30, 8 p.m., Queen's Hotel, Tanshelf.
Rotherham. — Wednesdays, 7 p.m., Cutler's Arms, Westgate.
Scarborough—Thursdays, 7.30 p.m., Chapman's Yard, North Street.
Sheffield (S.A.R.C.).—July 25, August 22, 8 p.m., Dog & Partridge, Trippet Lane.
Slaithwaite.—Fridays, 7.30 p.m., 3 Dartmouth Street.
South Shields (S.S. & D.R.C.).—July 25, Trinity House Social Centre.
Spenborough.—Summer recess.
York.—Thursdays, 7.30 p.m., Club Rooms, Y.A.R.S., Fetter Lane.

REGION 3

Birmingham (South).—September 7, 7.30 p.m., A Committee Room, Cadbury Bros., Bournville Lane. **(M.A.R.S.).**—August 21, 7 p.m., Midland Institute. **(Slade).**—August 17, 31, 7.45 p.m., Church House, High Street, Erdington.
Coventry.—August 24, 7.30 p.m., Priory High School, Wheatley Street. **(C.A.R.S.).**—August 20, 7.30 p.m. 9 Queen's Road **(Courtaulds).**—Wednesdays, 5-8.30 p.m., Courtaulds, Ltd., Foleshill Road.
Malvern.—September 3, 8 p.m., Foley Arms.
Redditch.—August 23, September 4, 8 p.m., Scale & Compass, Birchfield Road.
Solihull.—September 3, 7.30 p.m., Defence H.Q., Sutton Lodge, Blossomfield Road.
Stoke.—August 29, 8 p.m., Lion's Head, John Street, Hanley.
Stourbridge.—September 4, 8 p.m., King Edward VI School.
Walsall. — September 12, 8 p.m., Technical College, Bradford Place.
Wolverhampton. — August 27, September 10, 8 p.m., Nechell's Cottage, Stockwell End.

REGION 4

Alvaston. — Tuesdays, Thursdays, 7.30 p.m., Sundays, 10.30 a.m., Boulton Lane, Alvaston, Derbys.
Chesterfield.—Tuesdays, 7.30 p.m., Bradbury Hall, Chatsworth Road.
Derby (D. & D.A.R.S.).—Wednesdays, 7.30 p.m., Room 4, 119 Green Lane, Derby.
Ilkeston (I. & D.A.R.S.).—No meeting in August.
Leicester (L.R.S.).—August 27, September 10, 7.30 p.m., 140 High Cross Street, Leicester.
Lincoln (L.S.W.C.).—No meeting in August.
Mansfield (M. & D.A.R.S.).—September 12, 7.30 p.m., Denmans Head Hotel, Market Place, Sutton-in-Ashfield.
Newark (N. & D.A.R.S.). — September 2, 7 p.m., Northgate House, Northgate, Newark.
Northampton (N.S.W.C.). — Fridays, 7 p.m., Clubroom, 8 Duke Street.
Nottingham.—August 10, September 21, 7.30 p.m. Basford Hall Miners' Welfare, Nuthall Road, Cinderhill.
Peterborough. — September 5, 7.30 p.m., 21 Hankey Street.
Worksop.—September 6, 7 p.m., King Edward Hotel.

REGION 5

Chelmsford.—September 4, 7.30 p.m., Marconi College, Arbour Lane, Chelmsford.
Great Hallingbury.—Sunday, September 16, 2.30 p.m., "Normandale," New Barn Lane. (G6UT's Annual Ham Party, Ladies welcome.)

REGION 6

Cheltenham. — September 6, 8 p.m., Great Western Hotel, Clarence Street.
Cheltenham (A.R.S.). — Wednesdays, 8 p.m., Club Room, St. Mark's Community Centre, Brooklyn Road.
Gloucester (G.R.C.). — Thursdays, 7.30 p.m., The Cedars, 83 Hucclecote Road.
Oxford (O. & D.A.R.S.).—August 22, September 12, 7.30 p.m., Club Room, "Magdalen Arms", Iffley Road, Oxford.
Portsmouth — Tuesdays, 7.30 p.m., British Legion Club, Queen's Crescent, Southsea.
Southampton.—September 1, 7 p.m., 1 Prospect Place, Above Bar, Southampton.
Stroud.—Wednesdays, 7.30 p.m., Subscription Rooms.

REGION 7

London (L.M.L.C.).—August 17, September 21, 12.30 p.m., Bedford Corner Hotel, Bayley Street, W.C.1.
London (U.H.F. Group).—September 6, 7.30 p.m., Bedford Corner Hotel, W.C.1.
Acton, Brentford & Chiswick. — August 21, September 18, 7.30 p.m., A.E.U. Rooms, 68 High Road, W.4.
Guildford & Woking.—August 26, 3 p.m., Royal Arms Hotel, North Street, Guildford.
Southgate, Finchley & District.—September 13, 8 p.m., Arnos School, Wilmer Way, N.14.
Welwyn Garden City.—August 18, 2.15 p.m., Murphy Radio Canteen (visit to Reuter's Receiving Station), September 4, 8 p.m., Technical School, Murphy Radio, Bessemer Road ("Going Mobile," R. W. Newton, ex-G5NQ, of Murphy Radio Electronics Division).

REGION 9

Bristol.—August 24, September 21, 7.15 p.m., Carwardine's Restaurant, Baldwin Street, Bristol, 1.
Exeter.—September 7, 7 p.m., Y.M.C.A., St. David's Hill.
Falmouth (W.C.R.C.)—Alternate Tuesdays, 7 p.m., Technical Institute, Falmouth.
North Devon.—September 6, G2FKO, 38 Clovelly Road, Bideford.
Plymouth.—August 21, September 4, 18, 7.30 p.m., Virginia House Settlement near Barbican, Plymouth.
Torquay.—August 18, September 15, 7.30 p.m., Y.M.C.A., Castle Road.
Weston-super-Mare.—September 12, 7.30 p.m., R.A.F.A.R.S., R.A.F. Locking, Somerset.
Yeovil.—Wednesdays, 7.30 p.m., Grove House, Preston Road.

REGION 10

Cardiff. — September 10, 7.30 p.m., "The British Volunteer," The Hayes, Cardiff.
Neath & Port Talbot.—September 4, 7.30 p.m., Royal Dock Hotel, Briton Ferry.

REGION 14

Falkirk and Stirling.—August 31, The Temperance Café, High Street, Falkirk.
Glasgow.—New session commences August 31.

As reported on page 77 of this issue there was an excellent attendance at the Eastern Regional Meeting at Cambridge on July 1, 1956. In this picture seated in the front row are council members C. H. L. Edwards (G8TL), W. H. Matthews (G2CD) and F. Hicks-Arnold (G6MB) with the R.R. Mr. T. A. T. Davies (G2ALL).

Letters to the Editor . . .

N.F.D. Power

DEAR SIR,—Once again N.F.D. is over and we are all left wondering why we couldn't get out, or why the tea tasted of oil and doubtless many groups are holding their annual inquests. For my part, I am firmly convinced that the power maximum might be raised to the 25 watt mark. Of one thing I am certain, not all stations are keeping their 5 watts maximum. I have been connected with the amateur bands long enough now to know that aerials, location and conditions do not account for more than half the signal strength of some competing stations arriving up here all through the event. I realise that honour must play an important rôle in a question of power restriction, but at the same time many operators may not consider it a great crime to run their 807s at 15 or 20 watts and then declare their power to have been 5! As to whether it makes much difference, to me seems irrelevant; of one thing I am certain—it makes *some* difference.

Two things spring to mind—(a) A system of exchanging observers from one group to another might help, but this idea may not be liked by some on the grounds that it is not " in the spirit of the contest." (b) Increase the permitted power to 25 watts. This does seem satisfactory. Firstly, the argument that " true portability " means 5 watts is illogical. I don't know how other groups go on, but for our two stations, we have 4 masts, 6 tents, groundsheets, buckets, spades, oil drums, kettles, crockery, lamps, "Valor" stoves, rotary generators, accumulators, receivers, transmitters, keys, headphones and many other *necessities*. Why would an increase in permitted power make us any less portable? Secondly, some may say " If the maximum is 25 watts we will use 50." My comment here is that it is easy to run 25 watts instead of 5, but the difficulties increase rapidly when you get to 50 watts portable and in any case it would be fairer to compete with a three-fold power increase than a five-fold one.

I think the issue does require a lot of consideration and however the problem is tackled, I believe *some* solution is possible to reduce the obvious discrepancy in powers being used at present.

Yours faithfully,

Denton, Manchester. D. J. BIRCH (G3AOO),
T.R. for Stockport.

N.F.D. Rules

DEAR SIR,—I hope the Contests Committee will give careful thought to the rules for Field Day in 1957.

With the increased activity on 21 and 28 Mc/s we can hardly continue to ignore these bands which, with the low powers of Field Day, could produce the most exciting results. And are we right to continue to insist that " all aerials and feeders must be constructed from wire of total cross-sectional area not greater than that of 14 s.w.g."? Most of us erect masts to hang our wires on. Is it logical not to permit us to use them as vertical radiators if they are of metal ?

Why are beams not allowed ? If the sole object is to handicap everyone, then ban motor cars for transport and smoking at night.

I do not suggest that we should always follow the Americans, but on their Field Days, they permit nearly everything, phone and c.w. and every licensed band to 144 Mc/s. They had over 20 per cent more participants in 1955 than in 1954. We had less.

There may be good reasons why we should make no changes. Could we please know them, for on the surface our attitude seems a wee bit old-fashioned.

Yours faithfully,

London, S.E.19. R. T. REED (G2RX).

Top Band Operation

DEAR SIR,—With reference to the letter published in the May BULLETIN from Mr. Donald May (G2BB), may I respectfully add the following observations.

Mr. May has omitted Humber Radio on 1869 kc/s from his list of coast stations. Humber Radio is one of the busiest coast stations in the U.K. on these frequencies.

I would fully endorse Mr. May's opinion that the surest way to end amateur activity on Top Band is to continue operating on frequencies that can and do cause interference to the coast station services. This applies equally to all U.K. stations no matter where they are located. Much of the traffic from the coast stations takes the form of telephone " link " calls received at the seaward end by unskilled operators or subscribers, under which circumstances a call can be completely ruined by even weak heterodynes.

In the light of the numerous letters and articles that have appeared in the BULLETIN, with regard to the avoidance of interference on this band, I find it extremely disappointing to find on page 478 of the May issue, the announcement that a D/F contest will be conducted on 1854 kc/s; this is almost certain to cause interference to coastal services on 1855 kc/s.

Yours faithfully,

Mablethorpe, Lincs. G. WHITEHEAD (G2ACZ).

DEAR SIR,—I write in support of G3EJF and " agin " G2BB. Whilst agreeing with the latter that the less interference caused to official services the better, I would point out that his list (incomplete) is of transmitting frequencies. There is very little danger of a ten-watt station interfering with the reception at sea of a coast station transmitting on one of the channels mentioned. The corresponding ship transmitting frequencies, i.e. the spots where the coast stations listen, are outside our band. The nearest is 2009 kc/s.

As far as phone interference with c.w. is concerned, surely that is a stimulant to improve our receivers. Applied to a modern c.w. receiver the statement that a phone station " occupies " so many kilocycles is ridiculous. The whole point of that form of working is that a message may be sent, rapidly and accurately by c.w. *when other methods fail.*

Although many of us like to keep our hand in and brass-pound for the fun of it, there is no doubt that phone is the only logical medium when conditions permit.

In conclusion, may I put forward for consideration the poor old S.W.L. To him G2BB is just another confounded commercial station. After many years of operating, I am often hard put to it to follow the intricacies of Don's " Hel-Bug."

Yours faithfully,

Lowestoft, Suffolk. D. P. WOODYARD (G3ETP).

DEAR SIR,—The suggestion that band planning should be applied to the 160 metre band is a very good one, and should be applied without delay.

If we are to have continued use of the band then we must take steps to avoid interference with coast stations. Restricting phone operation to the portion 1900 to 2000 kc/s will go a long way to doing this and also makes phone operation a greater pleasure. It is appreciated that c.w. operation in the region 1800 to 1900 kc/s is difficult at times, but phone operation and in particular local nets can be the cause of considerable interference to coast stations if conducted in this region of the band.

It has been the custom in this area to operate above 1915 kc/s and local nets are generally conducted around 1930 kc/s where there is little risk of interference to coast stations.

If band planning is agreed upon, then let us hope that it is observed by all concerned and not allowed to degenerate into a scramble, as is the case on 40 and 80 metres.

Yours faithfully,

Maidstone, Kent. ERNEST J. BONNER (G8LZ).

DEAR SIR,—May I point out in reply to G2BB, May issue, that " A house divided against itself shall surely fall " and that we have already lost part of the lower end of the Top Band without giving " Authority " any justification for closing a whole section of it. Let us keep the band as it is, and let us show that we want it by using it and using it properly. In actual fact " Authority " might have less cause for complaint if Top Band was restricted to key operation only.

Yours faithfully,

Liverpool, 23. D. A. BURNS, A.I.L.(Fr.) (G3GLV).

Morse, Keys, Keying and Codes

DEAR SIR,—As one who many years ago (circa 1916 to be exact) was rated as an " expert telegraphist." I read with great fascination, and not a little nostalgia be it admitted, the article " Morse, Keys, Keying and Codes " on page 454 of the May issue by G2PT.

It is undoubtedly true that some operators may be recognised by their particular brand of sending. In Palestine, in 1917, the writer made use of this most useful peculiarity to identify " V " enemy radio stations which changed calls daily and at times locations. It was not possible always to obtain D/F bearings. Some of the operators were unwise enough to add their initials (?) to messages sent. Two recalled to mind are " H.A." (Hartung ?) operating from " VBG " and " H.L.I.L." (a wonderful operator) from " DAS," Damascus.

While it is perhaps most exceptional nowadays for operators to exceed 30 w.p.m. on a straight key, it was certainly not so in the years from 1914 to 1920. The highest speed ever reached by me was 34 w.p.m. and 3 letters while my friend reached 34 and 4 letters. We could both read and write down 35 w.p.m. These figures may look high now but they were dwarfed by one operator who was reported to have reached 38 w.p.m. In Stornoway and Glasgow, two operators by the name of Beaton and Stewart were credited with reaching 40 w.p.m. All these speeds were on properly adjusted straight keys (G.P.O.) timed for one minute on tape which had to be readable. The fastest operators were, I believe, big men with strong wrists.

Operating, of course, becomes slower with age. Before leaving Malaya in 1951 I had the greatest difficulty in reaching 30 w.p.m. and that only after some considerable speed practice. One error in one letter would ruin the test, which had to be faultless.

Apart from the operator, everything depends on the key. The balance must be perfect and the gap as small as possible. Many keys I have seen of late are quite useless and I have yet to hear good Morse from a bug key.

In the " old " days it was quite exceptional for a sender to outspeed a receiver, provided the latter was a good writer—and most telegraphists were. But the converse is probably true amongst amateurs, due undoubtedly to poor tuition and inadequate experience and practice. Long periods of sending, e.g. 5 hours with a short break, are not, needless to say, carried out at 30 w.p.m.! An average of perhaps 22 to 25 would be very good.

Yours faithfully,

Cradlehall, Inverness. J. MACINTOSH, A.M.Brit.I.R.E. (GM3IAA, ex VS1AA).

Morse Probationary Period

DEAR SIR,—I would like to associate myself with the views expressed by Mr. W. H. Borland (GM3EFS) in the June BULLETIN on the subject of a Morse probationary period. However, since this is a somewhat controversial subject, why not hold a referendum and thus obtain the opinions of the members of the Society?

Yours faithfully,

Sittingbourne, Kent. E. HATCH, A.M.I.E.E. (G3ISD).

—And Talk of Many Things !

DEAR SIR,—I would like to comment on certain letters published in the June issue of the BULLETIN.

(a) *QSL Bureaux*

Mr. Forsyth remarks that a mere handful of R.S.G.B. members have requested that their cards be cleared via the Society. I should imagine most of us were under the impression that all cards would be dealt with by that method as *a matter of routine* if *S.W.M.* were unable to clear them.

I consider there should be only one QSL Bureau per country but since there are now three in Great Britain we must try to see that there is co-operation between them all.

(b) *Editorial Comment to letter by GM3EFS.*

Disregarding the 18 months or so prior to WW2, when the authorities appeared to step-up the issue of amateur licences (for obvious reasons?) I suggest there were fewer licences issued *without AA probation* than otherwise.

As regards power used in pre-war days I have been looking through some of my old QSL's (both as amateur and SWL) back to about 1930 and it seems that about 75 per cent used inputs around 10 watts . . . 15 per cent up to 50 watts and the remaining 10 per cent over 50 watts. I also seem to recall seeing in print prior to the war that the number of UK amateurs licensed to use 500 watts could be counted on one hand.

(c) *Top Band Plan by G3EJF . . .*

A few years ago I was surprised when DAC (Norddeich) called me on 160 and requested QSY or QRT. I say " surprised " because I always run a genuine 8 watts and the aerial is a very poor one. Only 84ft long. If my gear interfered with his traffic then I shudder to think what may be done with aerials 200/300ft long plus a possible " Californian " 10 watts!

I think G3EJF misses the main point. Admittedly there are few of us who could compete with shore stations under normal circumstances. It is possible, however, that the ship they are endeavouring to contact is a lot nearer to the amateur than the shore station and the ship would experience trouble in receiving his shore station. In a number of cases it is not always the nearest shore station that is required. For example, a vessel fairly close to the Norfolk coast may require Wick Radio even though Humber Radio is much nearer. Under such circumstances it may well be that amateur stations over a wide stretch of the east coast could affect reception on the vessel. There could be a shared portion in G2BB's plan for 160 which would cover that angle (phone/cw QSO's).

As regards duplex telephony; could this not be a rather selfish form of communication? In areas where there may be a high amateur population it is possible that other stations may find even the centre of 160 unusable due to the close proximity of two 'phone stations working, one at each end. If both worked normally at the same end it is reasonable to expect that others would find it possible to enjoy their share by using the end farthest away . . . i.e. 1800 kc/s.

In conclusion, I wonder whether readers are aware that the authorities demand that a ship's operator shall pass a Morse test (when applying for an amateur licence) if more than 12 months have elapsed since he last operated professionally? If the authorities consider a *professional* operator will become rusty in 12 months how does any sensible person explain away the 'phone concession where nothing is done to see that a standard is maintained once the Morse test is passed?

Surely it is obvious that those who have no interest in Morse need never fit a key jack in any rig for their entire life as an amateur. . . . Is this what the old stagers visualized when they were " pounding brass " in the 20's and 30's?

Yours faithfully,

Prestatyn, N. Wales. J. PHILIP EVANS (GW8WJ). (Licensed 1937).

" QWU "

DEAR SIR,—With reference to the June editorial " QWU?", I would like to enquire of the Contest Committee whether aeronautical mobiles are debarred from taking part in National Field Day and other Society contests, since the true meaning of QWU? is: Do you have a glider in tow?

Yours faithfully,

Ironbridge, Shropshire. G. C. BAGLEY.

[*Note.*—A few aeronautical mobiles would certainly add piquancy to any contest! And they probably would not mind using the proposed expression " QWU " in its amateur context if they discovered that they had " already worked U," remembering that several other Q signals have been similarly modified for amateur application (note the difference, for example, between " QSL " in its professional and amateur usages).

It might be noted that " QWU " is a polite way of telling another station: " I have you in tow and want to cast you off," which is what usually happens to gliders in the end!—J. H.].

Silent Keys

JACK BUTTERWORTH (G5XF)

It is with regret that we record the death on July 10, 1956, of Jack Butterworth (G5XF) of Castleton, Rochdale, Lancs.

Due to ill-health he had not been active for the past four years, but prior to that time his call was well known on Top Band. Recently his interest in Amateur Radio was rekindled when a short-wave receiver was installed by his bedside. It had been hoped to equip him with a small transmitter.

Jack Butterworth will be missed by his many radio friends and especially by those in Lancashire to whom his voice was well known.

BASIL E. KING (EI5Y)

With sorrow we record the death suddenly in Dublin on June 20, 1956, of Basil E. King (EI5Y).

Born in Hinckley, Leicestershire, 46 years ago, Mr. King went to Ireland just before the war during which conflict he saw service with the R.A.F. He was a founder member of the I.V.H.F.S. and one of the keenest V.H.F. men in the country. The funeral service was conducted by the Rev. Canon Noël Waring, EI8J, of Dublin.

Mr. King was interred in England beside his wife who died some years ago. Sympathies are extended to his widowed mother and son. EI2W

HUGH SIMPSON (G3FFM)

Members in West London will learn with regret of the death recently of Hugh Simpson (G3FFM) after a long illness. Although not very active on the air he gave his support to local activities whenever his work and health allowed. We extend our sincere sympathies to his family.—W.G.D.

Can You Help?

● J. Eaton (G3EZZ), 74A Station Road, Langley Mill, Nottingham, who requires any information, instruction books or circuits of any type of radio altimeter, BABS and REBECCA equipment and the TR1987?

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Complete with 3BP1 C/R tube and screen 7 valves—2-6SN7GT, 2-6H6GT, 6G6, 2X2, 6X5G, volume controls, condensers, etc. Ideal for portable 'scope. In black crackle case size 15¼in. × 9in. × 9in. BRAND NEW. **65/-**, carr. FREE.

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