AUGUST, 1961

RSGB BULLETIN

VOL. 37, No. 2

JOURNAL OF THE RADIO SOCIETY OF GREAT BRITAIN

Volume 37 No. 2
August 1961
2/6 Monthly

R.S.G.B. BULLETIN

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Telephone: FLEet Street 4353

The R.S.G.B. Bulletin is published on or about the 15th of each month as its official Journal by the Radio Society of Great Britain and issued free to members. Closing date for copy is the 22nd of the month preceding publication.

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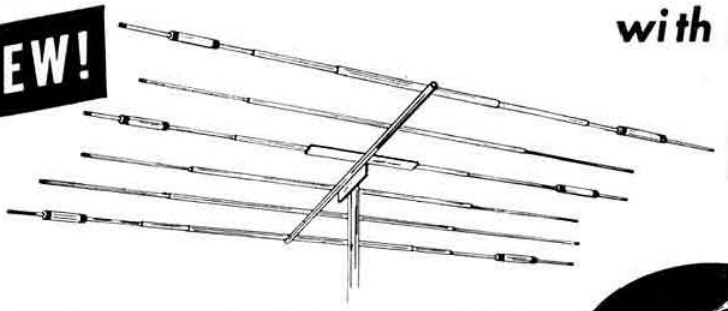

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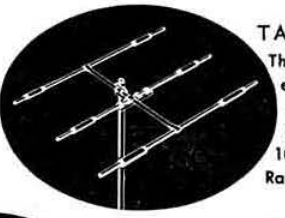

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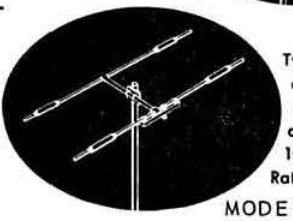

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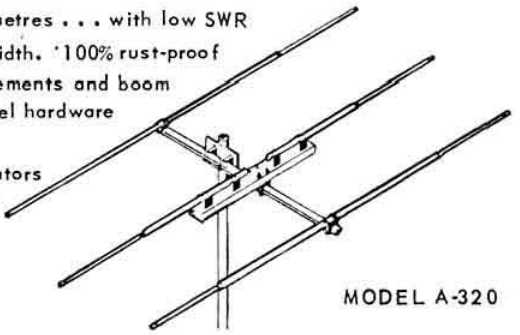

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3 Band Mobile Whip Aerial for 10, 15 and 20 metre bands. Use with standard base loading coils for 40 and 80 metre operation.

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Vertical Aerial, 10 thru 40 no bandswitching is necessary.

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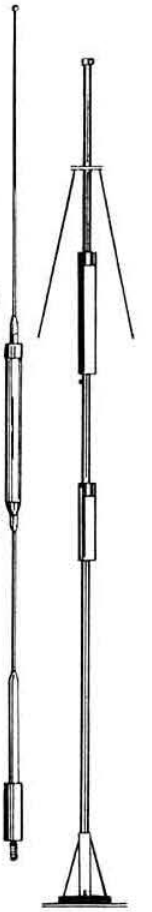

V-4-6

new! 7-Band SWL/DX Dipole Kit
for 11·13·16·19·25·31·49 meters

Here's a low cost 7-band receiving dipole aerial kit that will pick up those hard-to-get DX stations. Everything included . . . just attach the wires and you're on the air! Weatherproof traps enclosed in Poly-Chem for stable all-weather performance.

MODEL SWL-7

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O. J. Russell, G3BHJ, Manager

Current Comment

discusses topics of the day

Interference

MOST amateurs regard interference to other services, particularly television, as one of their greatest potential problems and accordingly make special efforts to avoid any emissions outside the amateur bands. In this country we are fortunate in having an accurate assessment of the success of such anti-interference measures. Each year the Post Office produces a statistical review of the interference complaints received, detailing in broad terms the causes.

The most recent of these reviews makes encouraging reading. Of the 99,569 cases investigated, amateur transmitters were responsible for 79 to long and medium wave broadcasting, 369 to Band I television, 28 to Band II broadcasting and 90 to Band III television, a total of 566. On the face of it, this makes the Amateur Radio interference problem appear to be a very minor one but is no reason for any slackening of effort in the fight against interference: it must be remembered that the comparative unimportance of amateur stations as a source of trouble is due to the high standards adopted in the designs now employed. Any lowering of these standards could well change the situation completely.

Nevertheless it is worth remembering that conditions at the receiver are often the cause of complaints: last year, for example, they were responsible for 2,249 cases affecting long and medium wave reception, 7,269 on Band I, 234 on Band II and 1,447 on Band III. Sewing machines caused 422 cases on the l.w. and m.w. band, 3,548 on Band I, 29 on Band II and 585 on Band III. Filament type lamps, a source most unlikely to be blamed by the ordinary householder, were responsible for 655 cases while hair-dryers proved sufficiently annoying to produce 1,955 complaints. Television receivers themselves caused 2,849 cases and Band II receivers 306. Even bedwarmers, which could be assumed to be most used at times when the broadcasting services are closed down, caused more trouble than amateur stations (609 cases).

The Society's TVI/BCI Committee plays an important part in the effort to eliminate interference from amateur stations and its help is available to all members on request. A letter to Headquarters will quickly bring advice.

J. A. R.

News Bulletin Service

FROM time to time members comment upon the sameness of the Society's News Bulletin Service. If there is sameness it is due, almost entirely, to the membership as a whole because scripts are prepared from material submitted to Headquarters.

The special licence granted to the Society permits the transmission of " messages in plain language, consisting of items of news and information, personal and technical about or of direct interest to holders of Amateur (Sound) licences, including the activities of the R.S.G.B."

The scope is thus very wide indeed and allows the Society to transmit news on a variety of topics, but this is only possible if the basic information is received at Headquarters.

DX news and news of local events are always welcome but to be effective they must reach the Society not later than first post on Thursday mornings. The script of each news bulletin is prepared on Thursdays and is sent to the G.P.O. for approval that day. Copies are also sent to the news readers and their deputies.

It would be of the greatest value if those who *regularly* use the News Bulletin Service would send a *postcard* to Headquarters stating which transmission they usually listen to and the degree of interference experienced.

J. C.

GB2RS SCHEDULE

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

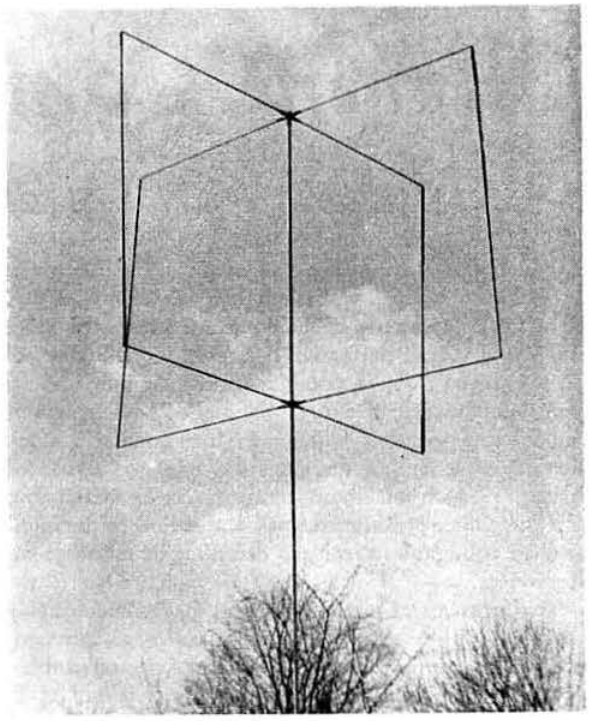
Frequency	Time	Location of Station
3600 kc/s	9.30 a.m.	South East England
	10 a.m.	Severn Area
	10.30 a.m.	North Midlands
	11 a.m.	North East England
	11.30 a.m.	South West Scotland
	12.00	North East Scotland
145·55 Mc/s	11.15 a.m.	Beaming south-east from Leeds
	11.30 a.m.	Beaming south-west from Leeds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

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

The G4ZU "Birdcage"

A compact dual band array for 15 and 20 metres

By G. A. BIRD, F.Inst.P.I., Assoc.Brit.I.R.E.*



The appearance of the Birdcage array

WHEN selecting a directional aerial for the h.f. bands, most amateurs have to give careful thought to the question of size and cost. For 10 or 15m, a normal two or three element Yagi is probably the best solution, as arrays of this type can be constructed at quite moderate cost and do not require a great deal of space. However, when 20m coverage is contemplated, it becomes evident that a Yagi is a major engineering project, and much too large to be rotated in the average small back garden. It is not surprising, therefore, that loop type arrays such as the quad or bi-square are becoming increasingly popular for use on 20m, as they are light in weight, relatively inexpensive to construct, and do not require a very large turning circle. The most enthusiastic user will nevertheless admit that, structurally, the quad leaves much to be desired, and when several quads for different bands are interlaced, the end product can hardly be called a thing of beauty!

The Birdcage aerial overcomes most of the mechanical and electrical shortcomings of the quad: the normal horizontal boom and spidery spreaders are eliminated, and tubing is used in place of wire for the high current portions of the array. In addition, by using techniques familiar to users of the G4ZU Minibeam, it has been found possible to construct an array which will operate effectively on both 15 and 20m without interlacing. Those with limited space will find that the Birdcage is little more than half the size of an equivalent cubical quad array.

An aerial of this type is naturally not designed overnight. A patent application for the Birdcage was in fact filed as long ago as February 1958, but since then a number of improvements have taken place, involving further patenting both in this country and the United States, and a long series of measurements so that adequate data is available regarding the performance of the system under various conditions of operation.

Development

It is believed that readers may be interested in a résumé of the development which led up to the conception of the Birdcage in its final form. Several years ago the writer had occasion to make detailed measurements on various types of television aerials. In particular, a careful assessment was made of the relative merits of the *H* and *X* type arrays at 42 Mc/s (Television Channel 1). It was found that in many respects the *X* was superior to the *H* providing, if anything, slightly more gain and much better front-to-back ratio. This has since been confirmed by experience in the field, the general opinion in the radio trade being that an *X* is more likely to give good results in a weak signal area than the *H* type which it is tending slowly to displace.

It seemed reasonable to assume that the *X* construction might prove useful on the amateur bands and as an experiment two beams were constructed for the 10m band, one a conventional *H* array comprising a driven element plus reflector, and the other an *X* fabricated from an electric light junction box and four lengths of ½ in. dural. It was found that the gain of the two arrays was practically identical but the *X* definitely had a better front-to-back ratio. The rods on the *X* had to be slightly longer than expected, the final figures being 8 ft. 9 in. for the reflector rods and 8 ft. 5 in. for the radiator.

After using the *X* array for some weeks with encouraging results, thought was given to the possibility of a "super gain" *X* array. The *X* type of construction does not lend itself to the addition of further in-line elements in the form of directors or reflectors and it seemed therefore that vertical stacking would be a fruitful approach. It was estimated that

* *Technical Director, Bird Patents Ltd., 26 Upfield, East Croydon, Surrey.*

The arrangements described in this article are protected by the following Patents: U.K. 833555.4083/58.197/59, U.S.A. 2881430.861900, Canada 586573.

half-wave separation (17 ft.) would give an increase of 4db over the gain of one array on its own and that $\frac{3}{4}$ wavelength separation would give an increase of somewhere around 5db, thus providing an overall gain greater than 10db with a low angle of radiation. The method of feed adopted initially permitted varying separation between the limits of 12 and 23 ft. The neat appearance of the structure can be judged from the photographs.

Feeding the Array

When stacked the impedance at the feed point of the upper and lower radiator will fall to about 18 ohms. The problem is to feed both arrays in phase and to transform the impedance so that a good match is obtained to a 75 ohm feed line. Fig. 1 shows one method of achieving the desired

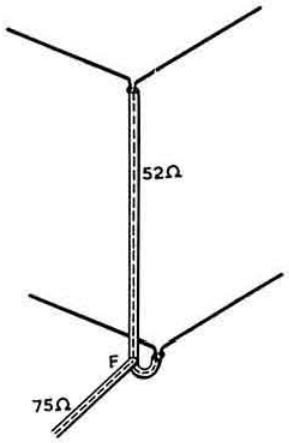


Fig. 1. Method of feeding upper and lower driven elements in phase.

result. An electrical wavelength of 52 ohm cable (23 ft.) is used to link the upper and lower driven elements with a cross-over to maintain correct phasing conditions, the feeder being tapped in at the point *F*, a quarter wave from one end. This provides in effect two matching stubs, one a quarter wave and the other three-quarter wavelength long. Each stub will transform the 18 ohms of its respective array to 150 ohms at the point *F*. The two impedances of 150 ohms appearing in parallel at *F* produce a resultant of 75 ohms and an excellent match to the main feed line.

An alternative method of feed which, as will be seen later, has attractions for multi-band operation is shown in Fig. 2. The tips of the elements, both driven and parasitic, are joined with vertical wires. The lower driven elements are connected to an open wire line and energy fed into the upper array through the vertical wires. With this arrangement an

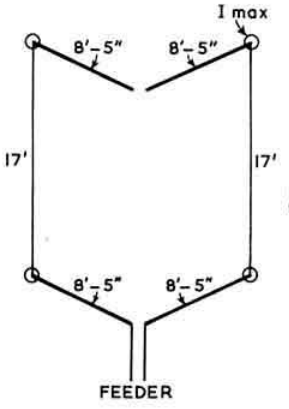


Fig. 2. Driven element and reflector of similar construction.

open wire stub will be required to tune the parasitic element either as a director or as a reflector whichever may be preferred. Electrically this is very similar to the *XQ* array recently described by W6SAI which is claimed to have a measured gain some 3db higher than the best that can be obtained with a cubical quad. In this case the driven and parasitic loops must each be left open circuited at the top; the points of maximum current thus occur at the tips of the eight radial rods producing the equivalent of an eight element array. The gain will in fact approach that of quite a massive curtain such as two lazy-*H* arrays fed in phase quadrature with quarter-wave separation and occupying a volume of some 5,000 cu. ft.

Birdcage for 15 and 20 Metres

Some thought was given to the problem of using the same basic structure, with as little modification as possible, on both 15 and 20m. By reducing the length of the vertical wires to a $\frac{1}{4}$ wave (11 ft.) on 15m and leaving the length of the radials unchanged it was found that the array would operate on this band with a gain and front-to-back ratio

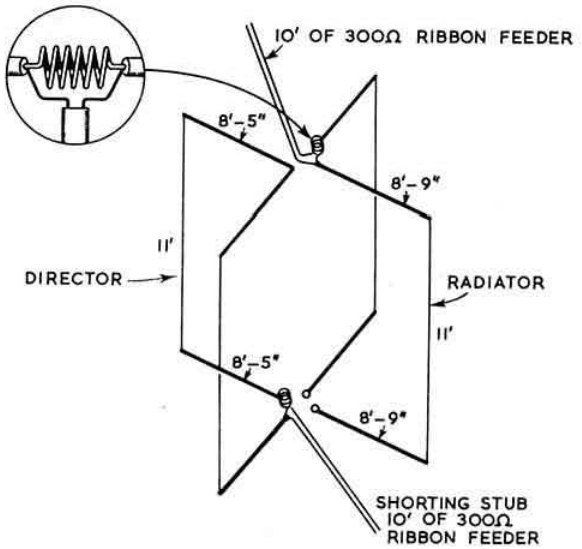
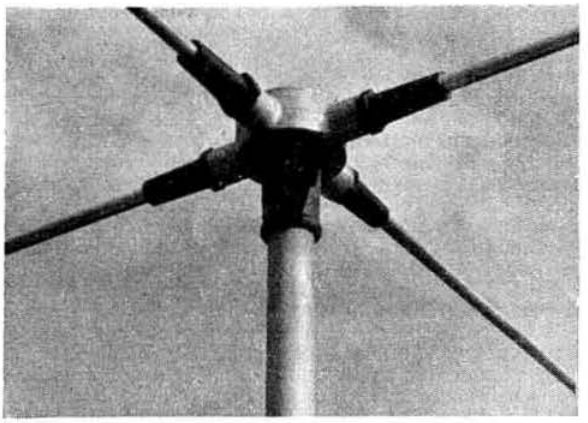


Fig. 3. Complete Birdcage array. The coils are both 6 turns 3 in. in diameter the spacing between the turns being varied to adjust the inductance

similar to a cubical quad, but with a feed impedance of about 50 ohms, rather than the 90-100 ohms normally obtained with a quad. It was also found that an improved front-to-back ratio could be obtained by tuning the parasitic loop as a director, rather than as a reflector. No tuning stub was therefore required.

The final move was to insert loading coils in each loop to provide 20m resonance, the loading coils being shorted out automatically on 15m by means of two quarter-wave stubs made of 300 ohm ribbon. The stubs can quite safely be folded up and strapped to the mast if desired. On 15m the coils play no part at all, and can in fact be removed altogether without affecting the performance in any way as the resonance of the driven and parasitic loops is determined solely by the total loop length. On 20m the coils should be adjusted *in situ* with the aid of a grid drip oscillator so that the radiator is resonant at the operating frequency, and the director some 5 per cent higher in frequency. The number of turns indicated in the diagram should be regarded solely as a guide, because the precise inductance required will obviously



Junction of the horizontal radials with the supporting mast

be affected by tube diameters, stray capacities and the precise method of construction adopted in any particular case.

As with a cubical quad or any other similar type of array the electrical length of the vertical wires is also a function of diameter and the length required for resonance may vary as much as 2 per cent either way depending on the gauge of wire used. However the dimensions shown in Fig. 3 will in most cases produce resonance somewhere within the desired band and a slight adjustment in the length of the vertical wires will permit peaking the array in the phone or c.w. part of the band as desired.

It will be clear that this approach avoids the harmful interaction which occurs when two or more arrays are interlaced for dual band coverage, with the result that the overall performance tends to be superior to a double quad array and setting up is more straight forward as there is no " pulling " between the 15 and 20m tuning adjustments.

By increasing the size of the array to something comparable to that of a 20m quad a dual band array for 20 and 40m becomes possible. Experiments are proceeding with this at the present time and it is hoped to publish further details at a later date.

Making R.S.G.B. and Call-sign Transfers

By T. H. HOLBERT (G3DXJ)*

THE writer has used R.S.G.B. car windscreen stickers for some time. The plural is used because it has been found possible to get through a sticker a week under the most unfavourable conditions, due to the condensation on the windscreen. In winter, particularly with the car heater on, sufficient condensation occurs to cause the sticker to peel off in a very short time. For this reason, it was decided to try to devise some means of keeping the sticker permanently on the windscreen.

The result is a simple and effective process which converts the gummed sticker into a waterproof transfer. The process is as follows:

(i) Place the label on a flat surface, and using a fine-haired brush, apply one coat of clear varnish to the diamond shaped badge, with a ½ in. overlap. Allow this to dry completely.
(ii) Repeat the procedure twice, making certain that each coat is quite dry before the next is applied.
(iii) When the third coat of varnish is dry, place the label face down in a saucer of clean hot water. Leave in the water for two to three minutes.
(iv) Apply the label to the window in the desired position, and press on firmly with a clean dry cloth.
(v) Carefully ease the paper backing sheet off the transfer holding the transfer in position while this is being done, so that it does not move.
(vi) Gently remove excess moisture and any gum residue from the area surrounding the transfer.

It may be added that the transfer can be applied to any smooth surface.

It is also possible to manufacture transfers of call-signs, and this is not a difficult process.

(i) Take an ordinary gummed label and apply one coat of clear varnish. Allow to dry.
(ii) Paint or stencil the call-sign on to the varnished surface, using a good quality oil paint. Allow the paint to dry.
(iii) Proceed with the soaking process detailed for windscreen stickers.

* *52B Valon Road, Arborfield, Reading, Berks.*

R.S.G.B. Tape Recorded Lecture Library

APPLICATIONS from R.S.G.B. Groups, Affiliated Societies and Clubs, to borrow tape recorded lectures should be sent to the Hon. Librarian, Mr. N. C. Ta'Bois (G3HWG), 81 Snakes Lane, Woodford Green, Essex, as far in advance as possible. A list of the recordings available may be obtained from Headquarters.

TECHNICAL TOPICS By PAT HAWKER (G3VA)

Chemical Aids · Overtone Crystal Oscillators · Custom-built Components
Transistors and Valves at the R.E.C.M.F. Exhibition · Receiver Trends
VR-tube Screen Droppers · Ferrite Bead Connectors
Transistor Squelch and VOX

UNTIL a few years ago, almost the only chemical aids commonly found in the amateur shack were liquid fluxes for soldering and some carbon tetrachloride for cleaning switches and quartz crystals. Nowadays the professional electronics workshop seems to have almost as many "bottles" and "tubes" on the shelves as there are, so to speak, in the equipment.

While members who are experts in chemistry could unquestionably elaborate on these necessarily brief notes, it is felt that an outline of modern practice may be of some help to those who, like G3VA, do not immediately recognize $C_6H_5{\cdot}CH{:}CH_2$ as the polymerisation of styrene.

Although few amateurs would find it economically worth stocking the full range of proprietary chemical aids, some background knowledge of what is available can be most useful, particularly as ordinary household chemicals can sometimes be substituted. The danger in substitution, however, lies in the possibility of producing unexpected side effects: for example, most of us know better than to lubricate rubber with oil or grease, but it is more difficult to keep track of which chemicals can and which cannot be safely applied to various plastics. It takes only a little of the wrong substance to cause irreversible damage.

Most electronic chemical aids are used as cleaners, lubricants and adhesives or cements, although some cleaners also lubricate. In the United States, there are also proprietary chemicals for such purposes as stripping enamel from wire and for stopping cord drives from slipping.

Rotary switch contacts, turret stud contacts, miniature valve pins and all types of potentiometers are notorious sources of noise and uncertain operation, including calibration errors. This is partly due to normal mechanical wear; more particularly it is caused by tarnishing. Tarnishing is the formation of a thin oxidized film which is a poor electrical conductor on any contact which is not automatically self-cleaning (and often on those which are supposed to be). This oxide film may subsequently be increased by slight arcing. Probably the very worst way of cleaning contacts is to scrape away the oxide film with a sharp edged screwdriver or with rough emery cloth, both of which will dig into the surface. Increasingly, contact surfaces are being plated with extremely thin layers of silver and other precious metals, and it is most important not to damage these surfaces.

Cleaning fluids containing carbon tetrachloride or trichlorethylene (e.g. Thawpit and petrol lighter fuel) are widely used for generally cleaning and removing oxide film from rotary switches and potentiometers. These fluids, and a number of others, are effective in removing the tarnishing but, unless combined with a lubricant, offer little protection against recurrence of the fault. When using such fluids, it is therefore advisable to add a final slight smear of Vaseline or petroleum jelly. A solution of 20 per cent petroleum jelly in white spirit (turpentine substitute) is satisfactory. Only a little of these lubricants should be used, since they tend to collect dust which increases mechanical wear. Both lighter fuel and carbon tet dissolve grease, oil and wax, while lighter fuel dissolves any resin. Ordinary detergents, used in a mild solution, will deal fairly effectively with grease and grime (liquid detergents are also useful in some applications for their anti-static properties).

Noisy potentiometers can often be tamed simply by forcing a liquid cleaner in through the shaft bearing without dismantling, afterwards turning the control backwards and forwards a few times.

Some of the proprietary cleaners produced specifically for radio servicing contain the necessary lubricant (e.g. Servisol) so that these can be used without the need to add petroleum jelly. However care should be taken with cleaners containing carbon tet or trichlorethylene since they are highly solvent and can readily dissolve Perspex and other plastics. For this reason the cleaner should not be splashed about too enthusiastically near plastic control knobs and other parts, and it should be applied sparingly. Most television makers warn against their use on television turret tuners since they can attack the plastic coil "biscuits." Where there is any question of harmful effects it may be better just to polish the contacts with a soft lintless cloth.

Some cleaning agents should also be used with care because they are either inflammable or (as with carbon tet) give off toxic fumes. Paint thinners should not be used as a cleaning agent (although effective) since it is rather dangerous to use and leaves a chemically active residue—this applies also to petrol. Do not overlook the value of that good old-fashioned cleaner—a little soap and water.

After cleaning contact material or, say, a crystal, avoid touching it with the skin since this may deposit acid oils which will cause rapid retarnishing.

Recently two new types of electrical and mechanical lubricants, which also have a cleaning effect, have come to the fore, as these have successfully overcome most of the problems already mentioned. These are Electrolube (which is electrically highly conductive) and MS4 silicone grease (which has good dielectric properties). Although electrically these are very different, both are water repellent and can be used for many of the same purposes, as they provide long term protection against tarnishing and corrosion. They are chemically inert and do not attack plastics.

MS4 can be obtained in toothpaste-type tubes for application to turrets and variable capacitors and can be used for many other purposes, including the preservation of rubber. Electrolube have recently introduced small pocket dispensers fitted with a flexible plastic tube which enables single drops to be placed in difficult places. One of its most effective uses is to quieten noisy valve pins; another is for preserving relay contacts. Neither of these substances is particularly cheap compared with household cleaners and lubricants but they are economical in use. MS4 is also available in a form suitable for spraying over whole areas of equipment for general waterproofing and preservation. Another substance for this purpose, now being imported from the U.S., is CRC2.26 fluid which is said to be useful for dealing with electronic equipment damaged by exposure to moisture or even by total immersion. I.C.I. have also recently introduced a new silicone grease, type M494. A further use for silicone grease is to improve the heat transfer from transistors.

Another class of chemicals is concerned with the sealing or locking of trimmers and variable inductor cores. Various substances are used by different manufacturers, including paint, sealing lacquers, sealing wax, Bostik, bitumen, strips of rubber and several greasy compounds. Most of these locking substances can be freed simply by screwing the core a little farther into the coil or by heating with a soldering iron. With locking paints it may sometimes be necessary to apply a very little cellulose thinners with a paint brush—but remember that too much is likely to hinder rather than help. Where a maker's seal has been broken for adjustment, it is most advisable to renew it afterwards, if possible with the same type of locking substance. Proprietary core locking compounds for i.f. transformers and inductors are marketed.

A very useful material for cementing or impregnating home-built coils is Denfix (made by Denco (Clacton) Ltd.) which is a clear polystyrene thermoplastic material dissolved in a quick drying solvent. When dry this varnish has the insulation characteristics of polystryrene. Generally, in the field of cements and adhesives great progress has been made in recent years, and most amateurs will already have their own favourites.

Tape recorders are found in many shacks, so it may be worth mentioning that the film of oxide dust which gradually collects on the face of the recording heads should not be cleaned away with carbon tet or lighter fuel as these can attack the sealing compounds in the heads. In the absence of specific makers' recommendations it is usually safe to use a little methylated spirits. However, note that volatile liquids such as methylated spirits can cause cracking if applied to plastic surfaces. Rubber gear wheels can generally be cleaned with a clean cloth containing a small amount of white spirit (turpentine substitute) or methylated spirits. For mechanical bearings a light machine oil such as Shell Vitrea Oil No. 21 is usually recommended.

The professional workshop these days also often includes a range of chemicals for the preparation and treatment of printed circuit panels, not to mention various scratch removers (oil, beeswax and elbow grease is a stock remedy!) for wood and plastic cabinets, including special finishes, catalysts and polishes for the burnishing of polyester cabinets. Acetone makes a useful solvent for cleaning away traces of resin after soldering on printed boards; a clear lacquer can be used to coat connections on printed boards.

Proprietary electronic chemicals are available from radio trade wholesalers, but one mail order firm which stocks a wide range is Direct TV Replacements Ltd., 138 Lewisham Way, New Cross, London, S.E.14.

Overtone Crystal Oscillators

Overtone crystal oscillators are widely used to reduce the number of stages required in v.h.f. transmitters and convertors. Two useful circuits appeared recently in the Dutch journal *Electron*. Fig. 1 shows PA0TP's single-valve exciter (May 1961) said to be capable of providing useful output on 144 Mc/s from an 8 Mc/s (fundamental) crystal. The output is not of course high but is given as providing some 2 mA drive through a 4700 ohm amplifier grid leak, enough to give good power output from some of the smaller v.h.f. tetrodes. Setting up may be a little tricky since the anode dip will be small, typical currents being 10 mA for the first triode, 5 mA for the second. The trimmer between the cathodes provides regenerative feedback. Fig. 2 shows another overtone oscillator circuit (PA0EZ, June 1961) for surplus crystals said to be capable of giving good results with active crystals as high as the fifth overtone.

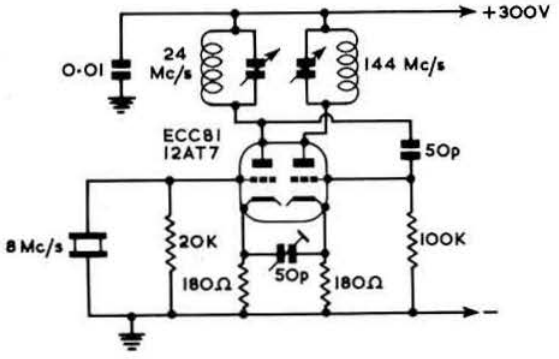


Fig. 1. PA0TP's single valve exciter for 144 Mc/s.

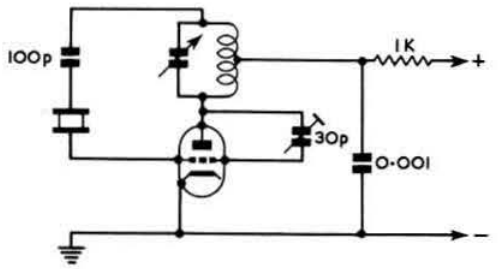


Fig. 2. PA0EZ's overtone crystal oscillator is said to give good results on fifth and higher overtones with active FT243-A crystals. Suitable valves are EC92, 6C4 or half of an ECC81/12AT7.

Although the term " overtone " oscillator has only come into use in recent years, it is sometimes forgotten that the technique of " harmonic oscillators "—as they were called—is of respectable antiquity. For instance, we recently noticed a BULLETIN article of 1930 vintage by the late G2ZC which explained clearly that such control could be obtained on odd harmonics. During the thirties, 2·4 Mc/s crystals were popular, providing output on about 7·2 Mc/s. It should be clearly recognised that in an overtone oscillator there is *no* output anywhere in the circuit on the fundamental frequency of the crystal, nor on the second harmonic.

For the newcomer to v.h.f. *QST* is running a four part series (which started with the July issue) on the home construction of a complete 50/144 Mc/s station.

Custom-built Components

Fortunately, most radio component values are not unduly critical and ordinary tolerances with preferred values are close enough. Occasionally, however, more exact and unusual values are needed. There are some dodges for avoiding the relatively high costs of precision components. For example, *73 Magazine* (May, 1961) gives some information on adjusting ordinary carbon film resistors by using a fine sand or emery paper to remove some of the resistance track. It is also fairly well known that one can just file into the body of the resistor until the required value is obtained. Clearly, values can only be adjusted upwards, and the wattage rating tends to be reduced.

Less generally known is that ceramic disc capacitors can be ground down with a file or grinding wheel to any required value (this idea comes from *Electronic Design*). In this case values can only be adjusted downwards.

R.E.C.M.F. Exhibition

The recent largest-ever valve and component show at Olympia in London provided almost an " amateur's paradise " in the variety and scope of modern components, even if in some cases the prices are such that we will just

have to watch out for them to appear on the surplus market.

Impressive in showing how near we are to the era of high power h.f. transistors, was the S.T.C. demonstration of two epitaxial transistors in push-pull giving an easy output of 9 watts at 10 Mc/s with 50 per cent efficiency. Also noted was the extended range of Mullard alloy diffusion transistors for entertainment receivers, including the AF114 which

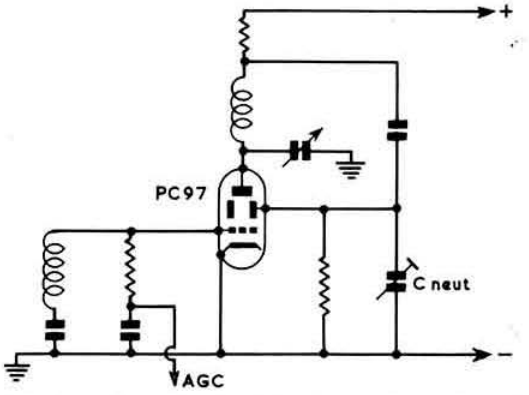


Fig. 3. Skeleton r.f. amplifier circuit showing use of beam plates of the " beam triode " type PC97 for neutralizing.

gives a power gain of 14db at 100 Mc/s with a noise figure of 8db and the AF102—for television tuners—which has a noise figure of 6db at 200 Mc/s. The low p.i.v. of silicon power rectifiers is being overcome by diffusion techniques and Mullard and Lucas were both showing types with a p.i.v. better than 800 volts and capable of withstanding high surges. We were also interested in the new Eddystone transistor communications receiver which uses three alloy-diffusion transistors as r.f. amplifier, mixer and h.f. oscillator.

But there were also several notable items among the new valves. The influence of frame-grid techniques (see *T.T.*, November, 1959) is now very evident, with a fairly complete range for television receiver applications. Of interest to amateurs is the new frame-grid triode (PC97) which has extremely high slope (13 mA/V) combined with unusually low grid-to-anode capacitance (about 0·5 pF) obtained by using a special shield between grid and anode in conjunction with a shaped anode. Because of this shield (which is omitted between the active part of the anode and grid) these valves (the PC95/6ER5 also uses this technique) are often called " beam triodes." The beam shield provides a new means of neutralizing which permits the neutralizing capacitor to be connected directly between the shield and chassis: see Fig. 3. This technique is used in the latest Cyldon television tuner. The valves can, of course, also be neutralized in the conventional manner. Triode r.f. amplifiers with the signal input to the grid are becoming increasingly popular in television receivers. Another recent valve intended primarily for television turrets but equally useful for amateur work is the vari-mu r.f. tetrode (Mazda 30F27) designed to operate with a much greater than usual ratio of anode to screen current. This greatly reduces the partition noise, and the valve has an equivalent noise resistance of the order of 450 ohms, a figure which would have seemed impossibly low for a multi-grid valve only a little time ago.

Receiver Trends

So far there have been relatively few communication receivers designed around the frame-grid valves (the new Minimitter receiver is an exception), so it was interesting to see a design in the German *Funk-Technik* (Nr.10/1961, May 2) for a 3·5/29·7 Mc/s amateur bands double conversion receiver using EF183 (r.f.), ECH81 (f.c. to 1630 kc/s), ECH81 (f.c. to 130 kc/s), EF183 (i.f.), OA161 (det.), 2 × OA150 (noise limiter), ECL86 (a.f./output) and with a transistor (OC612) for b.f.o.

Most receiver designers believe that many of our present problems could be solved if highly selective filters were available (at reasonable cost) for high intermediate frequencies. What can now be achieved in this respect in professional practice is indicated by an advertisement noticed recently for FB-2 miniature crystal filter networks by the U.S. Midland Mfg. Co. With a centre frequency of 10·7 Mc/s, this filter is listed as having a 2 kc/s bandwidth at — 6db and 3·6 kc/s at — 60db, a shape factor of 1·8. The insertion loss is given as less than 4db. So far we have not plucked up enough courage to ask the price!

VR-Tube Screen Droppers

The disadvantages of conventional voltage-dropping resistors for screen feeds of audio and r.f. power amplifiers have been mentioned several times recently (for example see the article by G3NGS and G3FZL, January 1961, and *T.T.*, December 1960). A very simple way of reducing screen

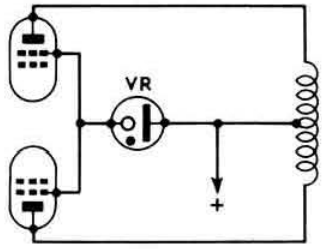


Fig. 4. Use of voltage regulator tubes to replace screen dropping resistor in push-pull amplifiers.

voltage swing in various current conditions is to use a voltage-regulator tube as a dropper, for applications where the screens require some 75 to 150 volts less h.t. than the anodes: see Fig. 4. It will be appreciated that this system does not smooth out any fluctuations of the h.t. line caused by class B operation of the valves.

Ferrite Beads for R.F. Attenuation

For several years, television and a.m./f.m. receivers have made use of small beads of ferrite materials to introduce added lossy impedance on wire leads. Most common use is for decoupling heater lines, but they are also fitted to suppress parasitic oscillation and for other purposes. A ferrite bead threaded on to a wire acts as a single turn toroid and, because of the high permeability of the material, provides

Fig. 5. G3HWR's co-axial sockets are made lossy to r.f. by means of a ferrite bead in order to stop r.f. from getting into a.f. circuits.

a considerable increase in the effective impedance of the lead. Beads are made for use between 2 and 15 Mc/s and also for 15 to 100 Mc/s. Several beads can be used to provide maximum effect, simply by threading them along a wire. One can think of many transmitter applications where such beads should be useful for decoupling and parasitic suppression.

G3HWR has come up with an ingenious use of these beads to prevent r.f. from leaking into a.f. equipment. He simply fits one of the beads inside a standard Belling Lee co-axial connector so that all screened leads used in a.f. equipment are lossy at r.f.: see Fig. 5. He points out that it is essential to mark such leads so that they are not later inadvertently used on r.f. circuits!

Transistor Squelch Circuit

G3JGO has pointed out that the W0WOM transistor squelch circuit shown in May *T.T.*, although similar to that

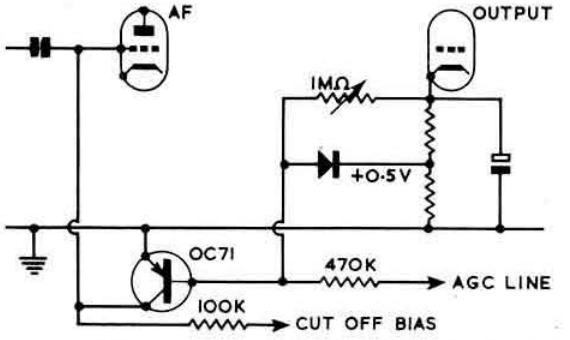


Fig. 6. G3JGO's proposals for a p-n-p transistor squelch circuit. The crystal diode is included to protect the transistor against excessive positive V_{be} and to prevent the a.g.c. line from going positive. The cut-off bias might conveniently be obtained by using crystal diodes in a voltage doubling arrangement from a 6.3 volt a.c. source.

published in the original article, could be misleading. This is because the 2N168A transistor is of the *n-p-n* type of which relatively few are available in the U.K. Unfortunately the usual convention of showing the arrow pointing away from the base for *n-p-n* transistors is not always adhered to in practice, so this point was overlooked. A possible European type would be the OC140, and further U.S. types are the 2N166, 2N170, 2N228 and 2N214. G3JGO suggests that the

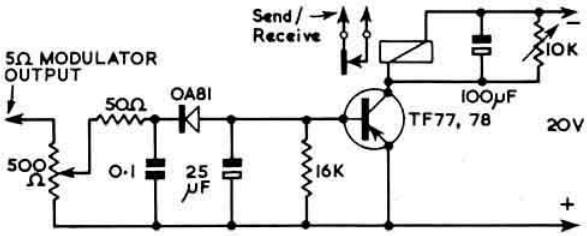


Fig. 7. DJ6ON's simple transistor VOX.

arrangement shown in Fig. 6 would enable an OC71 or similar *p-n-p* transistor to be used for squelch, although it should be mentioned that this circuit has not been tested.

A simple transistor VOX switch is described by DJ6ON in the June issue of *DL-QTC*, see Fig. 7. The relay has a 5000 ohm winding. The TF77 is a normal *p-n-p* transistor with a fairly high collector voltage rating, and similar British types could probably be used. The 10 K ohm variable resistor governs the hold-over of the relay.

D/F National Final

DETAILS of the D/F National Final to be held on September 10, 1961, are being sent by post to all those who have qualified to take part.

Rockets

IN 1929 Mr. Paul Adorian produced a paper entitled "Rockets" in which he gave a simple summary of the technique of rocket propulsion and speculated on the possibility of space travel. Re-reading the paper in 1961 Mr. Adorian decided to have it reprinted and to give the net proceeds to the Henry Tizard Memorial Fund. The original paper was read to the Engineering Society of the City and Guilds (Engineering) College, London.

Copies of the reprint of this historic paper can be obtained by sending a remittance for 8s. (U.S. $1.25) to Mr. Adorian at 21 Denman Street, London, W.C.2.

REGION 14 OFFICIAL REGIONAL MEETING

MONTGOMERIE CASTLE HOTEL, near AYR

September 10, 1961

The Council will be represented by Messrs. E. G. Ingram, GM6IZ (Executive Vice-President and Zone F Representative), N. Caws, G3BVG (Hon. Treasurer) and J. Douglas Kay, G3AAE.

Tickets, price 22s. 6d., may be obtained from D. Tannock (GM2BUD), 47 Sunnyside Crescent, Mauchline, Ayreshire.

During the business meeting, there will be a bus tour for the ladies to Culzean Castle, General Eisenhower's Scottish home.

SOUTHERN REGIONAL MEETING

ELLIOTTS OF NEWBURY LTD., WEST STREET, NEWBURY

Sunday, October 1, 1961

Programme:

Assemble	**2 p.m.**
Business Meeting ...	**2.30 p.m.**
High Tea	**4.30 p.m.**
Raffle	**5.30 p.m.**
Informal Discussion ...	**6 p.m.**

Talk-in Stations

G3MWB on 1·8 Mc/s from 1 p.m. G3OUC on 144 Mc/s

The Council will be represented by Major-General E. S. Cole, C.B., C.B.E., G2EC (President), Mr. F. A. Russell, G3BHS (Zone D Representative) and Mr. G. M. C. Stone, G3FZL.

Tickets, price 8s. each, may be obtained from J. Gale (G3LLK), "Wild Hedges," Crookham Common, near Newbury, or from E. Smith (G3JMT), 26 Haddon Drive, Woodley, Reading.

SOUTH CENTRAL REGIONAL MEETING

BELLE VUE HOTEL, CHELTENHAM

Sunday, October 8, 1961

The Council will be represented by Messrs. A. O. Milne, G2MI, J. Douglas Kay, G3AAE, and F. A. Russell, G3BHS (Zone D Representative).

Tickets, price 21s., including lunch and buffet tea or 10s. 6d. with buffet tea only, may be obtained from J. J. Yeend (G3CGD), 30 St. Lukes Road, Cheltenham.

CQ de GB3VHF

An Account of the Society's V.H.F. Beacon Transmitter GB3VHF at Wrotham, Kent

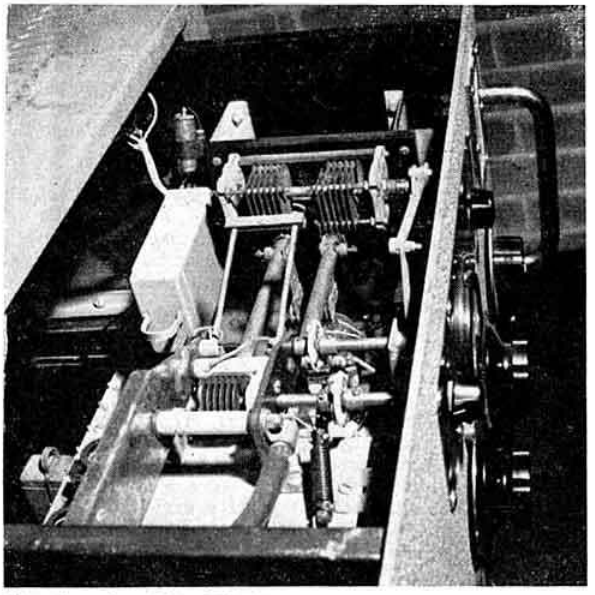
By G. M. C. STONE (G3FZL)*

THE idea of setting-up a v.h.f. beacon station was first suggested by K. E. S. Ellis (G5KW) who offered to run such a station during the I.G.Y. to assist with v.h.f. propagation studies, especially auroral propagation. The station, call-sign GB3IGY, was located at Well Hill, Kent and operated on various schedules from September 1957 to March 1959 using a power input to the 4-125A power amplifier valves of some 500 watts; its operating frequency was nominally 145·50 Mc/s.

The beacon showed the need for a long term project of this type to study v.h.f. propagation, to assist members in the adjustment of their experimental receivers, to act, if possible, as a frequency standard within known limits and lastly to provide a signal for the study of auroral propagation even though this is becoming increasingly rare as sunspot minimum is approached. The Society made a formal approach to the General Post Office for permission to set up a beacon station which was granted but there remained the problem of finding a suitable site. Several were suggested but following an approach to the British Broadcasting Corporation a site at the v.h.f. transmitting station at Wrotham, Kent, was obtained. The Society gratefully acknowledges the co-operation of the B.B.C. without which this project would have proved considerably more difficult, if not impossible.

The mast at B.B.C. Wrotham. The aerial for GB3VHF is at the 180ft level.

* *Chairman, Scientific Studies Committee, 10 Liphook Crescent, Forest Hill, London, S.E.23.*



The r.f. section of the GB3VHF transmitter showing the QQV07/40 p.a. and the Lecher line tank circuit.

Equipment

Once the site had been agreed on, the planning of the installation commenced. It was obvious that equipment of the highest quality was required whilst the cost had to be maintained at a minimum. A surplus Plessey type PT15A 50 watt output v.h.f. transmitter was very fortunately acquired for £25. A specially constructed 5 element Yagi aerial array was donated by J-Beam Aerials Ltd.; this aerial was required to withstand the severe environment experienced at the 180 ft. level of the Wrotham mast and had to satisfy B.B.C. structural engineers of its suitability. Special ironmongery had to be constructed to attach the array to the mast. Owing to the triangular section of the mast it is only possible to locate the aerial so that it beams almost due North; directions in between the six total possible directions would require considerably more complicated mechanical arrangements which, it was decided, were not really essential. Actual erection was performed by a B.B.C. aerial rigger in November 1960. The feeder, which is 100 yards long, was donated by British Insulated Callenders Cables Co. Ltd.; it is of 71 ohm impedance having a loss of 2·2db per 100ft. at 145 Mc/s. (Services type Uniradio 1, B.I.C.C. Type T.3026).

The equipment is located in a brick building adjacent to the base of the mast, the main purpose of which is to house the lighting control gear and other special equipment. The transmitter operates continuously from 06.30 to 23.59, clock time, daily but may operate for longer periods from time to time for special tests; its nominal operating frequency is 144·5 Mc/s. (Band edge marker for Surrey zone of the U.K. Two Metre Band Plan). This schedule is controlled by a Venner Industrial time switch donated by Associated Electrical Industries Ltd., Private Telephone Department. The transmission is basically a continuous unmodulated carrier, broken for four seconds every minute, with the call-sign GB3VHF being sent once every five minutes. Keying is accomplished by a Government surplus keying unit ideally suited to this application. A view of the r.f. section is shown in the photo opposite.

A weekly inspection of the equipment, carried out by Mr. J. B. Kay (G3CO), has shown remarkably little variation in the current readings of the transmitter stages, the main aim being to keep a constant power output; this is monitored by a

crystal diode voltmeter located in the aerial feed line feeding a micro-ammeter located in the centre panel of the transmitter rack. The modulator, which is behind this panel, is not used. The equipment is shown *in situ* in one of the photographs.

The equipment at GB3VHF. The transmitter rack is on the left of picture with the automatic keyer on the extreme right. The Venner time switch is mounted on the wall on the right of the transmitter cabinet.

Propagation Studies

One of the basic purposes of GB3VHF is for the study of propagation in the 144 Mc/s band. It has been found that spasmodic observations by operators are only of limited value in this respect and hence an entirely automatic receiver has been set up through the valuable co-operation of Mr. B. Sykes (G2HCG) at the J-Beam Aerial Works, Northampton. The path length Wrotham/Northampton is some 86 miles and in spite of the fact that the transmitting aerial at GB3VHF is about 1,000 ft., a.s.l., Northampton is considerably beyond the line-of-sight. The receiving aerial is a J-Beam 6-over-6 slot fed Yagi mounted about 35ft. above ground level. This feeds through low-loss coaxial cable to a 144 Mc/s crystal controlled converter which employs two G.E.C. type A.2521 grounded grid triode amplifiers feeding another A.2521 mixer. The i.f. for an r.f. input of 144·5 Mc/s is 5 Mc/s. A BC342 receiver is used as the i.f./detector and the a.g.c. voltage developed is fed to a balanced triode d.c. amplifier which feeds an Evershed and Vignoles 0–1 mA pen recorder. The dynamic range of the receiver is from 0·5–80 μV, 80 μV representing full scale deflection of the pen recorder.

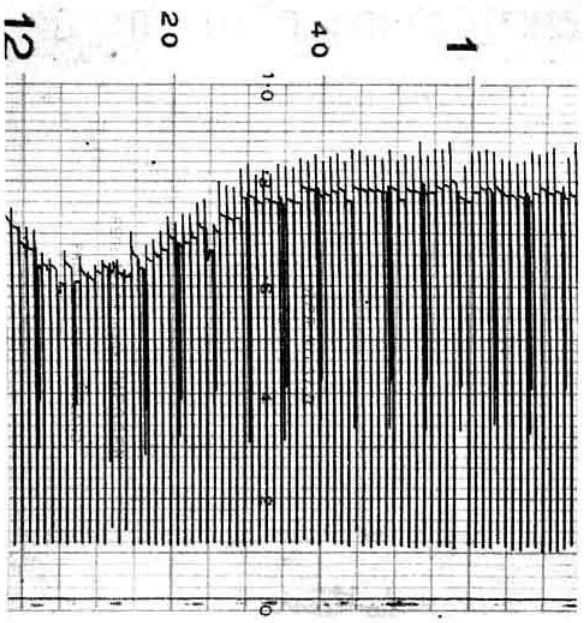


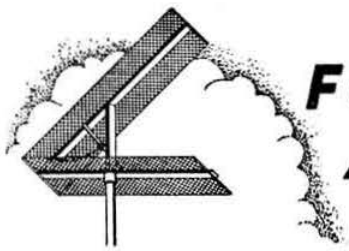
Fig. 1. Typical signal record of GB3VHF at Northampton. The example shown covers 75 minutes. Note the minute marker break and call-sign " smudge " once every 5 minutes. The minute marker is suppressed when it happens to occur whilst the call-sign is being sent, hence the gap towards the right of the chart.

The paper chart in the recorder runs at 3 inches per hour and time constants of the order of 1–2 seconds are used to eliminate rapid fading whilst the response to the minute marker of the GB3VHF transmission is such that the pen falls to zero during the 4 second break. This provides a check on the base line of the recorder showing whether a zero drift is taking place. A typical signal record is shown in Fig. 1. This facility also divides the recorder chart into 1 minute " bits " which are used as the basic unit in the statistical survey which is being carried out on the final records. The aim of this is to determine the percentage of total time for which the signal exceeds certain prescribed levels. This data will be used in support of the U.K. programme of C.C.I.R. Study Group V which is responsible for the study of all aspects of v.h.f./u.h.f. wave propagation. The Chairman of the U.K. study group is Dr. J. A. Saxton, Deputy Director of the Radio Research Station, Slough, well known for his research into v.h.f./u.h.f. wave propagation and also to those who have attended the International V.H.F./U.H.F. Conventions, organised jointly by the London U.H.F. Group and R.S.G.B.

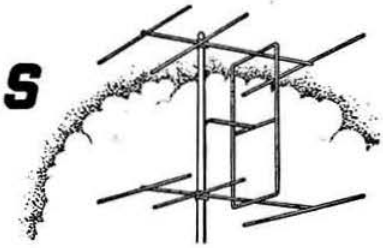
Reliability

Operation has been very successful. The transmitter has failed once due to a faulty capacitor. The keyer has shown a tendency to keep repeating the call-sign but this has now been cured although, for some reason, it still often sends the call-sign twice. The radio frequency which is measured weekly by the B.B.C. monitoring station located at Tatsfield, Kent, has kept within the limits 144·485 and 144·5 Mc/s, i.e., within 1·5 kc/s. As no special precautions are taken to ensure stability (the crystal is not even mounted in an oven), this is

(Continued on page 71)



FOUR METRES AND DOWN



By F. G. LAMBETH (G2AIW)*

FROM *QST*, July 1961, it is learnt that phase one of the Project Oscar Programme is planned to consist of orbiting a 100-milliwatt beacon transmitter with a c.w. identifier on 145 Mc/s. The main flight objectives will be:

(i) To attempt to obtain useful predictions of the satellite's orbital path by a statistical analysis of a large amount of relatively low-accuracy tracking data.

(ii) Qualitative analysis of signal propagation characteristics at 145 Mc/s.

(iii) Measurement of internal temperatures in the satellite to verify theoretical calculated temperatures.

(iv) Measurement of Doppler shift.

(v) Determination of the lifetime of the OSCAR package.

(vi) One of the most important purposes of all, to arouse amateur interest in the new age of space communications which is fast breaking all round us. The OSCAR Association hopes that this programme will encourage amateurs everywhere to sharpen their technical knowledge and make increased progress in the areas of high-gain steerable aerials, low-noise stable v.h.f. receivers and precision measurement techniques.

Amateurs copying the OSCAR beacon are asked to submit reports to the Project OSCAR Association, P.O. Box 183, Sunnyvale, California. To facilitate the submission of reports special forms are available from the Association.

OSCAR 1 was tested on April 9, 1961, in a triangular aircraft flight over the San Francisco Bay area. The 145 Mc/s beacon was heard over a wide area during the two and a half hour flight.

Northern V.H.F. Convention

The North West V.H.F. Group are arranging a Northern V.H.F. Convention to be held on Saturday, October 14, at the Grosvenor Hotel, Deansgate, Manchester. The proceedings will include a dinner, a 2m exhibition station, trade stands, demonstrations and a large raffle. The Convention is being jointly organised by Harry Boakes (G8SB) and Geoff Barnes (G3AOS). Tickets price 17/6 each may be obtained from T. H. Davidson (G3AGS), 101 Grange Drive, Blackley, Manchester 9. Phone bookings may be made to F. Nichols (G3MAX) (Day: Blackfriars 2946; evenings: Rusholme 1730).

It is hoped that many will come from the South to swell the numbers.

Region I I.A.R.U. V.H.F. Contest

The I.A.R.U. Region I V.H.F. Contest will take place between 18.00 G.M.T. on September 2 and 12.00 on September 3. Entries in duplicate should be sent to G2AIW as soon as possible after the event and must be postmarked not later than September 17. The rules were set out in full on page 26 of the July issue of the BULLETIN.

Let's see if we can get a really good number of entries from amateurs in the British Isles this year.

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

Two Metre News

G3KMS (Macclesfield) reports on the activities of GW3JZN/P during the Second 144 Mc/s Field Day, when G3JZN, G3MED and G3KMS made the difficult ascent of Drum Mountain, Caernarvonshire. They appear to have been well repaid for their efforts, making 89 contacts including GM2FHH/P, GM3HLH/A and GM3EGW. Conditions improved as the day wore on, and during the last hour some very excellent QSOs were made with South Coast stations. Incidentally, they felt that the overmodulation problem was very marked on this occasion, several stations producing large " whiskers " all over the band.

G2DHV/P (Surrey) worked 8 stations over 50 miles and 10 stations over 100 miles in the same contest including G3AYT/P (Staffs), G3ERD/P (Derbys), G3GTN/P (Shropshire), G3LAR/P (Norfolk), G3MAR/P (Birmingham), G3MNQ/P (Leics), G3OBD/P (Dorset), G8SB/P (Derbys), GW3JPB/P (Denbigh) and F9JY/M. This was all done with 15 watts to a 6 element close spaced Yagi. Seven other DX stations, including two GWs, were heard, and the DX worked is the best so far for G2DHV/P.

G3MTI (Malvern) experienced a good long spell of fair GDX, with few Continentals heard, and a well attended Contest which brought in some interesting counties. The main interest for Midlands stations was the expedition of G(M)3OPW/P to the North. G3MTI's usual operating has been pleasantly punctuated by personal QSOs with GM3DIQ, G3OYM/T and G3OSS, with their respective XYLs.

G3JR (Barnes) has been back on a 5 element Yagi lately, after 3 years' use of a 5 element quad. The reason for this is to get a clearer idea of the relative performances over a longish period. One June 24, at long last, G4GR (Monmouth) was worked. The month has also been a lucky one for the rarer counties. G3LAR/P in Suffolk was worked on June 25 and in Norfolk on July 1. On the same day G3JLA/P (Hunts) was raised on phone. On the 13th G3OSS/P was a welcome QSO from Herefordshire on c.w. and on the 15th from Breconshire.

G3LAR/P (reported by G3HWR) had a " fine old time " during the contest. On June 24 they went to a site two miles east of Gayton in Norfolk 220 ft. a.s.l. (N.G.R. TF 751205). Operating from 14.40 to 21.36 G.M.T. they made 17 contacts, running the usual 20 watts to a QQV03-10 feeding a 5 element Yagi at 27 ft. On June 25, Norfolk was impossible, so they went to Suffolk—an airfield seven miles south-west of Bury St. Edmunds. This site is 420 ft. a.s.l. (N.G.R. TL 787563). Operation from 13.55 to 17.47 G.M.T. brought 15 contacts. On the following weekend the Norfolk site was revisited and between 14.45 and 21.15, on July 1, 18 stations were worked, 15 of these new from that site. The word had got around! On the Sunday during the contest, they operated about half a mile farther east at about 300 ft. a.s.l. (N.G.R. TF 757208) using a 6-over-6 slot fed Yagi. There were many contacts including 39 portables. Though conditions were certainly quite good on both weekends they are satisfied that Norfolk is no more difficult than any other county —it just seems populated by pessimists! G2DQ/P was

heard on the same airfield, and he seemed to be enjoying himself! Many cases of out of zone operations were noted, with the usual crop of opportunists working out of zone just for one contact, and a surprisingly large number of stations in the Birmingham area working in Zones 4 and 5. A lonely GW was heard calling CQ in the London Zone.

G3HWR gives further news regarding the DXpedition with G3LAR from the first to the third weekends of September (inclusive). Both call-signs will be used /P. They will go out via Brecknock and Hereford during the contest on September 2-3, and then proceed through South Wales; exact dates are not yet known, but activity will definitely be mainly from GW with the emphasis on West Wales (e.g. Carmarthen, Pembroke, and Cardigan). The times will be 17.30 to 21.00 G.M.T. on weekdays and the whole of the Saturdays and Sundays for the three weekends. South Wales

Karl Lickfeld (DL3FM), right, with Ed Tilton (WIHDQ), V.H.F. Editor of QST, during his recent visit to A.R.R.L. Headquarters.

Zone frequencies will be used. Incidentally, G3HWR points out that portables usually cannot work after about 20.45 to 21.00 G.M.T. as they have to be back in their hotels at a reasonable time. As they usually start up at about 17.00 G.M.T. it would be a good idea if fixed stations came on nearer this time. Generally the portables work few stations before 20.00; there could be many more QSOs if the above were taken into account. The frequencies to be used will be 144·276 and 144·430 Mc/s.

G4LX (Newcastle) says there have been no reports of aurora during June. It is possible that July may prove different as the early part of the month showed a lot of disturbances.

G3EMU (Canterbury) reports that his best two days were June 24/25, when 15 Continentals were worked, nine being new ones. " It is marvellous where these PAs keep popping up from." A few portable excursions have been made to a point near Canterbury at 600 ft. a.s.l. The transmitter is 6J6/6J6/QQV02-6 at about 2 watts. A great effort is being made to keep skeds with G3CCH, F3XK and F3ZD, the two French stations usually being strong enough to QRM locals. They are only about 50 miles away and it is felt that they must be S9 always!

G3LTF (Galleywood) heard and called G3BW on June 25. G3ILD was worked that same day. June 26 brought G3JMA/P from Devon at 59+ and on June 30 Dresden TV was heard between 21.00/22.00 G.M.T. and DL2XM (G6XM) was worked 559 with DL9SY and DL1LB heard. G3LTF was out /P with G3JMA on July 2 and had a thoroughly good time, Work is being done on a new aerial using 10 element Yagis which seems to be very useful. On July 5, GM3EGW was worked 559, but no one else appeared to be about.

Great things are hoped for during the Perseids. Skeds have been arranged with six stations in six countries! Tests with SM3AKW on June 27, and 30, only yielded a few short bursts.

GI3OFT (Belfast 5) reports that activity there was at a low level during early June, mainly due to a vigorous " spasm " of rebuilds. Later, conditions in general showed an all round improvement. Early in the evenings things have been poor, however, DX being worked only by the " Night Owls." During the Second 144 Mc/s Field Day things were better than usual, with tropo propagation into the Midlands. G3AYT/P, G3HWS/P and GW3JZN/P put in consistently strong signals nearly all day, leading the GIs to believe either that there was little activity or that these were the few to search in the direction of Northern Ireland. It is emphasized that *all* GI stations operate within Zone 9—mostly between 145·8 and 145·9 Mc/s.

GI3FJA is now fully operational on s.s.b. (40 watts p.e.p.) while GI3CDF has commenced tests on s.s.b. from Co. Armagh and should now be on the air. Another new station is welcomed: GI3LEP (Newtownards, Co. Down) who will shortly be erecting a more elegant DX aerial system. He uses a modified SCR522 (30 watts input). GI3ONF is temporarily QRT during rebuilding, and GI3OMQ is looking for G and GM contacts with a newly erected 4-over-4 slot beam. GI3OFT himself is very satisfied with a new 8-over-8 slot beam now rotatable (remotely controlled) at 45 ft.

The first Scottish comment on the " netting " controversy comes from GM3GUI (Friockheim) who also takes a poor view of any suggestion that nets occupy 145·8 Mc/s upwards. " There are enough GMs on the surplus crystal frequencies," he says. Furthermore, crosstown nets are unlikely to hear DX, and if they net in their own zone frequencies and happen to be causing QRM to stations trying to work DX it should be easier to join the net, or even phone a net number and ask them to desist, whereas it would be much more difficult and expensive to do this from the DX end. Again, too many 2m stations do not appear to have receiving equipment on a par with their transmitters. GM3GUI heard only GM stations during the month although on June 25 at 21.40 G.M.T. G3OPW/P was heard calling CQ but did not answer a call, although he was later heard working GM3HLH/A RS44 on phone. On July 14 GW2HIY was worked via the aurora; signals were not good (56A in, 44A out). During quite a number of afternoons recently (15.00/19.00 G.M.T.) there have been auroral indications. GM stations worked were

NORTHERN V.H.F. CONVENTION
Grosvenor Hotel, Deansgate, Manchester

SATURDAY, OCTOBER 14, 1961

The Convention will commence at 2 p.m. and will include exhibition stands, demonstrations, a large raffle and a 144 Mc/s station. The Dinner will commence at 7 p.m. Tickets, price 17s. 6d. each, may be obtained from T. H. Davidson (G3AGS), 101 Grange Drive, Blackley, Manchester 9. Telephone bookings may be made by contacting F. Nichols (G3MAX) at Blackfriars 2946 (day) and Rusholme 1730 (evening). Further information may be obtained from G3AKX, G3AOS, G3EGK, G3KCB, G3LEE and G8SB.

Organized by the North West V.H.F. Group

GM2FHH, GM2DRD, GM3UM, GM3BCD, GM3DIQ, GM3LCP, GM3KPD, GM3DDE, GM3FSD, GM3LAV, GM4QV, GM5VG, GM6XW. There is a nightly sked with GM3FSD (Jedburgh, 80 miles) and they had 59 consecutive QSOs recently.

GM2FHH (Aberdeen) had a good contest and worked all the active GMs as well as GW3JZN/P, GW3KCB/P, G3CCH, G3BW, G3AYT/P G3ILD (who was a beautiful signal for over an hour) and G3KJK. GI5AJ also made a welcome appearance but no continental DX whatever was heard. GM2DRD is now back on 2m after a few years' absence.

News from Overseas

PA0FB (The Hague) says that the only very good conditions noted lately were on June 5 when he worked OZ9EN, OZ6KE, OZ1MC and OZ4AU, all around midnight. On June 24 PA0FB had a good QSO with F2BS (Rouen) and on the same day during daylight, G3GDR, G3MCS and G2DQ, G6RH and G3KMP were raised. G2CD/A after having called PA0FB, was not heard again. On June 25 several PAs worked GC2FZC who came in at RS58 and gave RS57/8. A lot of new PA stations are now on 2m e.g. PA0MED, PA0RIN, PA0COB, PA0KL, PA0KOL, PA0VYL. PA0FB's receiver for possible MS skeds is a 6CW4 r.f. amplifier (" exactly according to R.S.G.B. BULLETIN and it worked from the start,—very FB "), cascode crystal converter, followed by a Heathkit Mohawk.

PZK informs us that they have an experimental v.h.f. station on 2m and 70cms on Skrzyczne Mountain (QRA Locator JJ26 g) in the Bielskie Tatras. The station operates on 144·060 Mc/s and 432 Mc/s with an input of 100 watts on A1, A2 and A3. The call-sign of the station will be that of the operating Polish amateur. The operating roll will be changed weekly. The station will be on for the full 24 hours daily up to September 15, 1961.

For DX QSOs the station is in operation from 21.30/23.30 Central European Time, specially beamed westward, for PA, DJ/DL, G and other countries in the direction, between 22.00/23.30.

Schedules may be obtained from Eng. Jan Wojcikowski, PZK V.H.F. Manager, ul Orlikiego 1/8, Gliwice, Poland.

EA3JB reports that between August 13 and 20 the Madrid gang will be on the air on 2m under the call-sign **EA4URE** on A1 and A3. The frequency will be 144·000 Mc/s and the transmitter will run not less than 100 watts input. The aerial will be a long Yagi. The altitude of the site is approximately 6,500 ft. a.s.l. For trials there will be a station on 7020 kc/s A1.

There will soon be a powerful station (1kW) working from Barcelona, with a receiver of noise factor 2·5db which it is hoped will be used to co-operate with Project OSCAR.

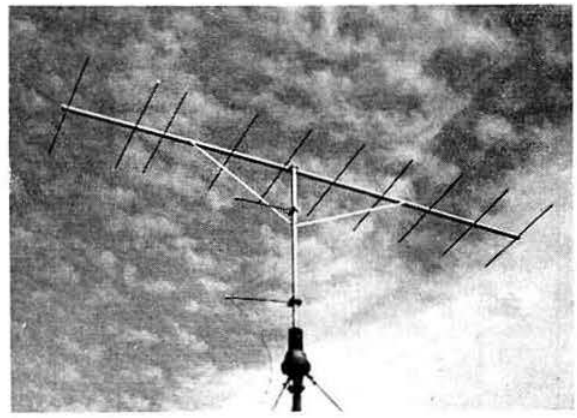
Seventy Centimetre News

G3KKD/T (Ely, Cambs) operated /A from Sutton St. James, Lincs, on the evening of June 25 when a very satisfactory vision and phone QSO was had with G3NOX/T at a distance of 51 miles. The pictures were of a signal-to-noise ratio of 20db. G3KKD/T's phone signals were S9 from a 6J6 doubler p.a. Both stations used 64 element beams with parasitic reflectors. A look at the map will show that these signals crossed the Wash and stations in Lincolnshire and east Yorkshire would have been able to receive them.

G3HHZ/T (Histon, Cambs) is active again after National Service and is on the air with low power vision and sound. **G3BBY** (Cambridge) is adding /T and will shortly be operating.

Quite a number are building converters and aerials to add to their TV receivers and are viewing pictures from the East Anglian net in various parts of the district.

G2XV (Cambridge) very much enjoyed the 420 Mc/s Contest. A larger number of stations appeared to be active than ever before, although conditions rather limited the possibilities. All stations heard were worked, with the exception of G5DF, G3JHM/A and G3LHA. The best contact was G3JZG/P (near Ludlow) for 120 miles—a nice signal when he managed to break through, but was only heard for about 10 minutes during the whole period. The barometer stood at 1004 mb at the start, and 1010 at the finish.



The 10 element long Yagi at HB9RO.
(Photo via G6JP)

G3LTF (Galleywood) found conditions good from June 19 to July 15, working G5NF on the 19th, G3JHM/A (59+) on the 29th, G2CIW on 25th and 30th which latter date also brought G5DF (Reading) after several years' attempts! G2CIW (110 miles) was also worked on July 1 and 9 whilst during the contest on July 15, 30 stations were worked, including, as the most distant, G3JWQ/P, G2CIW, G3HAZ/P G3KPT, G3BA, G3LHA and G3JHM/A. By the way, the Gs mentioned as 70cm QSOs for June 4 (BULLETIN, July, page 26) were ONs! Apologies.

CQ de GB3VHF (Continued from page 68)

surprisingly good. The receiver, which is in the care of Mr. V. R. Hartopp (B.R.S.15304), chief aerial designer of J-Beam Aerials Ltd., has only failed twice; in each case a component being responsible.

The charts returned from Northampton show many interesting tendencies and the results are being compared with meteorological information processed by the D.S.I.R. Radio Research Station at Slough so that in time a reliable method of predicting above-average propagation conditions may be evalued. Correlation obtained to date between certain tropospheric phenomena and meteorological records is very encouraging.

The photos used to illustrate this article were taken by Mr. F. C. Beadle (G3KLI), and are reproduced with the permission of the British Broadcasting Corporation.

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

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

Date	Time	Error
July 4, 1961	12.10 G.M.T.	780 c/s low
July 11, 1961	13.55 G.M.T.	1140 c/s low
July 18, 1961	13.23 G.M.T.	748 c/s low
July 25, 1961	18.27 G.M.T.	880 c/s low

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

NATIONAL FIELD DAY 1961—COMPLETE RESULTS

Posn.	Group, Club or Society, etc.	Call-sign(s) A Stn. *	B Stn.	1·8 Mc/s	3·5 Mc/s	7 Mc/s	14 Mc/s	21 Mc/s	28 Mc/s	Total Points
1	Stourbridge and District Amateur Radio Society	G3BMY	G8GF	327 *	410	412 *	644	101 *	—	1894
2	Gravesend Amateur Radio Society	G6BQ	G6VC	313 *	503	533 *	290	116	32 *	1787
3	Stamford and District Group	G3ARS	G3FUR	157 *	301 *	663	494 *	31	—	1646
4	Port Talbot Group	GW4CG	GW5VX	302 *	290 *	131 *	794	114	3	1634
5	City and County of Bristol Radio Society	G2IK	G6GN	317 *	318	417 *	381	88	—	1521
6	Belfast Group	GI3GAL	GI6YM	406 *	415	332 *	177	125 *	—	1455
7	Croydon Group	G5BZ	G6LX	265 *	303	328 *	432	106 *	19	1453
8	Wirral Group	G3NWR	G8BM	271 *	367	241 *	472	88 *	—	1439
9	Norwood and S. London Group	G3IIR	G8GP	260 *	356 *	369	388	52 *	—	1425
10	Cambridge and District Amateur Radio Club	G8PB	G5DQ	317 *	465	304 *	295	20 *	—	1401
11	Reigate and Redhill Group	G3BBR	G2AJS	243 *	358 *	366	338	74 *	6	1385
12	Edgware and Hendon Group	G5FG	G2IM	241 *	423	252 *	285	120 *	21	1342
13	Mitcham Group	G3NFA	G3LCH	233 *	366 *	420	133	123 *	4	1279
14	Crawley Amateur Radio Society	G8FR	G3TR	244 *	312	198 *	425	99 *	—	1278
15	South Birmingham Radio Society	G3LNS	G3OHM	292 *	354	269 *	281	59	—	1255
16	Dunbartonshire Group	GM3KBZ	GM3ITN	285 *	398	329	183 *	54 *	—	1249
17	Ayrshire Group	GM3KJF	GM3GSC	423 *	322	331 *	135	8 *	—	1219
18	York Amateur Radio Society	G3DTA	G3IDC	87 *	340	185 *	585	12 *	—	1209
19	R.A.F. Locking Amateur Radio Society	G8FC	G3IRK	274	252 *	355 *	206 *	111	3	1201
20	Weston-super-Mare Group	G5UG	G6LQ	278 *	432	297 *	167	12 *	—	1186
21	Oxford and District Amateur Radio Society	G8PX	G2DU	288 *	272	279 *	188 *	156	—	1183
22	Southampton Group	G5LR	G5OB	245 *	318	311 *	226	58 *	—	1158
23	Derby and District Amateur Radio Society and Derby Short Wave Exp. Group	G3ERD	G3EEO	178 *	438	324 *	180	22	12 *	1154
‡	Nottingham Amateur Radio Society	G6CW	G3MP	229	354	171	334	56	—	1144
25	Cannock Chase Amateur Radio Society	G4CP	—	—	349	317	470	—	—	1136
26	Sutton and Cheam Radio Society	G4DH	G8DF	220 *	325 *	272	276	22	—	1115
27	Grimsby Amateur Radio Society	G4XC	G2AJB	204	274	136	424 *	61 *	—	1099
28	Cardiff Group	GW5BI	—	277	514	306	—	—	—	1097
29	Exeter Group	G3ID	G3JW	126	181 *	265 *	443 *	71	—	1086
30	Blackpool and Fylde Amateur Radio Society	G8GG	G5ND	253 *	287	272 *	174	89 *	—	1075
31	Sheffield Amateur Radio Club	G8NN	G3KVG	284 *	296	254 *	203	27	—	1064
32	Coulsdon Group	G2DN	G3DVQ	257 *	212	293 *	206	76	—	1044
33	Bury and Rossendale Group	G2GA	G3BRS	211 *	322	298 *	211	—	—	1042
34	Lincoln Short Wave Club	G4BU	G5XL	211 *	302 *	258	186	79 *	—	1036
35	Slough Group	G6NA	G3XH	181 *	221 *	298	205	92 *	21	1018
36	East Molesey Group	G5LC	G6GB	292 *	307 *	281	93	29	9 *	1011
37	Aberdeen Town Group	GM3BSQ	GM3EOJ	253 *	149	288 *	229	78 *	—	997
38	Scarborough Amateur Radio Society	G4BP	G3KS	146	281 *	286 *	261	16 *	—	990
39	Glasgow Group	GM3AXX	GM3LKY	3 *	460	317 *	97	96 *	—	973
40	Rotherham Radio Club	G2LG	G4BD	37	416 *	289 *	181	49	—	972
41	Ilford Group	G3HIW	G3MML	223 *	357 *	334	42	—	—	956
42	Torbay Amateur Radio Society	G3GDW	G3NJA	247 *	268	304 *	121	12	—	952
43	Lothians Radio Society	GM3UM	GM3BCD	296 *	183 *	315	105	51 *	—	950
44	Ballymena Radio Club	GI3FFF	GI3FJA	225	150 *	330	154 *	68	—	927
45	Chelmsford Group	G6ZC	G4VF	163 *	282 *	168 *	249	44	—	906
46	Radio Society of Harrow	G3EFX	G3NQR	201	214 *	172	239 *	61	—	887
47	Macclesfield and District Radio Society	G3LDT	G3ATK	264 *	267	132	197 *	—	—	860
48	Thanet Radio Society	G2JF	G2IC	260 *	286 *	277	28	—	—	851
49	Hartlepools Amateur Radio Club	G3AWL	G3CHJ	83	390 *	242	114 *	12	—	841
50	Enfield Group	G3FD	G2NR	204 *	274 *	314	47	—	—	839
51	Acton, Brentford and Chiswick Radio Club	G5LQ	G3IIU	232	285 *	202	87 *	—	—	806
52	Liverpool and District Amateur Radio Society	G3LNG	G8DI	210 *	173 *	310	106	—	—	799
53	Purley and District Radio Club	G3GKF	G3DPW	301 *	304	109	—	83	—	797
54	Norwich and District Radio Club	G2YU	—	—	364	307	112	—	—	783
55	Chester Group	G3HEU	G3ATZ	143 *	357	198 *	60	20 *	—	778
56	Stroud Group	G3CBH	G5ZK	130 *	266 *	311	56	12	—	775
57	Dundee Group	GM3EUV	GM4HR	167 *	294	191 *	82	28 *	—	762
58	Pontypool Group	GW3AJ	GW3LDC	271 *	432	32 *	15	—	—	750
59	Cheltenham Group	G3CGD	G3CEG	247 *	261 *	143	82	—	—	733
‡	Kirkcaldy Amateur Radio Society	GM3OBC	GM3ODN	84	327	235	18	63	—	727
60	North Kent Radio Society	G2ATD	G3OFM	169 *	305	119 *	56	78 *	—	727
62	A.E.R.E. Harwell Amateur Radio Society	G3HS	—	—	285	241	197	—	—	723
63	Southgate, Finchley and District Group	G5FA	—	212	242	267	—	—	—	721
64	Gloucester Group	G3MA	—	300	271	149	—	—	—	720
‡	Harlow and District Radio Society	G3ERN	G3NIS	168	207	221	57	61	—	714
66	South Shields and District Amateur Radio Club	G3ELP	G3DDI	133	172 *	162	226 *	20	—	713
67	Portsmouth and District Radio Society	G6NZ	G3DIT	262 *	211 *	198	—	38	—	709
68	Dorking and District Radio Society	G3LBA	G3IAM	229 *	227	117 *	57	75 *	—	705
69	Leicester Group	G2KK	—	—	389	267	—	44	—	700
70	Danbury Group	G3VI	—	267	228	194	—	—	—	689
71	Scunthorpe Group	G3JWR	—	264	247	168	—	—	—	679
72	Flintshire Radio Society and Conway Valley Amateur Radio Club	GW3JGA	GW3JI	45 *	329 *	187	17	95 *	—	673
73	Guildford and District Amateur Radio Society	G3FZC	—	192	331	—	137	—	—	660
73	Ainsdale Radio Club	G2CUZ	G2DQX	211 *	253	89	103 *	4	—	660
75	Hull and District Radio Society	G3EFR	—	236	—	296	95	—	—	627
76	Welwyn Garden City Group	G5UM	—	149	330	146	—	—	—	625
77	Boston and District Group	G6GH	—	273	233	117	—	—	—	623
78	Wolverton and District Radio Club	G3LCS	—	225	273	123	—	—	—	621
79	High Wycombe Group	G5WW	—	197	271	150	—	—	—	618
80	Blackwood Amateur Radio Society	GW3MMU	—	308	290	—	15	—	—	613
81	Stockport Radio Society	G3FYE	—	224	226	161	—	—	—	611
82	Southend and District Radio Society	G5QK	—	175	286	147	—	—	—	608
82	East Kent Radio Society	G4WK	G3FUN	202 *	115 *	—	238	31	22	608
84	Huddersfield Group	G8NF	—	169	328	103	—	—	—	600
85	Barnsley and District Amateur Radio Club	G2AFV	G5IV	222 *	—	307 *	—	65 *	—	594
86	Falkirk Group	GM4QV	GM2TW	176 *	152 *	235	18	3	—	584
87	Newark Group	G3EIJ	—	—	351	205	—	6	—	562
88	Clifton Amateur Radio Society	G3GHN	—	—	256	193	109	—	—	558
89	Thetford Group	G3GIH	—	—	334	—	143	29	—	506
90	Southport Radio Society	G2ART	G3HWS	190 *	109	40 *	153	—	—	492
91	Shefford and District Amateur Radio Society	G2DPQ	G3IEX	217 *	192	7 *	72	—	—	488
* *	Plymouth Radio Club	G3KFN	G3HPC	25 *	241	52 *	92 *	73	—	483
93	Chingford Group	G3YF	—	—	206	124	87	—	—	417
94	Barnet and District Radio Club	G3FFA	—	226	98	86	—	—	—	410
95	Newmarket and District Group	G8QM	—	—	228	67	97	—	—	392
96	Caithness Amateur Radio Society	GM3COV	—	258	41	89	—	—	—	388
†	West Kent Amateur Radio Society	G4IB	—	32	—	274	82	—	—	388
98	Bath Group	G2ZR	—	—	199	47	132	—	—	378
98	Blandford and District Group	G2HCD	—	190	162	26	—	—	—	378
100	Forfar Town Group	GM6RI	—	279	98	—	—	—	—	377
101	Newbury and District Amateur Radio Society	G3LLK	—	193	155	27	—	—	—	375
102	Brentwood Group	G3LST	—	122	215	35	—	—	—	372
103	Halifax and District Amateur Radio Society	G3IGW	—	366	—	—	—	—	—	366
104	Medway Amateur Receiving and Transmitting Society	G2BP	—	179	—	108	55	—	—	342
105	Albright and Wilson Amateur Radio Society	G3OXD	—	124	211	—	6	—	—	341
106	Lichfield Amateur Radio Society	G3NEU	—	—	225	69	41	—	—	335
107	Bradford Radio Society	G3KSS	—	181	131	—	—	—	—	312
108	East Ham Group	G2ZZ	—	138	—	168	—	5	—	311
109	Lowestoft Group	G3MWZ	—	159	86	42	—	—	—	287
110	Leicester Radio Society	G3LPS	—	239	—	—	30	—	—	269
‡	Stoke on Trent Amateur Radio Society	G3GBU	—	119	141	—	—	—	—	260
‡	Mid-Lanarkshire Group	GM3MXN	—	—	96	118	45	—	—	259
113	Worksop Group	G8ON	—	—	212	—	30	16	—	258
114	Great Yarmouth	G3OEP	—	—	214	—	—	—	—	214
115	Wolverhampton Amateur Radio Society	G8TA	—	—	—	13	195	3	—	211
116	South Manchester Club	G3FVA	—	26	133	45	—	—	—	204
117	Stratford and District Radio Club	G3MDV	—	76	127	—	—	—	—	203
118	Ravensbourne Amateur Radio Society	G3HEV	—	180	—	—	—	—	—	180
119	Ilminster Grammar School	G3IGS	—	—	160	—	—	—	—	160
§ 120	Bedford Group	G4OL	—	85	—	—	—	—	—	85

† Excess Power
§ Late entry
‡ Separate logs not submitted for each band (see Rule 20)—claimed scores only shown
* * Omission (see Rule 19)

THE MONTH ON THE AIR

A CHRONICLE OF EVENTS ON THE HF AMATEUR BANDS

By R. F. STEVENS (G2BVN)*

THE editorial in *QST* for July 1961 was headed " 20 metres—a challenge " and dealt, at length, with a recommendation that U.S. amateurs should leave the frequencies between 14,335 and 14,350 kc/s clear for use by s.s.b. stations outside North America. This recommendation stems from the decision, in 1959, of the A.R.R.L. to request the F.C.C. (the U.S. licensing authority) to allow operation by U.S. telephony stations on the frequencies between 14,300 and 14,350 kc/s, which permission became operative on March 10, 1960. The A.R.R.L. stated that the main consideration behind this request was the concern for domestic operation, and therefore none of the I.A.R.U. societies were asked for their views on the matter, and indeed letters from R.S.G.B. Headquarters to the A.R.R.L. remained unanswered. It does not require a tremendous amount of foresight to realize that an alteration in the habits of nearly a quarter of a million operators in the U.S. would have its repercussions on the rest of the world. The position is now becoming such that stations in the U.S.A. are often unable to work overseas operators at the h.f. end of the band because of the tremendous QRM blotting out the weaker DX stations, with the result that the latter are commencing to operate around 14,125 kc/s well clear of the W/K QRM.

To arrest this move the A.R.R.L. recommend that 15 kc/s (sufficient space for seven s.s.b. stations) be left clear at the top end of the band. Users of the 14 Mc/s allocation are well aware that this portion frequently contains commercial stations and jammers, and is a resting place for phone patchers demanding a clear frequency, traffic which, in any case, has no place in an amateur band. Further, the tuning arrangements of many aerials systems lead to least efficiency at the band edges. A somewhat ironic note is that having created the situation by its one-sided action, the A.R.R.L. is now seeking the co-operation of amateur stations on a world wide basis. There was considerable opposition amongst W/K operators to the original proposal, and further opposition is now typified by a letter from R.S.G.B. member W2VZV who presents a logical argument against the recommendation and says, *inter alia* . . . " the League should recognize its mistake and either sponsor the use of the lower frequencies by foreign s.s.b. stations or make a new frequency allocation proposal . . . ". Further, operators in the Commonwealth and overseas are unanimous in their condemnation of the scheme.

Your conductor is firmly of the opinion that the plan has no merit and that all s.s.b. DX stations should continue to transfer their operations to the lower portion of the band in the region 14,120 to 14,140 kc/s. From there they can either enjoy relatively interference-free contacts with other DX stations, or listen in the American telephony sub-band for QSOs with North America.

News from Overseas

ZE3JO has some pertinent comments to make on the QSL situation as seen during operation from his home station in Salisbury, and also arising from various DXpeditions. The practice of sending a QSL first for every new contact has yielded a 50 per cent return during the period from June 1950 to the present time. Operation from VQ1, VQ2, VQ3 and VQ4 provided a 60 per cent return, with QSOs from Nyasaland giving a slightly better figure. It is surprising that the return from VQ1 and ZD6 is not greater in view of the lack of activity from these areas, and whilst ZE3JO prefers to send his QSL first he may be forced by circumstances to adopt the card-for-card system.

From **Cyprus ZC4CT** is again active, and it is hoped that the club station at R.A.F. Pergamos will soon be active on s.s.b. with a DX100 and SB10. ZC4CT has been issued with the calls MP4BDK, 'MAL, 'QAU, and 'TAP which he hopes to activate before the end of the year. The QTH of the club station at R.A.F. Akrotiri, **ZC4AK**, has been moved to a shack about a mile and a half from the domestic site, and this, combined with a rough road, may lead to a lessening of activity.

A copy of the licence issued by the British Residency at Bahrain to Bryan Bisley, **G3OFI** etc., shows separate calls for Bahrain (BDA), Abu Dhabi and Das Is. (DAC), Qatar (QAO), Muscat and Oman (MAB), and the Trucial States (TAE). All of these areas are at present recognized as separate countries for DXCC except Abu Dhabi and Das Island.

G3OEF has left to take an appointment in Sarawak and hopes to be on the air shortly with a DX40U transmitter. He will be particularly on the look out for U.K. contacts.

FA9UO, who is active on the three h.f. bands, would like to exchange tape recordings of QSOs with stations in the U.K. René speaks fluent English and his recording facilities

WIOHA operates this neat station.

* *Please send all reports to R.S.G.B. Headquarters to arrive not later than August 21.*

have speeds of 4·5, 9 and 19 centimetres per second. The QTH is 20bis, Av. Georges Clemenceau, El-Biar, Algiers.

W2ALS has recently been elected President of the Armed Forces Communications and Electronics Association for 1961-1962. This Association has a chapter which meets regularly in London.

A recent survey by A.R.R.L. revealed that the preferred mode of operation of U.S. stations, expressed as a percentage of the total was: c.w. 34 per cent; a.m. 28 per cent; s.s.b. 23 per cent; R.T.T.Y. 1·5 per cent; f.m. 0·3 per cent and others, including TV, 0·6 per cent. It is reported that there are now 217,102 current amateur licences in the U.S.A.; broken down into call areas the figures are: W1, 17,900; W2, 32,058; W3, 17,360; W4, 29,190; W5, 21,978; W6, 29,400; W7, 15,540; W8, 22,680; W9, 21,420 and W0, 21,000. The Californian kilowatts lead by a short head, and there are more stations in the smallest American call area than in the whole of the U.K. In Canada the position is: VE1, 840; VE2, 1,540; VE3, 3,500; VE4, 490; VE5, 560; VE6, 640; VE7, 1,400; VE8, 240; VE0, 15; VO1, 160 and VO2, 48.

DXCC News

The announcement by A.R.R.L. of separate country status for **Damao** and **Diu,** the Portuguese enclaves on the West coast of India, has now been qualified in that whilst Damao and Diu are each separate from Goa, they cannot be considered as two countries as they are not separated by 75 miles of foreign land. No operation has yet taken place from these enclaves and it is understood that it is not possible to obtain the necessary visa.

The **Kuwait/Saudi Arabia Neutral Zone** has been added to the Countries List w.e.f. November 15, 1945, and QSLs will be accepted for credit after November 1, 1961.

There is a move to obtain recognition for the seven Trucial States, which are apparently independent and self-ruling. These are: Abu Dhabi; Ajman; Fujairah; Dubai; Ras Al Khaima; Sharjah and Umm Al Qaiwan. (G3OFI). Will the carrot ever stop growing?

DXpeditions

From Suva **G3JFF/VR2AE/VR1M** writes to keep *M.O.T.A.* up to date on his movements around the Pacific. When this is being read operation will be in progress from **VR2AE,** usually around 14,020 and 21,020 with considerable activity at the weekends. Operation from **VR1M** should commence during the first week in September, earlier than at first anticipated. Mike mentions the possibility of operation from YJ1DL, who is at present inactive. All QSLs relating to the VR1M operation will be handled by **GW3LQP** in so far as the U.K. and Europe are concerned, with W1HGT officiating for W/K contacts.

The major DXpedition of all time is planned to commence in January or February 1962, with Gus, W4BPD doing the journeying, and W4ECI managing affairs from the States. Further details will be provided when definite dates are available.

The trip by **ZL3DX** envisages operation as **YJ1ZZ** from August 11 to 18, and as **VR4CC** from August 23 to September 5.

EI9AE (G3MVV) will be active during the period August 17 to 28 and QSLs should be sent to his home address. S.s.b. will be the main mode of operation, and the EI9 prefix should be attractive to the WPX hunters.

South Sandwich Islands is said to be the scene of a trip by several Argentinian operators but precise details are lacking.

The operation from St. Pierre and Miquelon by K1MMB eventually materialized as **FP8BR,** who has been worked from the U.K. on both 7 and 14 Mc/s. (G2FTK, G3NYA).

VP5CD will be the call of KP4AOO when operating from the Caicos Islands during December. The preferred method of operation will be c.w. on 14 Mc/s.

The portable Russian transmitter should, according to the schedule, now be in operation from **UA2AO,** whilst permanent s.s.b. representation from the Georgian S.S.R. will be provided by **UF6FB.**

GM counties difficult to contact on 1·8 Mc/s will be visited by **G3NFV** and **G3OCA** during the period August 29 to September 7. The stations will sign /P on phone and c.w. and will reply to all QSLs received.

Contests

The **Scandinavian Activity Contest** for 1961 will run during the following periods: c.w., 15.00 on September 16 to 18.00 on September 17; phone, 15.00 on September 23 to 18.00 on September 24. Operation will be on the bands from 3·5 to 28 Mc/s, and non-Scandinavians should work as many of the Scandinavian stations as possible. The same station may be worked only once per band; QSOs of mixed mode are not eligible. The prefixes to be counted as Scandinavia are: LA; LA/P; OZ; OH; OH0; OX; OY and SM/SL. There are classes for single and multi-operator stations, and the serial numbers to be exchanged consist of 5 numbers (phone) or 6 numbers (c.w.), being the signal report plus consecutive QSO serial numbers beginning with 001. One point is counted for every completed QSO with a multiplier of one for each of the prefixes mentioned above, but with a maximum of 8 per band. The final score is the sum of QSO points multiplied by the sum of the multipliers. Separate logs are required for each band and should be sent not later than October 20 to N.R.R.L., Traffic Department, Box 898, Oslo, Norway.

The Milan section of the A.R.I. is sponsoring a competition, in connection with the National Radio-TV Show, which will run from August 15 to November 30. The bands to be used are 3·5, 7, 28 and 144 Mc/s for contacts with Europe, and all bands for the remainder of the world. Full particulars can be obtained from A.R.I., Via Vittorio Veneto 12, Milano, Italy.

The Bilbao section of the U.R.E. (the Spanish national society) is sponsoring a contest in connection with " Feria de Muestras de Bilbao," and in order to obtain the diploma offered it is required that stations in the U.K. should contact 6 operators located in the province of Vizcaya. There are some 45 stations in this province, all with the prefix EA2. The contest runs from August 11 to August 31 and entries should be sent to U.R.E. (Diploma-Concurso), Apartado 530, Bilbao, Spain. Copies of the rules (in Spanish) are obtainable from G2BVN.

The results of the annual **CQ S.S.B. DX Contest** show that the leading G station was **G4CP** who amassed 34,556 points from 326 QSOs, followed by G3DO (27,368), G3NUG (27,132) and G8KS (22,440). The world wide winner was

CONTESTS DIARY

August 19-20	-	Scandinavian V.H.F. Contest
August 26-27	-	All Asian DX Contest
September 2-3	-	I.A.R.U. Region I V.H.F. Contest (See page 26, July 1961)
September 9-10	-	S.S.B. A.R.A. WAS
September 10	-	D/F National Final
September 17	-	Low Power Field Day (see page 86)
September 30-October 1	-	VK-ZL Contest (telephony).
October 7-8	-	VK-ZL Contest (c.w.)
October 8	-	R.A.E.N. Rally
October 28-29	-	CQ WW DX (telephony)
November 11-12	-	Second 1·8 Mc/s Contest
November 25-26	-	CQ WW DX (c.w.)
December 2-3	-	R.S.G.B. 21/28 Mc/s Telephony Contest R.S.G.B. 21/28 Mc/s Telephony Receiving Contest
December 3	-	OK DX Contest

**To coincide with dates of I.A.R.U. Region I v.h.f. contests.*

ZS5JY with 80,456 points from 712 contacts. The organizers lament that many stations active in the contest did not send in entries.

G3DO, second in the worldwide **Phone WPX Honor Roll**, now has 502 prefixes to his credit. The only U.K. station listed in the S.S.B. WPX Roll is **GW2DUR** with a score of 154. On c.w. the leading G station is **G2GM** with 365. The first Two-Way S.S.B. WAZ certificate has been issued to well known Soviet DX'er **UA3CR**. For those operators who do not wish to send their WPX cards to the U.S.A., the R.E.F. Awards manager, F9IL, has been authorized to check QSLs.

Awards

A new award is the **CPC (Canadian Provincial Capitals)** Award which requires proof of contact with each capital city of the Dominion of Canada. All contacts must be post-war except Newfoundland (VO1) which must be made after March 31, 1949. The 10 provincial capitals are: St. John's (Newfoundland) VO1; Charlottetown (Prince Edward Island) VE1; Halifax (Nova Scotia) VE1; Fredericton (New Brunswick) VE1; Quebec City (Quebec) VE2; Toronto (Ontario) VE3; Winnipeg (Manitoba) VE4; Regina (Saskatchewan) VE5; Edmonton (Alberta) VE6, and Victoria (British Columbia) VE7. This award is issued for all classes—c.w., a.m., s.s.b.—and is also available to short wave listeners. Confirmations, or a certified list signed by a radio club officer or two amateurs, to be sent to H. L. Benson, Box 52, Oakville, Ontario, Canada, together with a fee of $1 or ten IRCs.

The Certificate Hunters' Club, which was founded by Clif Evans, K6BX, offers seven classes of membership, the basic one being that a member holds at least 25 Amateur Radio awards. The Club offers a most attractive certificate, with seals for larger numbers of awards. Full particulars are given in the *Directory of Certificates* or can be obtained from K6BX, Box 385, Bonita, Calif., U.S.A. Latest U.K. CHC'er is G8PL, No. 269.

There have been some alterations to the conditions attaching to the **DUF award** offered by the French national society, R.E.F., through its awards manager, F9IL. Contacts with Tunisia are not valid after January 1, 1959, and only QSOs with French operators in Morocco will count after April 4, 1961. All the new African Republics are valid except Guinea, for which contacts must be dated before September 30, 1958. A new continent has been created called the "Austral and Antarctic French Lands" consisting of St. Paul and New Amsterdam (FB8XX); Kerguelen (FB8XX); Crozet (FB8), and Adelie Land (FB8YY). Valid contacts must be dated after September 1, 1960.

The Polish awards, "W21M" and "AC15Z" have been applied for by G8PL, but after three months there has not been any reply. A number of operators from all parts of the world have been obtaining very unsatisfactory results from cards submitted to the Japanese Amateur Radio League for their awards. In one case the QSLs were only obtained as the result of a visit by a member of an embassy in Tokio. Fortunately this off-hand treatment does not extend to individual Japanese amateurs, who are often very prompt with their QSL replies.

"Switch on your b.f.o. and listen to this for v.f.o. stability."

There is considerable interest in the new **USA-CA Award** offered by *CQ Magazine*, but until W/K stations begin to name their county on QSL cards, the sorting out is going to be quite a job. Apparently in Louisiana a "county" is known as a "parish." Record books for this award are obtainable from *CQ Magazine* for $1·25.

DX Briefs

G3NRD will be returning to Ascension Island as ZD8JP in about six months time.

VK1RW is believed to be in the U.K., and if so, would he please get in touch with G2MI regarding QSLs held for him at the R.S.G.B. Bureau.

VP6WD, the only station active from Barbados on s.s.b., will be QRT as from the middle of August. QSLs should go to W4OPM.

GC8HT will be the call of G8HT who will be retiring to a QTH in Guernsey in the near future.

G3PAD, the station of the Paddington and District A.R.S., is now on the air on the DX bands. A member now signs 9M2JC and is looking for U.K. contacts from 07.00 onwards.

DL2BR has returned to the U.K. from Germany, and will reply to QSLs sent to the address in *QTH Corner*.

UB5QK, well known Ukraine DX'er, in London during the Soviet exhibition, visited G3NBC and G2BVN. Equipment in use at UB5QK includes an AR88 receiver and a G4ZU beam. Guena is the chief operator at club station UB5KBB, and mentioned that a number of Chinese stations are heard in the U.S.S.R. including BY1PK who does QSL.

The **UA1KED** (Franz Josef Land) logs to April 30 are now held by RAEM and cards will be distributed through the bureaux. Rumour now has it that the station will remain

QTH Corner

CR6CA	P.O. Box 532, Benguela, Angola, Port. W. Africa.
CX6AS	P.O. Box 37, Montevideo, Uruguay.
DL2BR	Cpl. Booth, E. J., No. 1 Marne Lines, Catterick Camp, Yorks.
FP8BR	via K1MOD.
HS1R	via W5OZI.
IS1RIF	11RIF, via G. Farar 41, Milan, Italy.
KJ6BJ	U.S.C.G. Loran Station, Johnston Is. via A.P.O. 105, San Francisco, U.S.A.
KS4BC	via K4DWU, 619 Hoyle St., Durham, N. Carolina, U.S.A.
KX6BC	Navy 824, Box 117, P.M., San Francisco, U.S.A.
OD5CZ	P.O. Box 146, Kuwait.
K3HVN/PK	706 Mayo Rd., Glen Burnie, Maryland, U.S.A.
TG9AL	via W2CTN.
TL8AB	Box 171, Bangui, C. African Republic.
TL8AC	Box 785, Bangui, C. African Republic.
TR8AA	Box 13, Libreville, Gabon Republic.
TR8AB	S.G.C.F.G., Port-Gentil, Gabon Republic.
UA0LS	G. Mashankin, Kirov St., 24-3, Artem City, Primorsky, U.S.S.R.
VP2VJ	Fort Burt Hotel, Tortola, British Virgin Is.
VP3RW	via W2CTN.
VP5GT	Grand Turk A.A.F.B., G.M.R.D., Box 4187, Patrick A.F.B., Florida, U.S.A.
VR1B	via VK2EG.
VR1G	via W6BSY.
YN0NWO	via W8NWO.
ZD7SA	via W9FJY.
ZD7SE	via W9FJY.
5R8AB	Cerveaux François, Postes et Télécommunications, Tananarive, Madagascar.
6W8BQ	Boite Postale 190, Dakar, Senegal Rep., W. Africa.
9U5DS	Box 1186, Usumbura, Ruanda Urundi.
9U5PD	via ON4 Bureau.

* * *

R.S.G.B. QSL Bureau: G2MI, Bromley, Kent.

after the August date on which the operators were originally scheduled to leave.

ZD8SC, now in the U.K., will be pleased to replace any missing cards. In the past, large numbers of QSLs, some relating to alleged contacts long after ZD8SC had left Ascension, have been received. Such offenders' cards will henceforth be placed in the wastepaper basket. Requests, accompanied by a self-addressed envelope and I.R.C., may be sent to S. Crow, Friarnin, Park Drive, Ingatestone, Essex.

Band Reports

7 Mc/s has continued to produce North American signals during the late evening hours, **W3WJD** and **VE1ZZ** being heard at 22.50. Early morning listening revealed signals audible up to 07.30 with QRP **KN4NNM** at good strength at 06.20. DXpeditioner **FP8BR** was heard by B.R.S. 20317 at 23.25 with **VS1GX** heard the same evening at 22.50. An unusual one on this band was **VU2AJ** at 23.40. From South America **HK1AAK** was logged at 23.50 at good strength, and early mornings produced **KZ5MQ, VP5AR** and **ZL1AV,** all around 06.00. Our correspondent is of the opinion that the dearth of signals is due partly to lack of activity and conditions should not take the entire blame. G3KZR sends a note from the Soviet *Radio* recording a W.A.C. on 7 Mc/s occupying only 14 minutes on December 15, 1960, the operator being UA3VF.

14 Mc/s has been less productive than during recent months and on many days both mornings and evenings have failed to offer any worthwhile DX. From the Pacific

DXotic Showcase

Call-sign	kc/s	Mode	G.M.T.	Country
FO8AC	14,023	c.w.	07.00	Oceania
JT1KAA	14,030	c.w.	16.50	Mongolia
VP2VJ	14,033	c.w.	20.45	Brit. Virgin Is.
ZK1AK	14,050	c.w.	07.20	Cook Is.
KG6IJ	14,306	s.s.b.	18.15	Iwo Jima
KH6EDY	14,125	s.s.b.	07.20	Kure Is.
KW6DG	14,280	s.s.b.	20.45	Wake Is.
KX6BU	14,290	s.s.b.	21.00	Marshall Is.
VR1G	14,130	d.s.b.	11.45	Ocean Is.
TL8AC	21,201	a.m.	17.32	C.African Republic
TT8AB	21,150	a.m.	18.15	Tchad Rep.
5U7AC	21,220	a.m.	17.00	Niger Rep.

KH6EDY on Kure Is. has been worked around 06.00 with S7 signals and also later in the day at 13.00, and on the East-West net around 20.00. It is understood that this station is not permanent and may close down during the next month. KH6EDY has been worked both on c.w. (050) and s.s.b. (345). **VR1G** is now active on double sideband around 14,130, and from Cook Is. **ZK1AK** and **ZK1AR** provide c.w. representation at 06.00 with **ZK1BS** on s.s.b. (14,120). Called by North American stations, but not heard was **W7HMP/KB6** at 06.00. DXpeditioner VK2QJ was active from FK8 and as YJ1ZA, but made few contacts with Europe. **FO8AC** made a welcome reappearance and was worked by G2FFO. The best time to look for this area is between 06.00—07.00. **VR4CV** is a new station active from the Solomon Is. and prefers c.w. operation between 14,100 and 14,150. **KG6IJ** on Iwo Jima continues to radiate potent s.s.b. signals during the early evening hours often in company with KA2EB and KG6AJB. Nearer home ZA2KBC was worked by ZC4CT at 22.20 and it will be interesting to hear if a QSL is forthcoming. A change in propagation favoured **UA1KED** and his 589 signals were heard by many U.K. operators on several mornings between 07.00 and 09.00. **7G1A,** whose appearances on the band are erratic, has been heard dispensing contest type QSOs during both morning and evening hours usually between 14,030 and 14,060. Also from the South, **ZD7SA** has been worked at various times between 19.00 and 23.00 on c.w. **HV1CN** has been active on the c.w. end of the band with very strong signals (14,050) at many times during the day, and the QSL situation now seems to be very much better. **VP2VJ** in the British Virgin Islands is an unusual one worked at 20.45 on c.w. (030), whilst a number of Madagascar stations now using the prefix 5R8 attracted much attention and a few of the bad mannered work-at-any-cost types. **VK** and **ZL** stations, often missed during the early morning period have been heard with good signals around 21.30. Although there have been some bad patches the band has generally been able to produce some new ones for all except those on the 300 mark.

21 Mc/s has been open on most days on the South and South-Easterly paths and most of the DX has appeared on a.m. **ZC4CT** had c.w. contacts with **EP2BB** (15.25), **FR7ZD** (11.25), **TN8AT** (14.50), **VU2JA** (14.50), **4S7LB** (11.40) and **5U7AC** (14.50). From Africa **TL8AB** and **TL8AC** has been worked around 17.00, at which time signals have also been heard from the Congo (TN8) and Tchad (TT8). **5N2AMS** has produced a needle bending signal on most days and at the time of writing was still awaiting his Dahomey licence. **VS1DO** (16.30), **VS1DL** (15.00), **VS1GQ** (13.30) have been amongst the excellent signals heard from Singapore. On the same path **VS9MB** at Gan has continued to produce strong signals almost daily, with **VS9APH** (21.00), **VS9ARJ** (17.30) and **VS9AAC** (19.50) representing Aden. **AP2MR** continues to attract attention (18.20) whilst on occasion the later evening hours have produced signals from VP2, VP3, VP6, PZ1, KZ5 and KP4. An unusual one logged by B.R.S. 6841 was **K9UGL/KG4** at 21.00 **CR6CA** has been worked on both phone and c.w. (18.00) and provided a new one for G2FFO now up to 200 worked. **FB8XX** (Kerguelen Is.) has again been active on a.m. between 12.00 and 14.00.

28 Mc/s has attracted little attention although conditions on the Southerly path have continued to be quite good with signals peaking around midday. G3AAE reports working **ZS3AH, ZD6RM, CR6** and **ZE,** with A.2252 hearing **9Q5EB** (19.45), **VQ2s** (14.00) and **UP2s** (11.00).

* * *

Many thanks to the correspondents who have written during the past month and to *DX'-press* (PA0FX) and *West Gulf DX Club Bulletin.*

Information on overseas activity and band conditions will be welcome and should be sent to arrive at R.S.G.B. Headquarters not later than August 21.

Region 1 Field Day

THE Region 1 Field Day will take place this year on Sunday, September 17, from 09.00 to 17.00 G.M.T. Individual groups, however small, may compete provided they are operated by members residing in Region 1. Competing stations will be looking for contacts with portable stations outside the Region. Copies of the rules are available from the Regional Representative, B. O'Brien (G2AMV), 1 Waterpark Road, Prenton, Birkenhead.

R.A.E. Passed at 14

PETER EDWARD CHADWICK, son of H. S. Chadwick (G8ON) of Worksop, Notts., sat the Radio Amateurs' Examination on May 5, 1961, the date of his 14th birthday. He was later notified that he had passed. His father would be interested to learn whether Peter is the youngest person to sit and pass the R.A.E. The young man hopes to take his Morse test later in the year.

Test Report

The Minimitter M.R. 44/II Communications Receiver

REVIEWED BY W. H. ALLEN, M.B.E. (G2UJ)

THE Minimitter M.R.44/II communications receiver covers the amateur bands only from 1·8 to 30 Mc/s and was found on test to be a first-class performer on a.m., c.w. or s.s.b. Although the cost, £65, is well below that of any instrument with a comparable specification on the market at the present time, there is no evidence of compromise having been necessary between performance and price, and it would be an outstanding receiver indeed which gave all-round better results.

The Minimitter Communications Receiver type M.R. 44/II with its matching loudspeaker.

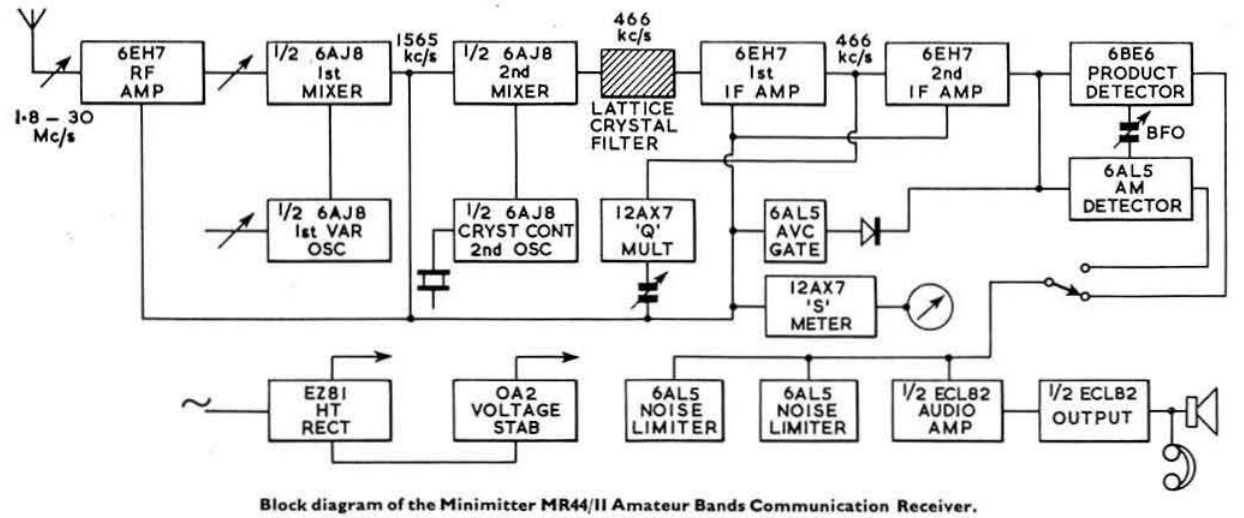
Circuit

The circuit is a double superhet, with intermediate frequencies of 1565 and 466 kc/s and the use of 6EH7/EF183 frame-grid valves of very high mutual conductance in the r.f. and both of the second i.f. stages undoubtedly contributes considerably towards the high overall gain and the extremely good signal-to-noise ratio.

The two frequency changers are 6AJ8/ECH81 triode-hexodes, the oscillator section of the second one being crystal controlled. Preceding the two-stage i.f. amplifier is a half-lattice crystal filter which makes a substantial contribution to the claimed response of 3 kc/s bandwidth at 6db down and 6 kc/s at 60db down and permits clean and crisp reproduction of a.m. and s.s.b. signals. As a further aid to selectivity a *Q* multiplier is provided, and although the full potentialities of this device are realized on c.w. reception, where it is possible literally to lift a weak c.w. signal out of the noise, it proved a useful adjunct on both a.m. and s.s.b. reception when extra selectivity was required. Minimitter pioneered the use of the *Q* multiplier in this country in their Model 37 and in the M.R. 44/II there is evidence that much further development has been carried out in this section. It was found that a measured increase of up to 15db in the strength of c.w. signal could be obtained *without any detectable increase in noise.* At first sight this may seem an impossibility, but it must be remembered that noise is dependent upon bandwidth, and if this is decreased at the same time as the gain is increased the performance noted may be obtained.

Separate demodulators are employed for a.m. (diode) and for c.w. and s.s.b. (product detector). A double-diode noise limiter with variable " cut " operating on both positive and negative peaks of noise is provided together with a crystal diode a.v.c. rectifier working in conjunction with a series gate thermionic diode, the a.v.c. constants being varied to suit a.m. or s.s.b. signals. A.v.c. is applied to the r.f. and both i.f. stages and although this is somewhat unconventional, the choice is amply justified by the excellent control obtained.

The a.f. section consists of an ECL82 triode-pentode the coupling values obviously having been chosen with some



Block diagram of the Minimitter MR44/II Amateur Bands Communication Receiver.

care to ensure an optimum audio response from the separate elliptical loudspeaker.

An EZ81 rectifier supplied from a transformer tapped for both 105/115 and 200/250 volt mains, provides the high-tension supply which is stabilized by an OA2 for the two local oscillators and the product detector/b.f.o. With the send-receive switch in the "send" position these three stages remain energized together with the a.f. section, h.t. being removed from the remaining stages.

The stability of the receiver is good and after warm-up c.w. signals on the 21 Mc/s band could be held for long periods right on the peak of the *Q* multiplier at maximum selectivity.

Tuning Mechanism

With the very high selectivity available in this receiver and the specific provision for s.s.b. reception, it is essential that a really good tuning control be provided and this is indeed the case. Each band is spread over the 8 in. wide slide-rule type dial and the tuning control, flywheel assisted, has a ratio of approximately 120 : 1 by means of a cord drive, which gives a light but positive action with an entire absence of backlash. The tuning knob is attached to a 0 to 100 degree dial and it is felt that if an index for this were provided together with an additional logging scale below the frequency calibrations on the main dial it would be an advantage in returning to a known frequency. The only other criticism of the receiver concerns the S-meter which is connected in the cathode circuit of a triode, the grid of which is fed from the a.v.c. line. On the model tested the meter was exceedingly sluggish, showing only S1 on signals of good strength, and requiring a really colossal input before the needle reached S9 at the top of the scale. We were pleased to note, however, that no provision was made for the "S9 plus 40db" type of report: after all, the official S scale does only go to S9!

The panel of the receiver is covered with a substantial Perspex sheet which gives protection to the panel markings and the well-ventilated case is finished in grey hammer-tone enamel with white plastic trim. A special feature of the receiver is the use of concentric controls for the i.f. and a.f. gain, *Q* multiplier selection switch and regeneration and the system-switch and b.f.o. tuning. As well as reducing the number of knobs to be accommodated on the front panel, it groups conveniently those controls which are normally operated together and was found convenient in operation. The remainder of the controls on the front panel include noise limiter adjustment, send/receive switch, band switch, *Q* multiplier tuning and headphone jack (which mutes the loudspeaker) while at the back of the chassis are found the calibration setting for the lower band edges, S-meter adjustment, co-axial aerial socket and sockets for tape recorder input, external relay control (spare contacts on the send/receive switch), send/receive switch contacts and a socket to which an external source of h.t. and l.t. may be connected. Also on this panel is situated an adjustment for the i.f. trap, which appeared to be quite effective as no interference or spurious responses were noticed although, in all fairness, it must be said that only a modest aerial was used during the tests.

Learning to use a Selective Receiver

With a highly selective receiver such as this it is more than usually necessary to learn how to use it to best advantage. Accurate setting of the b.f.o. tuning is essential for the reception of s.s.b. signals and attention should be paid to the clear instructions in the operating manual on this subject For optimum results on c.w., particularly when the *Q* multiplier is in use, the b.f.o. setting is again important and time spent in mastering the various controls will prove well worth while.

We have no hesitation in recommending this receiver and would congratulate the designers in producing an excellent instrument at a competitive price.

The Station behind the Call—G3BZU

THE Headquarters Amateur Radio Station, G3BZU, of the Royal Naval Amateur Radio Society is situated in *H.M.S. Mercury*, the Royal Naval Signal School, near Petersfield in Hampshire. The photograph shows the present layout at G3BZU.

The main transmitter is a K.W. Vanguard running 50 watts on both c.w. and phone. For Top Band a Marconi CNY2, shown on the right of the picture, is used. A choice of two receivers is available, either an Eddystone S.640 or a National HRO, both of which are fed via an RF24 unit (seen between the S.640 and the HRO speaker).

Other equipment visible in the photograph includes a Class D wavemeter and a field strength meter. Several other items of test equipment are available for use by members of the society. A large amount of electronic surplus is also available to members to use for constructional purposes.

Aerials at G3BZU, which is situated about 700 ft. a.s.l. on the South Downs, are a three band cubical quad, a 40m dipole running E/W, a 20m dipole running N/S, a half-sized G5RV type and an 80 ft. end fed wire.

In addition to maintaining the R.N.A.R.S. schedules on 7 Mc/s daily, the station is kept active on the DX bands and the DXCC total stands at 98: the last two are eagerly being sought! The society already holds the W.B.E. and W.A.C. certificates and others are being applied for.

The R.N. Amateur Radio Society, of which the membership is 90 including 5 overseas, is affiliated to the R.S.G.B.

Single Sideband

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

MANY amateurs are particularly interested in the constructional and experimental side of radio; it is perhaps natural that the single sideband method of communication, with its new techniques and almost unlimited scope for new circuit arrangements, has attracted the particular attention of those R.S.G.B. members who " like to roll their own."

Many letters received contain interesting comment and circuitry applicable to s.s.b. transmission and reception.

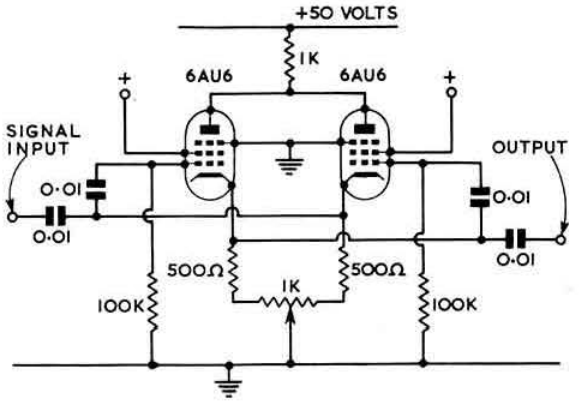


Fig. 1. Balanced mixer.

Circuit arrangement and technical detail is very welcome for inclusion in *Single Sideband* and all past correspondents are particularly thanked for the information that has been received.

Balanced Mixers and Demodulators

An ingenious balanced mixer circuit was published in *Electronic Industries*, October 1960. This is shown in Fig. 1, from it will be seen that the circuit uses two 6AU6 valves or equivalent. It is particularly interesting because neither the oscillator frequency nor the signal frequency appear in the output, only the beat frequency (i.f.) plus the second harmonic of the signal.

The balanced heterodyne detector shown in Fig. 2 is used in a Services communication receiver for s.s.b. reception. With the minor modifications shown in Fig. 3 it will work equally well on a.m. Its virtue is that not only is the carrier balanced out, but also the s.s.b. input, leaving only difference frequency (audio) across the load. The circuit is set up as follows: (i) Apply carrier injection oscillator only with no s.s.b. input; (ii) Connect a valve voltmeter or other suitable indicating device across the 500 K ohm load resistor; (iii) Adjust the

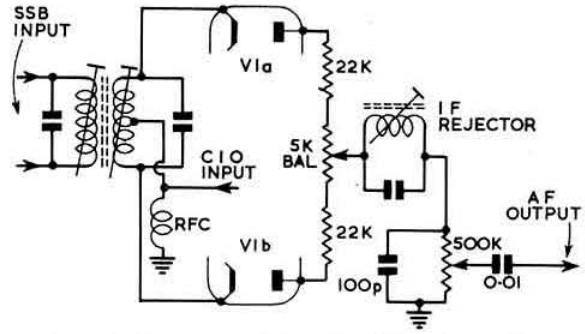


Fig. 2. Balanced demodulator. V1a, V1b, 6AL5, 6H6 or equivalent.

5 K ohm balance potentiometer for minimum reading on the indicating device.

Another useful heterodyne detector suitable for either s.s.b. or a.m. and with provision for balancing is shown in Fig. 4. For c.w. and s.s.b. reception both diodes are in use and the operation of the valves is basically the same as a

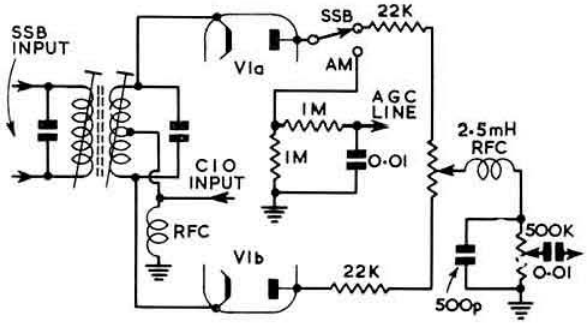


Fig. 3. Balanced demodulator.

balanced modulator used in a sideband exciter. When the s.s.b./a.m. switch is in the a.m. position a positive voltage is applied to the cathode of V1b; this half of the valve is then held non-conducting and V1a behaves as a normal envelope

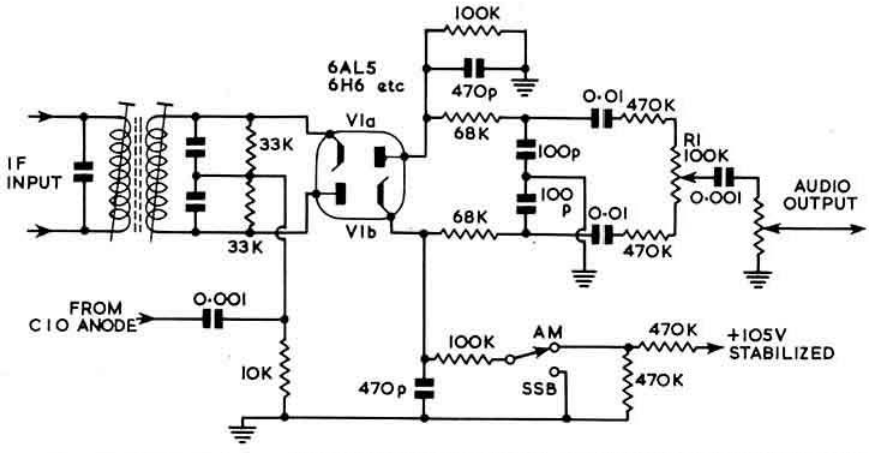


Fig. 4. Balanced demodulator. V1, 6AL5, 6H6 or equivalent. Adjust balance control R1 for minimum output of A3 signal.

* 5 Janice Drive, Fulwood, Preston, Lancashire.

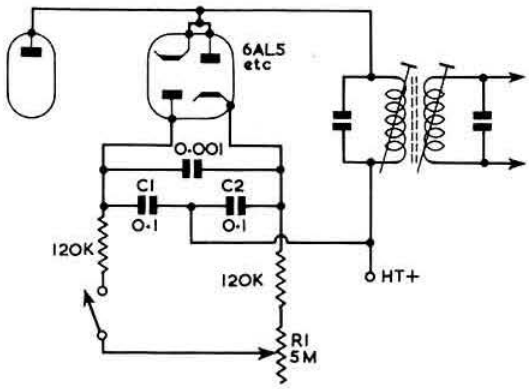


Fig. 5. I.F. noise limiter. When R1 is switched into circuit, C1 and C2 charge to the average peak level with such polarity that they oppose.

detector. It will of course be necessary while receiving a.m. to disable the carrier insertion oscillator, and this can be conveniently arranged with an additional pole on the existing s.s.b./a.m. switch wafer.

Noise Limiters

The subject of noise limiters is of particular interest to sideband operators because the usual arrangements associated with the existing detector (such as the well known Dickerts noise limiter fitted in the R.C.A. AR88) do not work satisfactorily under s.s.b. reception conditions where the signal diode is used as a heterodyne detector.

An arrangement in which the noise limiter is built into the i.f. amplifier was described in *QST*, June 1960. No further detail is available to the writer other than the circuit diagram in Fig. 5. It would however be very simple to include this limiter in the receiver, with the minimum of disturbance to existing wiring, and it should appeal to those experimentally minded.

BULLETIN readers will already be familiar with the clipper (peak limiter) type of noise limiter described in Part 5 of *Communication Receiver Design Considerations* and used in a number of modern receivers such as the Collins 75A4 and National NC300. This is normally connected at some point in the audio chain between the demodulator and the output valve, and in practice works very effectively, but has a disadvantage in that the limiting level has to be manually set.

Here then is a noise limiter development that looks as if it will provide the answer—it operates in the audio amplifier chain, so is not affected by the demodulator arrangement or the type of reception, and in addition is an audio follower and is automatic in action. It will be seen in Fig. 6 that the series diode is in the signal path; this diode is normally held conducting by a small positive potential applied through the 4·7 Megohm resistor derived from the second diode connected as a peak rectifier at the output valve anode. For all audio signals the series diode will conduct since the time constant of the anode can follow the syllabic variation. A steeply rising positive potential due to a noise pulse will raise the diode potential, since the anode cannot follow it, and the diode will therefore cease conducting, preventing the passage of the pulse. The peak rectification will adjust the applied potential to the series diode according to the amplitude of the audio signal at the output; time constants are so arranged that only normal signal variations are catered for. The limiter will be seen to be most effective on quiet parts of the transmission where impulse noise would normally appear worst. In order not to introduce speech clipping of transients on complex waveforms, a series resistor of 27 K ohms in series with the output valve and the peak rectifier, had to be used. Care has also to be taken to ensure no loss of pulse shape in the preceding amplifier.

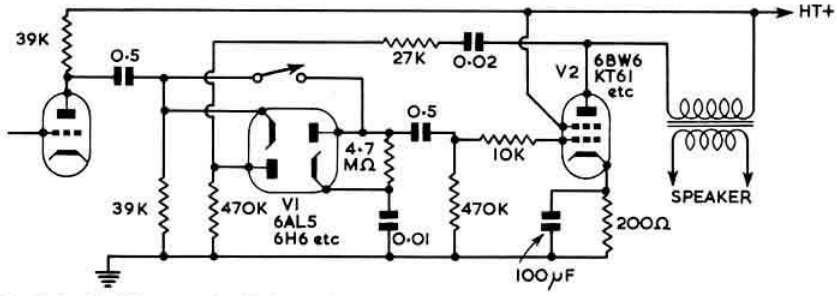


Fig. 6. Audio follower noise limiter. V1, 6AL5, 6H6, or equivalent; V2, 6BW6, KT61 or equivalent

Book Reviews

THE RADIO AMATEUR'S HANDBOOK (Thirty-Eighth Edition, 1961) by the H.Q. Staff of A.R.R.L. 616 pages, *QST* format. Over 1,300 illustrations, including 500 valve-base diagrams. Price 34/- post paid, from R.S.G.B. Publications, 28 Little Russell Street, London, W.C.1.

The 1961 edition of the *Handbook* shows subtractions, additions, and substitutions, in the usual annual way. These changes may be due to better designs or more up-to-date techniques, but some change there must be. Of the new material, one notices particularly the 40W inexpensive novice transmitter, the class AB1 modulator using four 1625's, and the modulation meter for amplitude-modulated transmissions. Also noteworthy were the phased s.s.b. exciter, and a c.c. converter for 1296 Mc/s.

One is always hesitant to criticize what is elsewhere so exceptionally good, but four very modest transmitter descriptions do not prepare one for six descriptions of ½ to 1 kW power-amplifier stages: indeed, one is a case of separate 1 kW stages for each band—which brings sad thoughts.

Two sections which seem quite inadequate for the present day are those dealing with transistors and single sideband. The amateur needs more fundamental knowledge of transistors and their peculiarities if he is ever to do even simple design jobs satisfactorily. He has, one hopes with the advance of scientific education, reached a stage when a simple formula will not deter him. It is true that single sideband is the subject matter of a separate handbook, but its fundamentals—like the fundamentals of transistors—are expected in a general handbook, and are found to be done only very lightly. In these two subjects much more is wanted—of the same quality as the rest—which is surely not an unpleasant criticism.

The *Handbook* is as indispensable as ever, and this new edition will be welcomed as warmly as its predecessors.—T. P. A.

MOBILE MANUAL FOR RADIO AMATEURS. (Second Edition, 1960.) Edited by the Staff of A.R.R.L. 279 pages of text, and many illustrations. Price 24/6 from R.S.G.B. Publications.

Assembled here under one cover are some 80 articles which have appeared in *QST*, representing the most noteworthy contributions to the subject of mobile operation. Articles on emergency and portable equipment are included for the first time. All aspects of mobile work are revised and brought up-to-date and the reader is given the best practical advice of amateurs who are active in this field.—T. P. A.

Society News

Panel of Experts

IT was decided at the 1959 Geneva Radio Conference to set up a Panel of Experts to study the problem of congestion in the bands between 4 and 27·5 Mc/s and to make recommendations as to the steps that should be taken for relieving pressure on those bands.

It was also decided at the Conference that the Panel should consist of 11 members, four of which would be the heads of the permanent organs of the I.T.U., namely, the Secretary-General and the Chairmen of I.F.R.B., C.C.I.R. and C.C.I.T.T. The other seven would be members of national adminstrations possessing special knowledge of frequency problems. Thirteen nominees were put forward for these seven places and it is of interest to record that Mr. Charles W. Sowton, O.B.E., of the British Post Office was among those chosen. The others are Paul A. Miles, U.S.A.; Vladimir Kouzmine, U.S.S.R.; Hiroshi Shinkawa, Japan; Yves Place, France; Julio Etulan, Argentina; and Carlos Nunez. Mexico.

The panel will meet in Geneva on September 11, 1961, with sessions expected to last about 30 days.

The TVI Problem and the Close Coupling of Aerials

FOR some considerable time the G.P.O. have met with difficulty in eliminating interference to television reception from amateur transmissions where there is close coupling between the amateur's transmitting aerial and the complainant's receiving aerial.

The normal method used by the G.P.O. of eliminating amateur interference to television (assuming that the amateur's transmissions are not at fault) is to insert a simple and inexpensive filter in the aerial lead of the affected receiver. This usually has the desired effect where the aerials are reasonably separated; but when they are closely coupled the normal filters prove ineffective. It then becomes an expensive proposition to eliminate the interference by additions and modifications to the affected receivers, and the complainant is often reluctant to incur such expense to remove something which he believes is not his fault.

The G.P.O. have come to the conclusion that the problem could be simplified and the cost of the remedy substantially reduced if the distance between the two aerials could be increased. It seems reasonable, therefore, that the " second comer " should be asked in the first place to consider moving his aerial and this is what in fact now takes place.

To prevent new cases arising the G.P.O. propose to draw the attention of each new amateur licensee to this matter by enclosing an appropriate letter with his licence.

The G.P.O. would be glad if amateurs already licensed would bear in mind the foregoing points whenever they are considering resiting their aerials, or problems of interference arise.

The G.P.O. have assured the Society that where the television owner is " second comer " they will not hesitate to ask him to move his receiving aerial away from an amateur aerial which was already in existence if by so doing clearance of the interference could be simplified.

The following is a copy of the letter which the G.P.O. proposes to send to new licensees:

" I have pleasure in sending you the enclosed Amateur (Sound) Licence. The call-sign allocated to your station is G . . . .

Clause 4 of the licence specifies that the apparatus in the station shall be so designed, constructed, maintained and used that the use of the station does not cause: (*a*) any avoidable interference with other amateur stations or (*b*) any interference with any other wireless telegraphy. In order to prevent interference due to close coupling of aerials, the aerial to be used for the station should be sited as far as possible from any existing television or other receiving aerials in the vicinity. This is particularly important if it is proposed to install an indoor transmitting aerial, e.g. in the loft, where interference may be conducted through the electricity supply wiring. In some circumstances it might not be possible to use an indoor aerial."

Proposed Memorial to the late Gerald Marcuse (G2NM)

THE Radio Amateur Old Timers' Association, of which Association the late Gerald Marcuse (G2NM) was a Founder Member, is sponsoring a Memorial Fund to provide an oak or teak seat and/or a lych gate outside Bosham Church, Sussex, and, subject to permission being obtained, a plaque outside the house in Caterham, Surrey, from where Gerald Marcuse carried out his pioneer Empire broadcasts and did much of his early experimental work. The call-sign G2NM, with reproductions of the R.S.G.B. and R.A.O.T.A. badges, will be hand-carved on the seat or lych gate.

Amateurs generally are invited to contribute to the Gerald Marcuse Memorial Fund, donations to which should be made payable to John Clarricoats (Marcuse Memorial Account) and sent to 16 Ashridge Gardens, London, N.13, not later than October 1, 1961. Mr. Clarricoats is the Founder-Secretary of R.A.O.T.A.

Any surplus monies will be credited to the R.A.O.T.A. Benevolent Fund and a copy of the Memorial Fund Account will be sent to all subscribers.

More Pirates Fined

ON July 3, 1961, at Sedgley (Worcestershire) Magistrates' Court, W. O. Raybould of 16 Brookbank Road, Gornal Wood, Dudley, pleaded not guilty to a charge of using wireless telegraphy apparatus without a licence. He was found guilty and fined £50. He was also ordered to pay £7 7s. costs and to forfeit the apparatus.

On July 6, 1961, at Tettenhall Magistrates Court, W. G. Pitt of The Caravan, The Olives, Rookery Road, Wombourn, Wolverhampton, pleaded guilty to a charge of using wireless telegraphy apparatus without a licence. He was fined £25 and ordered him to pay £5 5s. costs. He was also ordered to forfeit the apparatus.

At Tottenham Magistrates' Court on July 21, 1961, David Henry Wadkins of 100 Farndale Avenue, London, N.13, pleaded guilty to a charge of using wireless telegraphy

apparatus without a licence. He was fined £10 and ordered to pay £5 5s. costs.

At Eccles Magistrates' Court on July 24, 1961, Harry John Powell of "Capella," Denstone Avenue, Eccles, Manchester, pleaded guilty to a charge of using wireless telegraphy apparatus without a licence. He was fined £20, ordered to pay £3 3s. costs, and to forfeit the apparatus.

Proposed Dorset County Meeting

MR. A Barrett (G5UF), C. R. for Dorset, 4 Radio Station Houses, Dorchester, is contemplating holding a County Meeting in Poole in October and would appreciate indications of support from members, especially those living in the county.

New Region 11 Representative

MR. Robert Jones (GW3JI), "Beirut", Albert Drive, Deganwy, Caernarvonshire, has been duly elected to serve in the office of Region 11 Representative in succession to the late Fergus Southworth (GW2CCU).

R.S.G.B. QSL Bureau

THE R.S.G.B. QSL Bureau will be closed from August 28 to September 18 while Mr. Milne is away on holiday. Members are asked not to send cards or envelopes to arrive during this period.

Mr. George Verrill

DUE to the illness of his mother, Mr. George Verrill (G3IEC) much regrets that delays have recently occurred in dealing with claims for R.S.G.B. certificates and in the rapid dispatch of QSL cards. Mr. Verrill, who is the Society's Honorary Certificates Manager and one of the Society's QSL Sub-managers, hopes to clear all outstanding certificate claims within a short time as well as dealing with QSL matters.

Correction

IT was stated in the July issue that the late H. V. Griffiths, M.B.E., was a son of the late Josh Alexandre, the original holder of the call G2GF. Subsequent enquiries show that both statements were incorrect for which we apologise. The call G2GF was indeed held by the son of Josh Alexandre (P. T. E. Griffiths) but the original holder was Mr. J. E. Newson, now G3GY.

Royal Signals Amateur Radio Society

THE inaugural meeting of the Royal Signals Amateur Radio Society was held at Blandford, Dorset, on June 23, 1961. Major-General E. S. Cole, C.B., C.B.E. (G2EC), presided.

The Signals Officer-in-Chief, Major-General A. M. W. Whistler, C.B.E., has consented to be President of the society. The following officers were elected: *Vice-President*—Major-General E. S. Cole, C.B., C.B.E. (Retd.), G2EC; *General Secretary*—Captain J. E. P. Philp, R. Signals, G3NJM, 11th Signal Regiment (Depot), Vimy Lines, Catterick Camp, Yorkshire; *Treasurer*—Major G. S. Symons, R. Signals, G3DSS.

Membership is open to all past or present Royal Signals members of the Regular Reserve or Territorial Army. The subscription is 2s. 6d. per annum or £2 for life membership. Club secretaries are requested to apply on behalf of their clubs, giving the names of members wishing to join the society.

The Headquarters station G3ICO, in Catterick Camp, will shortly be active on all bands.

When writing to the Author of an article published in the BULLETIN please enclose a stamped addressed envelope for reply.

Longleat Mobile Rally

FOR the fourth year in succession, the weather was perfect for the Longleat Mobile Rally, held this year on June 25. The attendance of 500 was well up to expectations though a drop on the figures for last year would not have been surprising in view of the number of similar events now being arranged. Of the 50 vehicles equipped for mobile operation, 35 had gear for Top Band and 8 for 144 Mc/s.

The *concours d'elegance* was won by V. G. Page (G3IVP) with a s.s.b. rig for 1.8 and 3.5 Mc/s installed on his 1958 500 c.c. Matchless motorcycle. The equipment is largely transistorized. Other prizes were won by G2CDN (long distance contact with control on Top Band and highest field strength on the same band), G3NAE (long distance contact with control on 144 Mc/s) and G3LSF of Southport (longest distance travelled from and to home on the day of the Rally). The prizes were presented by the Marquis of Bath.

An innovation this year was a demonstration of closed circuit Amateur Television by G3NDT/T.

Prizes for the following ticket numbers were unclaimed and may be obtained by writing to C. N. Chapman (G2HDR), "Yeovil," Stoke Hill, Stoke Bishop, Bristol 9: pink 15, 89 and 124; green 16, 178 and 292. A child's pair of spectacles were also found and application should be made to Mr. Chapman for their return.

South Shields Mobile Rally

THE third annual mobile rally organized by the South Shields and District Amateur Radio Club took place on July 9, attracting a record attendance of 350. The rally station, G3KZZ/A, was kept very busy on Top Band until 3 p.m. but the 80m station closed down at 12 noon for lack of contacts.

The first prize for the best equipment went to G3NQV/M for his home-made transistor power supply and second prize to G3GRF/M for an aerial tuning unit and pre-selector. The award for the longest distance travelled went to G3JFH/M of Cheltenham, who drove overnight from the South Birmingham Rally the day before. An obstacle driving competition was won by G5WZ (second op), followed by G3JFH and G3OKG. G3DSA/M, G3NCE/M and G3JFH/M led a receiving test while the Morse code sending competition was won by a short wave listener, 14-year-old J. P. Oliver of Hartlepools.

Silent Keys

IVOR JONES (GW3KY)

It is with deep regret that we report the death of Ivor Jones (GW3KY) of Llanfwrog, Anglesey, on July 1, 1961, at the age of 51.

Licensed in 1938, Mr. Jones was very active on all bands until his illness prevented him operating. He recently became interested in s.s.b. Although somewhat cut-off from other amateurs in Holyhead, visitors were always assured of a hearty welcome. He will be sadly missed by his many friends in the radio trade and the Amateur Radio movement.

Our sincere sympathy is extended to his widow and family in their grievous loss. GW5YB and GW3DGZ.

ERNEST GEORGE DENNIS (G3BEE)

It is with sorrow that we record the death on May 31, 1961, of Ernest George Dennis (G3BEE) of Stubbington, Hampshire.

Mr. Dennis started work in the G.P.O. telegraphy service in 1903 and in 1904 joined the Royal Marines Artillery, transferring to the Wireless Telegraphy Branch two years later. In 1922 he retired from the Royal Navy but was recalled in 1939, returning to civil life and the Foreign Office until he retired again in 1953. It was during this period he obtained his amateur licence. From then on, he took a great interest in all Amateur Radio activities.

Greatly respected for his many kindnesses, he will be much missed by all his friends. C. H.

The Mullard Award Presentation

THE presentation of the Mullard Award for 1960 took place at St. Teresa's, Long Rock, Marazion, Cornwall, one of the Group Captain Cheshire, V.C., Homes on Sunday, July 9, 1961.

This annual award is given to the member of the Radio Society of Great Britain who has, through the medium of Amateur Radio during the preceding year, rendered outstanding personal service to the community by his own endeavour or by his own example of fortitude and courage. This year the Award was made jointly to Enid Bottomley (G3OHB) and Graham Thomas (G3OGT), both patients at the Home.

Enid cutting the special cake provided by local amateurs. Also in the picture Graham Thomas, Lord and Lady St. Leven, Group Captain Cheshire, V.C., and Major C. W. Andrews, M.C., G2TP.

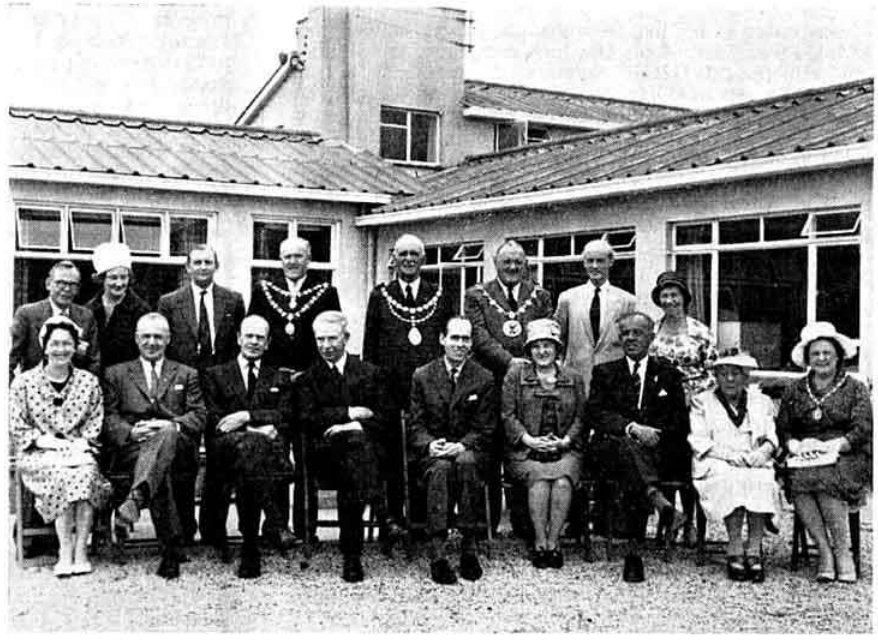
Major C. W. Andrews, M.C., G2TP, congratulating Enid and Graham on winning the Mullard Award for 1960.

Group Captain Cheshire, in replying, thanked Mullard Ltd. and the Radio Society of Great Britain, expressed his gratitude and the hope that the day might come when other Amateur Radio stations might be installed not only in Homes

(*Continued on page 85*

Amongst those present at the ceremony were Lord and Lady St. Leven, Group Captain Leonard Cheshire, V.C., The Mayor and Mayoress of Penzance, The Mayor and Mayoress of St. Ives, the Chairman of the West Penwith Rural District Council, the parents of Enid and Graham, and substantial representation from local and visiting amateurs.

An introductory speech was made by Lord St. Leven while the purpose of the award was explained by the President, Major-General Cole (G2EC). The award itself, a Moseley beam, was presented by Major C. W. Andrews (G2TP) on behalf of Mullard Ltd. Lady St. Leven then presented a beam motor and direction indicator which had been provided by the generosity of Cornish amateurs.



Group taken at the Mullard Award Presentation ceremony at St. Teresa's, near Penzance, Cornwall, on Sunday, July 9, 1961. Group Captain Cheshire, V.C., is seated in the centre of the front row with Lord and Lady St. Leven on his right and left side. The President of the R.S.G.B. (Major-General E. S. Cole, C.B., C.B.E., G2EC) is next to Lord St. Leven and Major C. W. Andrews, M.C., G2TP, is next to Lady St. Leven. Mr. John Watson, G3AST (Cornwall C.R.), is at the extreme left of the back row. The civic heads of Penzance, St. Ives and West Penwith with their ladies are also in the picture.

Council Proceedings

Résumé of the Minutes of the Proceedings of 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 June 24, 1961, at 2 p.m.

Present: The President (Major General E. S. Cole in the chair), Messrs. N. Caws, C. H. L. Edwards, K. E. S. Ellis, R. C. Hills, E. G. Ingram, L. E. Newnham, F. A. Russell, G. M. C. Stone, P. H. Wade, A. C. Williams, E. W. Yeomanson (Members of the Council) and Miss A. M. Gadsden (Assistant Secretary).

Apologies for Absence were submitted on behalf of Mr. A. O. Milne, Mr. F. K. Parker and the General Secretary (who was convalescing from his recent illness).

Absent: Dr. R. L. Smith-Rose and Mr. J. D. Kay.

* * *

Membership

Resolved (i) to elect 63 Corporate Members and 33 Associates; (ii) to grant Corporate membership to 4 Associates who had applied for transfer.

Application for Affiliation

Resolved to grant affiliation to Albright and Wilson Amateur Radio Society.

Amateur Radio Handbook

Consideration was given to a further progress report prepared by Mr. Rouse. It was agreed that in view of the extreme urgency of meeting publication date temporary staff should be engaged if it is found to be necessary.

O.R.M.s

Resolved (i) to authorize the Region 6 Representative (Mr. Lewis) to hold an O.R.M. in Cheltenham on Sunday, October 8, 1961; (ii) to appoint the President, Mr. Stone and Mr. Russell as the official representatives of the Council to attend the O.R.M. to be held in Newbury on October 1, with Mr. Caws as reserve, in the event of the President or Mr. Stone not being able to attend.

Lists of New Members

Consideration was given to a Recommendation submitted by the East London District that R.R.'s should, as a matter of course, send the names and addresses of new members and information regarding changes of address to their T.R.'s.

It was agreed that the Membership and Representation Committee should be asked to consider preparing a suitable notice for publication in the R.S.G.B. BULLETIN based on the recommendation of the East London Group.

The Council agreed to place on record their view that Headquarters has done all that they can reasonably be expected to do to ensure that R.R.s are supplied with up-to-date membership information.

London Lecture Meetings

It was reported that six members only had replied to the *Current Comment* published in the May issue of the R.S.G.B. BULLETIN.

Resolved (i) to apply to the Institution of Electrical Engineers for permission to arrange lecture meetings in the Faraday Room on Fridays, October 27, 1961, and March 30, 1962, and for the Presidential Address to be delivered in the Lecture Theatre on Friday, January 26, 1962; (ii) to invite the Technical Committee to recommend the names of suitable lecturers.

Affiliated Societies

Arising from a suggestion put forward at a recent O.R.M. it was:

Resolved that those Affiliated Societies which already receive one copy of the Society's Journal each month on payment of a special BULLETIN subscription of 10/6 per annum may receive one additional copy each month on payment of a further sum of 12/6 per annum.

Midland Amateur Radio Society

Resolved to authorise the President to attend the Annual Dinner of the Midland Amateur Radio Society on October 7, 1961.

R.A.E.N. Matters

Mr. Edwards reported verbally on the meeting of R.A.E.N. officers held in Chelmsford on May 14, 1961. An expenditure of only £1 had been incurred as there had been no charge for the room.

Resolved to approve an expenditure not exceeding £19 on a R.A.E.N. officers' meeting in Leeds.

Reports of Committees

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

Finance and Staff, May 28, 1961; Exhibition, June 5, 1961; Contests, June 15, 1961.

Resolved (i) to defer consideration of the Report of the Finance and Staff Committee; (ii) to receive the remaining Reports; (iii) to accept and adopt the various Recommendations of the Exhibition and Contests Committees. (The Recommendations related to the appointment of a Stand Manager at the Earls Court Radio Show and Radio Hobbies Exhibition and to various contest matters.)

The meeting terminated at 5.45 p.m.

Mullard Award Presentation (Continued from page 84)

in England, but in Homes at some of the many locations abroad. Graham and Enid in turn from their wheelchairs warmly thanked the donors and all others who had been associated with the ceremony.

At the conclusion of the presentation and speeches, tea, provided on a generous scale jointly by the Home and by the wives and families of local amateurs, was enjoyed in the grounds of the Home.

The Society is most grateful to Mr. John Watson (G3AST) and all other Cornish amateurs and their families without whose efforts the ceremony would not have been possible.

To Enid and Graham, good luck and good DX.

E.S.C.

United States May Seek Amateur Licence Fees

IT is reported from Washington that Mr Newton Minow, head of the Federal Communications Commission, recently proposed in a congressional testimony that U.S. radio amateurs should be charged a fee for their operating permits. Mr. Minow told a House Appropriations Sub-Committee that he considers amateurs should contribute two dollars each for their operating permits in order to help pay for F.C.C.'s licensing activities. Mr. Minow stated that F.C.C. handles each year hundreds of thousands of licences " in a situation that is like applying for a driving licence."

(*From Metro Modulator, Toronto. Special to 73 News Service via Harc News, Kansas City, Kansas.*)

SOUTH WALES REGIONAL MEETING
PARK HOTEL, CARDIFF

Saturday, September 16, 1961

Programme:

2 p.m.	...	**Assemble**
2 p.m.	...	**Opening of Exhibitions**
2.15 p.m.	...	**Business Meeting**
5 p.m.	...	**High Tea**
6 p.m.	...	**Raffle**
6.15 p.m.	...	**Talk by the President**

The Council will be represented by the President, Major-General E. S. Cole, C.B., C.B.E. (G2EC), Mr. C. H. L. Edwards (G8TL) and Mr. A. C. Williams (GW5VX).

In addition to the Trade Exhibition, there will be an Exhibition of and Competition for amateur-constructed equipment. Entries for the amateur-constructed equipment competition should be sent with the application for tickets, giving brief details of the entry.

Inclusive cost 15s., Ladies 10s.

Application for tickets should be sent, with the appropriate remittance, to Mr. D. C. J. Green (GW3MRI), 36 St. Augustine Road, Heath, Cardiff. Last date for reception of bookings September 9.

CONTEST NEWS

— RESULTS —— REPORTS —— RULES —

Low Power Field Day, 1961

THE rules governing this contest are as follows:

Duration: 10.00 G.M.T. to 17.00 G.M.T. on September 17, 1961.
Eligible Entrants: All fully paid-up Corporate members of the R.S.G.B. resident in G, GC, GD, GI, GM and GW. Multiple-operator entries will be accepted provided only one call-sign is used. (See General Rule 7.)
Contacts: May be made on c.w. (A1) only in the 1·8, 3·5 and 7 Mc/s bands. Each transmission must include the letters LFD.
Scoring: *Five* points may be claimed for each contact with a portable or mobile station, and *one* point for each contact with a fixed station.
Contest Exchanges: RST reports followed by the contact number starting at 001 and the location, e.g., RST559001 Bradford.
Logs: (*a*) Must be tabulated in columns headed (in this order): " Date and Time (G.M.T.)," " Call-sign of Station Contacted," " My Report on His Signals and Serial Number Sent," " His Report on My Signals and Serial Number Received," " Location of Station Contacted as Received," " Band (Mc/s)," " Points Claimed."

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

(*c*) Entries must be postmarked not later than **October 2, 1961.**

Equipment: The total weight of all the radio and electrical equipment taken to the site must not exceed 20 lb.
Awards: At the discretion of the Council, the **Houston Fergus Trophy** will be awarded to the winning station and **certificates of merit** to the runner-up and to the non-transmitting member submitting the best check log in the opinion of the Contests Committee.

The General Rules for R.S.G.B. Contests apply to this contest. Printed log forms and cover sheets are available from Headquarters on request.

Surrey Two Metre D/F Hunt

ON September 24, 1961, the Surrey Radio Contact Club is to hold a D/F Hunt starting from the Epsom Downs area at 1.45 p.m.

Prospective entrants must obtain an entry form from S. A. Morley (G3FWR), 22 Old Farleigh Road, Selsdon, South Croydon, prior to the event. Entry forms are also available from D. A. Naylor (G3GHI).

The hunted station, G3JBN/P, for the Slade-Rugby R.S.G.B. D/F qualifying event on May 28, 1961, operated by Ted Hickey (G3OBI) assi ted by Jim Ashton of Slade Radio.

HETTON SHOW AND MOBILE RALLY

Hetton Moor Farm, Easington Lane, near Houghton-le-Spring, Co. Durham.

SATURDAY, AUGUST 26, 1961

Attractions will include show jumping, brass band contest and Northern Command Display and Gymnasium Team. The Radio Tent will have a display of radio and television equipment with monitors showing activities in the show ring. Visitors wishing to enter the many contests may obtain entry forms from S. L. McAteer (G3CKC), 20 Kirkdale Street, Low Moorsley, Hetton-le-Hole, Co. Durham. A prize will be awarded for the best piece of home constructed equipment on show and prospective entrants should send details to G3CKC in advance. Refreshments available. Routes will be signposted.

Rally Stations

G3CKC/A on 1980 kc/s **G3NMD/A on 7 and 14 Mc/s**

SOUTH MANCHESTER AND STOCKPORT AMATEUR RADIO RALLY

The Pavilion Gardens, Buxton

SUNDAY, AUGUST 27, 1961

The main event will be a radio mobile and navigation competition starting from the Davenport Theatre Car Park, Stockport (on the A6) at 13.45 B.S.T. There will be a similar competition for cars not fitted with radio transmitters.

Those not taking part in the competition may proceed direct to Buxton where meals will be available up to 5.15 p.m. and light refreshments until 10 p.m. Attractions will include closed circuit TV demonstrations, exhibits by the Police, Civil Defence and Post Office, miniature model railway, boating lake, band and illuminated gardens after dusk.

Cars displaying the official " sticker " will be admitted to the reserved car park in the Gardens at an inclusive charge of 2s. 6d. Stickers may be obtained at the Davenport Theatre Car Park on the day of the Rally, at the entrance to the Pavilion Gardens, or by post from C. M. Denny (G6DN), 18 Willoughby Avenue, Didsbury, Manchester 20

RALLY STATIONS

1920 kc/s—G6NM/A at Stockport until 13.30 B.S.T.
1950 kc/s—G3FVA/A at Buxton until 16.00 B.S.T.

Organized by the South Manchester Radio Club and the Stockport Radio Society.

STAMFORD RALLY-FEST

Burghley Park, near Stamford, Lincolnshire

SUNDAY, AUGUST 27, 1961

Rally begins 2 p.m. Grand Rally Treasure Hunt requiring Ordnance Survey Map Sheet No. 123 commences 3 p.m. Light refreshments and tea available on the site. Lunch available in the town. Many attractions including prize draw.

TALK-IN STATIONS

G3FUR on 1925 kc/s **G2HOP on 145.8 Mc/s**

Mobiles are invited to call these stations as soon as they can be heard to take part in the competition for the distance worked prizes.

RALLY CONTROL STATIONS

G3KWC/P on 1980 kc/s **G3HES/P on 145 Mc/s**

Full details may be obtained from D. Page (G3KWC), 57 Queens Street, Stamford.

Organized by Stamford Radio Club as part of the Stamford Quincentenary Year Celebrations.

NATIONAL MOBILE RALLY

Woburn Abbey, Bletchley, Buckinghamshire

(by permission of His Grace the Duke of Bedford)

SUNDAY, SEPTEMBER 10, 1961

* Park opens 12.30 p.m.
* State Apartments open.
* Park of more than 3,000 acres and 2,000 animals.
* Children's Playground, Pets' Corner and Boating Lake.
* Restaurants and Snack Bars.
* Competitions for (i) the best piece of home constructed equipment, (ii) the safest equipment, (iii) the member travelling the longest distance on the day of the rally.
* Specially reserved rally car parks.

RALLY STATIONS

on Top Band and Two Metres will be in operation from 12 noon. under the call-sign **GB3RS**

Organized by the R.S.G.B. Mobile Committee

LINCOLN HAMFEST AND MOBILE RALLY

North Kesteven Grammar School, Newark Road, North Hykeham, Lincoln.

SUNDAY, SEPTEMBER 17, 1961

Attractions will include a travel film show by Dr. A. C. Gee (G2UK), children's sports and sale of surplus equipment. The new venue will be well sign-posted and there will be plenty of parking space.

Organized by Lincoln Short Wave Club.

Radio Amateurs' Examination

THE following is a list of Colleges at which courses were in operation during the session 1960-61, and at which it is likely that courses will also be established in September next for the 1961/62 session:

Ashton-under-Lyne College of Further Education
Belfast, College of Technology
Birkenhead Technical College
Birmingham, Garretts Green Technical College
Bognor Regis Technical Institute
Bradford Technical College
Brentford Evening Institute
Brighton, Preston Technical Institute
Bromley Technical College
Burnbank School of Engineering
Bury St. Edmunds, W. Suffolk College of Further Education
Cannock Chase Mining and Technical College
Cardiff, Llandaff Technical College
Carshalton Technical Institute
Cheltenham, N. Gloucestershire Technical College
Coalville Mining and Technical College
Colchester, N.E. Essex Technical College and School of Art
Corby Technical College
Croydon Technical College
Derby and District College of Technology
Doncaster Technical College
Dudley and Staffordshire Technical College
Dunfermline, Lander Technical College
Erith Technical College
Folkestone, S.E. Kent Technical College
Glasgow, Allen Glens Further Education Centre
Golspie, Sutherland Technical School
Gorseinon College of Further Education
Grays, Thurrock Technical College
Huddersfield College of Technology
Ilford Literary Institute at the County High School for Girls
Ilkeston College of Further Education
Leicester College of Technology and Commerce
Liverpool, Riversdale Technical College
Lincoln Technical College
London, The Battersea Institute
London, Holloway Institute
London, S.E. London Technical College
Londonderry Municipal Technical College
Loughborough College of Further Education
Luton College of Technology
Lytham St. Annes, The College of Further Education
Malvern Technical School
Manchester, Openshaw Technical College
Middlesbrough Constantine Technical College
Newcastle-upon-Tyne, College of Further Education
Newport, Isle of Wight Technical College
Northwood Evening Institute, Middlesex
Oakengates, The Walker Technical College
Oldham, Municipal Technical College
Peterborough Technical College
Plymouth and Devonport Technical College
Preston, Harris College of Further Education
Rochdale Technical College
Rotherham College of Technology
St. Albans College of Further Education
St. Helen's Technical College
Southampton Technical College
Stoke-on-Trent, North Staffordshire College of Technology
Street Technical Institute (Somerset)
Swansea College of Technology
Trowbridge, W. Wiltshire and Trowbridge College of Further Education
Wellingborough Technical College
Wembley Evening Institute
Weston-super-Mare Technical College
York Technical College

* * *

The City and Guilds of London Institute announce that their Examinations Board has agreed to introduce a second R.A.E. each year. The examinations will be held in May (as hitherto) and November.

Courses of Instruction

COURSES of instruction in preparation for the Radio Amateurs' Exhibition in May 1962 and in most cases the G.P.O. Morse Test are being arranged at the undermentioned centres.

Basingstoke. Providing there is enough support, a course in preparation for the R.A.E. will be held at the Basingstoke Technical College during the coming session. Details may be obtained from P. J. Sterry (G3CBU), " Ashley," Orchard Road, Basingstoke, Hants.

Beckenham Evening Education Centre, 28 Beckenham Road, Beckenham, Kent.—A course in radio theory and practice commences on September 22. Although not specifically intended for prospective R.A.E. candidates the course should be useful. Enrolment will take place on September 12-13.

Birkenhead Technical College, Borough Road. A R.A.E. course will be held on Thursday evenings. The lecturer will be L. Roberts (G3EGX), 18 Croxteth Avenue, Wallasey, Cheshire from whom details may be obtained.

Birmingham: Central Evening Institute, Lea Mason Centre, Bell Barn Road, Edgbaston. Classes for the R.A.E. will commence during the week beginning September 18 (Mondays, and Wednesdays, 7-9.30 p.m.). Enrolments during week commencing September 11. Instructors: M. A. Brett (G3HBE) and H. B. Bligh (G3HBB).

Birmingham: Garretts Green Technical College, Yardley. Classes for the R.A.E. will be held on Thursdays (7-9.30 p.m.). Enrolments during week commencing September 11. Instructor: M. A. Brett (G3HBE).

Bognor Regis Technical Institute, Southway. Classes in preparation for the R.A.E. and Morse Test will be held on Wednesdays and Fridays from 7-9 p.m., commencing September 20. Enrolment will take place between September 11-15.

Bradford Technical College, Central Hall, Bradford 5. A course of lectures in preparation for the R.A.E. will be held on Wednesdays from 7-9 p.m. The lecturer will be D. M. Pratt (G3KEP). Further information from the General Office of the College.

Bristol Technical College, Ashley Down Road, Bristol 7. Details of the course for the R.A.E. to commence in September may be obtained from the Registrar.

Brentford Evening Institute, Clifden Road. From the week beginning September 18, classes in preparation for the R.A.E. and Morse Test will be held on Tuesdays (7-9 p.m.) and Wednesdays (7-9 p.m.). The fee will be 30s. per session.

Broadstairs. A course of 16 lectures in preparation for the R.A.E. will be given by members of the Thanet Radio Society on Fridays at 8 p.m., commencing September 8, at Hilderstone House, Broadstairs, Kent.

Cambridge: Chesterton Evening Centre, Gilbert Road. Provided there is sufficient support, a course in preparation for the R.A.E. will be held during the coming session. Details may be obtained from F. A. E. Porter, 37 Metcalfe Road, Cambridge.

Cleethorpes Technical Institute. The following classes will be held at Elliston Street School, Cleethorpes, during the coming session: (i) A course covering the syllabus of the R.A.E.; (ii) Instruction in Morse Code for the G.P.O. test; (iii) Practical

Radio Construction. Enrolment will take place at the school on September 18 from 7-8 p.m. Classes will commence the following week.

Croydon Technical College, Fairfield. Providing there are sufficient applicants, the following courses will be held during the coming session: (i) for beginners; (ii) for more advanced students including those who already hold Amateur (Sound) Licences; (iii) Morse Code. Enrolment will take place on September 11, 12 and 13.

Derby & District College of Technology, Kedleston Road. A course lasting for three terms will be conducted by F. C. Ward (G2CVV). Enrolment will take place on September 18, 19 and 20. The fee will be 35s. for adults and 15s. for juniors.

Erith Technical College, Erith Road, Belvedere, Kent. Enrolment for the R.A.E. course will take place from 6.30-8.30 p.m. on September 18 and 19. Full details may be obtained from the Principal or from E. C. Hasted (G3BHF), 54 Plaxtol Road, Erith, Kent.

Glasgow: Allen Glens School, Montrose Street. Classes for the R.A.E. will be held on Tuesdays from 7-9.30 p.m. and for Morse Instruction on Thursdays from 7-9.30 p.m. A General Radio course will also be held on Thursdays. Enrolment for the courses will take place between September 4-7, 7 p.m. Classes will commence the following week. No previous knowledge is required for any of these courses.

Ilford Literary Institute (High School for Girls), Cranbrook Road, (adjacent to Gants Hill Station, Central Line). The following classes have been arranged by the East London R.S.G.B. Group: (i) An eight month course for those intending to take the Examination (Wednesdays 7.15-9.15 p.m.); (ii) Morse and Codes of Practice. A six month course in preparation for the G.P.O. Morse Test for an Amateur (Sound) Licence. Arrangements have been made for those who, in the opinion of the instructors, have reached the required speed to be tested at the College by a Post Office representative.

The fees for students living in the Essex County Council area will be 30s. for the R.A.E. Course, 20s. for the Morse and Codes of Practice Course or 35s. for the two courses. Students from other parts of London will be admitted as out-country students provided the Local Authority is informed. Enrolment will take place on September 4-7 from 7-8.30 p.m., but those who intend to enrol are advised to send their names with an s.a.e. to C. H. L. Edwards (G8TL), 28 Morgan Crescent, Theydon Bois, Essex, at once so that a place may be assured. Classes commence during the week beginning September 18.

London: Montem School, Hornsey Road, Holloway, N.7. The following courses will commence during the week beginning September 25; (i) R.A.E. (Mondays 7-9 p.m., repeated on Tuesdays and Wednesdays). Instructors: S. Iles (G3BWQ) and P. F. Bernal (G3KQZ) (ii) Morse Code (Mondays 9-10 p.m., repeated on Tuesdays and Wednesdays). Instructors: L. Barber and A. Ralph.

Enrolment will take place on September 18-22 from 7-9 p.m. but application should be made in the first instance to A. W. H. Wennell (G2CJN), 145 Uxendon Hill, Wembley Park, Middlesex. The fee will be 20s. for either course or 22s. 6d. for both.

Northwood Evening Institute, Potter Street, Northwood Hills. A course for the R.A.E. will be held on Mondays and Morse Code on Thursdays. Instructors: G. P. Anderson (G2QY) and A. Goddard (G3NQR) respectively. Enrolment will take place 6.30-8.30 p.m. on September 11-13. Classes will commence during week beginning September 18.

Manchester: Openshaw Technical College of Further Education, Whitworth Street. Those wishing to enrol for courses on Theory and Morse Code should write to M. Barnsley (G3HZM), 11 Cemetery Road, Denton, Manchester. The courses will commence on September 26 and 28.

Plymouth Technical College. Full details of courses in preparation for the R.A.E. to be held at the Plymouth Technical College and at the Plymouth Radio Club may be obtained from R. Hooper, 2 Chestnut Road, Peverell, Plymouth.

Redditch College of Further Education, Archer Road. Details of a course in preparation for the R.A.E. commencing in September may be obtained from the Principal.

Stockport Radio Society. Full details of a course arranged by the society and beginning mid-September may be obtained from G. R. Phillips, (G3FYE), 7 Germans Buildings, Buxton Road, Stockport.

Wembley Evening Institute, Copeland School, High Road. Enrolment for a course in preparation for the R.A.E. and Morse Test will take place between 7.15-9.15 p.m. on September 11-14. Classes will commence the following week.

Affiliated Societies and Clubs

THE following Clubs and Societies were affiliated to the Radio Society of Great Britain as at July 24, 1961. The addresses given are for communications.

*Aberdeen Amateur Radio Society (GM3BSQ): c/o W. K. Heggie (GM3NHW), 80 Leslie Terrace, Aberdeen.

Acton, Brentford & Chiswick Radio Club (G3IIU): c/o W. G. Dyer (G3GEH), 188 Gunnersbury Avenue, London, W.3.

*Admiralty Electronics Society (G3BPU): c/o R. G. Brown, Glenacre, The Hollow, Dunkerton, Somerset.

*A.E.I. Recreation Club Amateur Radio Section (G3BXF): c/o A.E.I. (Rugby) Ltd., Mill Road, Rugby.

*Ainsdale Radio Club: c/o R. J. Woodroffe (G2DQX), 72 Burnley Road, Ainsdale, Southport, Lancs.

*Aldershot & District Amateur Radio Society (G3OBR): c/o F. D. Buck (G3JNO), 80 Victoria Road, Aldershot, Hants.

*Amateur Radio Club of Nottingham (G3EKW): c/o E. C. Weatherall, 16 Avebury Close, Clifton, Nottingham.

Amateur Radio Society, Recreation Club: Albright & Wilson (Mfg.) Ltd., P.O. Box 3, Oldbury, Birmingham.

*Amateur Radio Society (GW3CKB): No. 32 M.U., R.A.F., St. Athan, West Camp, Barry, Glam.

*Aquila Radio Club (G3BRK): c/o R. C. B. Cutts (G3HRC), Sigs. Labs., E.I.D. Ministry of Aviation, Aquila, Golf Road, Bromley, Kent.

*Ariel Radio Group, B.B.C. Club (G3GHD): c/o B. A. Toms, 38 Ashbourne Avenue, London, E.18.

Ariel Radio Club (Langham) (G3AYC): c/o Honorary Secretary, Ariel Radio Club, Room 701, The Langham, B.B.C., London, W.1.

Ariel Radio Group (TV Section) (G3NTS): c/o S. W. Lane, B.B.C. Club Room S301, B.B.C. Studios, Lime Grove, London, W.12.

Army Wireless Reserve Amateur Radio Society (GB3AWR): c/o Major D. W. J. Haylock (G3ADZ), 3 Norris Gardens, Grange Estate, Havant, Hants.

Atomic Energy Research Establishment (Harwell) Amateur Radio Club: c/o C. Sharpe (G2HIF), 20 Harcourt Road, Wantage, Berkshire.

Babcock & Wilcox Staff Association Radio Society (G3GKM): c/o M. H. Clark, 209 Euston Road, London, N.W.1.

*Bailleul Radio Society (G3IHH): c/o S/Sgt. G. Preston, Sgts. Mess, 3 Trg. Bn., R.E.M.E., Arborfield, Reading, Berks.

*Barnet & District Radio Club: c/o F. E. A. Green, 48 Borough Way, Potters Bar, Middx.

*Barnsley & District Amateur Radio Club: c/o P. Carbutt (G2AFV), 19 Warner Road, Barnsley, Yorks.

B.B.C. (Daventry) Club, Radio Section (G5XX): c/o Hon. Secretary, B.B.C. Club, Sheaf Street, Daventry.

*B.B.C. (Rampisham) Club, Radio Section: c/o Miss Z. K. Johnson, Rampisham Down, Nr. Maiden Newton, Devon.

*Bishop Rawstone C. of E. Secondary School Radio Society: c/o S. Parker, Out Lane, Croston, Nr. Preston, Lancs.

*Blackpool & Fylde Amateur Radio Society (G3NJN): c/o L. Beevers (G3JLF), The Howard Hotel, 292 Promenade, Blackpool, N.S., Lancs.

B.O.A.C. Speedbird Amateur Radio Club (G3NAF): c/o J. Barker, " Meadowbank," Bath Road, Cranford, Middx.

Bournville Radio Society (G6BV): c/o W. V. Shepard (B.R.S.19176), Council Office, Cadbury Bros. Ltd., Birmingham.

Bradford Radio Society: c/o M. T. G. Powell (G3NNO), 28 Gledhow Avenue, Roundhay, Leeds 8.

Bridlington & District Radio Society: H. H. Mills (G3AJB), c/o Mrs. Machem, 28 East Road, Bridlington, Yorks.

British Amateur Radio Teleprinter Group: c/o Dr. A. C. Gee, " East Keal," Romany Road, Oulton Broad, Lowestoft, Suffolk.

British Amateur Television Club: c/o D. S. Reid, 21 Silverdale, London, S.E.26.

Brownhills Secondary Boys' School Radio Club (G6SW): c/o C. J. Morris (G3ABG), The School House, 24 Walhouse Street, Cannock, Staffs.

*Burton-on-Trent Grammar School Radio Society (G3KZA): c/o E. T. Ward (G3JWC), The Grammar School, Burton-on-Trent, Staffs.

Bury Radio Society (G3BRS): c/o I. G. Winter (G3KJN), 269 Lever Street, Radcliffe, Lancs.

*Cambridge & District Amateur Radio Club: c/o A. H. G. Waton (G3GGJ), " Arkengarthdale," New Road, Barton, Cambridge.

Cambridge University Wireless Society (G6UW): c/o I. Sykes, Gonville & Caius College, Cambridge.

Cannock Chase Amateur Radio Society: c/o J. R. Ellison, 166 Mount Street, Hednesford, Staffs.

Cathays High School Scientific Society Radio Club (GW3OUW): c/o D. L. Edmonds, Cathays High School for Boys, Cardiff, Glam.

Catterick Amateur Radio Club (G3CIO): c/o R. C. Laverick, 2 Sqdn., 8th Sig. Regt., Catterick Camp, Yorks.

C.F.S. Amateur Radio Club (G3NGZ): Royal Air Force, Little Rissington, near Cheltenham, Glos.

*Cheltenham Amateur Radio Society (G3GPW): c/o J. H. Moxey (G3MOE), 11 Westbury Road, Leckhampton, Cheltenham, Glos.

Chiltern Amateur Radio Club: c/o C. Simpson (G3OOZ), 2 Mead Street, High Wycombe, Bucks.

City of Belfast Y.M.C.A. Radio Club (GI6YM): c/o R. J. Boal, Y.M.C.A., Wellington Place, Belfast.

*City & Guilds College Radio Society: City & Guilds College, South Kensington, London, S.W.7.

Civil Service Radio Society (GB2SM): c/o G. Lloyd Dalton, 2 Honister Heights, Purley, Surrey.

Clifton Amateur Radio Society (G3GHN): c/o C. H. Bullivant (G3DIC), 25 St. Fillans Road, London, S.E.6.

*College Radio Society (G3CXX): c/o D. Gordon Bagg, Dept. of Chemical Eng., Fuel, Technology and Metallurgy, College of Science and Technology, Sackville Street, Manchester 1.

*Conway Valley Amateur Radio Club: c/o R. Jones, " Woodcote," Coed Pella Road, Colwyn Bay, Denbighshire, North Wales.

Cornish Radio & Television Club: c/o W. J. Gilbert, 7 Poltair Road, Penryn, Cornwall.

Courtaulds Amateur Radio Group (G3CQD): c/o W. P. Stevens (B.R.S.4022), Acetate and Synthetic Fibres Laboratory, Courtaulds Ltd., Foleshill Road, Coventry, Warwicks.

Coventry Amateur Radio Society (G2ASF): c/o F. A. Noakes (G2FTK), 4 Baronsfield Road, Cheylesmore, Coventry.

Crawley Amateur Radio Club: c/o R. G. B. Vaughan (G3FRV), 9 Hawkins Road, Tilgate, Crawley, Sussex.

Crystal Palace and District Radio Club: c/o G. M. C. Stone (G3FZL), 10 Liphook Crescent, London, S.E.23.

Derby & District Amateur Radio Society (G3ERD): c/o F. C. Ward (G2CVV), 5 Uplands Avenue, Littleover, Derby.

*Dollis Hill Radio Club (G3NHZ): c/o The Secretary, P.O. Research Station, Dollis Hill, London, N.W.2.

Dorking Radio Society: c/o J. Greenwell (G3AEZ), Wigmore Lodge, Beare Green, near Dorking, Surrey.

Edgware & District Radio Society (G3ASR): c/o D. L. Lisney (G3MNO), 17 Pickett Croft, Stanmore, Middx.

*Electronic Amateur Radio Society (G4RG): c/o D. I. Huggett, Queen Mary College, Mile End Road, London, E.1.

*English Electric Aviation (Warton) Amateur Radio Society (G3NZH): c/o K. M. Hodgson, 14 Fairfield Avenue, Normoss, Blackpool, Lancs.

Flintshire Radio Society: c/o J. G. Nicholas (GW3OIN), 15 Hafod Road, Prestatyn, Flintshire.

Grafton Radio Society (G3AFT): c/o A. W. H. Wennell (G2CJN), 145 Uxendon Hill, Wembley Park, Middx.

Grantham & District Amateur Radio Society: c/o A. Brown, 21 Beechcroft Road, Grantham, Lincs.

*Gravesend Amateur Radio Society (G3GRS): c/o D. J. Andrews, 42 Fairway, Gravesend, Kent.

Grimsby Amateur Radio Society: c/o P. Mason (G3NNN), 213 Clee Road, Cleethorpes, Lincs.

*Halifax and District Amateur Radio Society: c/o A. Robinson (G3MDW), Candy Cabin, Ogden, Halifax, Yorks.

*Harlow and District Radio Society: c/o B. H. Wynn, Black Cat, Abbess Roding, Ongar, Essex.

*Hartlepools Amateur Radio Club (G3IDV): c/o L. Foden (G3CHJ), 207 Park Road, West Hartlepool, Co. Durham.

*Hastings and District Amateur Radio Club (G6HH): c/o W. E. Thompson (G3MQT), 8 Coventry Road, St. Leonards-on-Sea, Sussex.

*Hull & District Radio Society (G3AMW): c/o G. G. Wray (G3MVO), 93 Wolfreton Lane, Willerby, Hull, Yorkshire.

*Ilford & District Radio Society: c/o C. E. Largen, 44 Trelawney Road, Barkingside, Ilford, Essex.

*Ilkeston & District Amateur Radio Society (G3JSZ): c/o E. Eric West, 21 Westfield Avenue, Heanor, Derbyshire.

International Aeradio Social Club Radio Section: c/o J. G. Smith, International Aeradio Ltd., Engineering Division, Hayes Road, Southall, Middx.

*Isle of Man Amateur Radio Society (GD3FLH): c/o T. R. Moore, Glynmoar, St. John's, Isle of Man.

*Kingston & District Amateur Radio Society (G3KIN): c/o R. S. Babbs (G3GVU), 28 Grove Lane, Kingston-on-Thames, Surrey.

*Kinloss Amateur Radio Club: c/o Sgts. Mess, R.A.F. Kinloss, Morayshire, Scotland.

Kynoch Radio & Television Society (G3HPP): c/o G. E. Nicholls, 27 Canberra Road, Walsall, Staffs.

Leicester Radio Society (G3LRS): c/o P. G. Goadby (G3MCP), 535 Welford Road, Leicester.

Lichfield Amateur Radio Society: c/o T. L. Painter, 98 Gaia Lane, Lichfield, Staffs.

Lincoln Short Wave Club (G3IXH): c/o Mrs. F. E. Woolley (G3LWY), 10 Sturton Road, Saxilby, Lincoln.

Liverpool & District Amateur Radio Society (G3AHD): c/o H. James (G3MCN), 448 East Prescot Road, Knotty Ash, Liverpool 14.

*Locking Airmen's Radio Club (G3IRS): c/o F/Sgt. D. Vierod, 102 A.M.Q. R.A.F. Locking, Weston-super-Mare, Somerset.

Lothians Radio Society: c/o T. Simpson (GM3BCO), 118 Braid Road, Edinburgh.

*Loughborough College Radio Society: c/o P. H. Corbishley, Rutland Hall, Ashbey Road, Loughborough, Leics.

Magnus Grammar School Radio Society (G3PAW): c/o J. Baxter, Magnus Grammar School, Newark, Notts.

Manchester Grammar School Amateur Radio Club: c/o D. Hugh M. Reekie, Manchester Grammar School, Rusholme, Manchester 13.

Manchester & District Radio Society (G3HOX): c/o A. B. Langfield (G3IOA), 2 Rowland Street, Moston, Manchester 10.

Marconi Apprentices' Amateur Radio Club (G3JTW): c/o D. A. Hills, Marconi Apprentices' Amateur Radio Club, Marconi's Wireless Telegraph Co. Ltd., Chelmsford, Essex.

*Medway Amateur Receiving & Transmitting Society (G2FJA): c/o E. N. Gunnee, 57 Saxton Street, Gillingham, Kent.

*Midland Amateur Radio Society (G3MAR): c/o C. J. Haycock (G3JDJ), 360 Portland Road, Edgbaston, Birmingham 17.
Mitcham & District Radio Society (G3OCT): c/o M. Pharaoh (G3LCH) 1 Madeira Road, Mitcham.
Murphy Radio Sports Club Radio Section (G8LM): c/o R. Garrett, Electronics Design, Murphy Radio Ltd., Welwyn Garden City, Herts.
Newbury & District Amateur Radio Society: c/o G. T. Allen (G3JTK), 83 Huntsmoor Road, Tadley, nr. Basingstoke, Hants.
Northampton Short Wave Radio Club (G3GWB): c/o Allens Pram Works, 8 Duke Street, Northampton.
North Kent Radio Society (G3ENT/GB3ENT): c/o B. J. Reynolds (G3ONR) 49 Station Road, Crayford, Kent.
*North West V.H.F. Group (G3OHF): c/o J. G. Barnes (G3AOS), 5 Prospect Drive, Hale Barns, Cheshire.
*Norwich & District Radio Club: c/o O. F. Simkin, 15 Hillside Road, Thorpe-next-Norwich, Norfolk. NOR. 48.T.
*Norwood Technical College Amateur Radio Society (G3HFY): c/o R. F. Burns, 35 Beulah Hill, London, S.E.19.
*Oxford & District Radio Society: c/o L. C. P. Boby, 63 Bartlemas Road, Oxford.
*Plymouth Radio Club: c/o R. Hooper, 2 Chestnut Road, Peverell, Plymouth, Devon.
*Portsmouth and District Radio Society (G3DIT): c/o A. C. Cake (G3CNO), 7 Wheatstone Road, Southsea, Hants.
Preston Amateur Radio Society (G3KUE): c/o G. Lancefield (G3DWQ), 35 Brixton Road, Frenchwood, Preston, Lancs.
Purley & District Radio Club: c/o E. R. Honeywood (G3GKF), 105 Whytecliffe Road, Purley, Surrey.
*Queens University Radio Club (GI3HQ): Students' Union, Belfast.
Radio Society of Harrow (G3EFX): c/o A. C. W. Biddell (G3GNM), 114 Kingshill Avenue, Kenton, Harrow, Middlesex.
R.A.F. (Aldergrove) Amateur Radio Club (GI3LSH): c/o Sgt. M. J. Furness, Sergeants' Mess, R.A.F. Station, Aldergrove, near Crumlin, Northern Ireland.
R.A.F. Amateur Radio Society (G8FC): c/o R.A.F. Locking, Weston-super-Mare, Somerset.
R.A.F. (Boscombe Down) Amateur Radio Club (G3LQA): c/o Cpl/Tech R. W. Duggan, "B" Sqdn. Signals, R.A.F. (MoA Unit) Boscombe Down, Amesbury, Wiltshire.
*R.A.F. (Compton Bassett) Amateur Radio Club (G3HXZ): c/o Officer i/c, R.A.F. Station, Compton Bassett, Calne, Wilts.
*R.A.F. (Stanbridge) Amateur Radio Society (G3HSX): R.A.F. Station, Stanbridge, nr. Leighton Buzzard, Beds.
*R.A.F. (Watton) Amateur Radio Society (G3MSZ): c/o D. H. Strudwick (G3HFG), 19 Halton Road, R.A.F. Watton, Thetford, Norfolk.
*R.A.F. (Wyton) Amateur Radio Club: c/o P/O E. A. Le Baigue, R.A.F. Station, Wyton, Huntingdon.
*R.A.F. (Yatesbury) Amateur Radio Club (G3HWF): R.A.F. Station, Yatesbury, nr. Calne, Wilts.
*Ravensbourne Amateur Radio Club (G3HEV): c/o J. H. F. Wilshaw, 4 Station Road, Bromley, Kent
Reading Amateur Radio Club: c/o R. G. Nash (G3EJA), 9 Holybrook Road, Reading, Berks.
Reigate Amateur Transmitting Society: c/o F. D. Thom (G3NKT), 12 Willow Road, Redhill, Surrey.
Romford & District Amateur Radio Society: c/o N. Miller (G3MVV), 55, Kingston Road, Romford, Essex.
Rotherham & District Radio Club (G3OAM): c/o S. J. Scarbrough, 25 Crawshaw Avenue, Sheffield 8, Yorkshire.
Royal Naval Amateur Radio Society (G3BZU): c/o Radio Supervisor F. T. Moore, *H.M.S. Mercury*, Leydene, Petersfield, Hants.
*Salisbury & District Short Wave Club (G3FKF): c/o E. J. Spicer, 43 Vale View Road, South Newton, Salisbury, Wilts.
S.B.D. Radio and Television Society: c/o H. Crisp, Special Inquiry Branch, P.O. Savings Dept. (S.B.D.), Blythe Road, London, W.14.
Scarborough Amateur Radio Society (G4BP): c/o P. B. Briscombe (G8KU), Roseacre, Irton, nr. Scarborough, Yorks.
Sheffield Amateur Radio Club: c/o D. R. A. Hill, 16 Tylney Road, Sheffield 2, Yorkshire.
Shefford & District Amateur Radio Society (G3FJE): c/o G. R. Cobb (G3IXG), 75 Ampthill Road, Shefford, Beds.
Slade Road Society (G3JBN): c/o Charles N. Smart, 110 Woolmore Road, Erdington, Birmingham 23.
South Birmingham Radio Society (G3OHM): c/o T. W. Legg, Flat 3, 80 Alcester Road, Moseley, Birmingham 13.
Southend & District Radio Society (G5QK): c/o Mrs. P. M. C. Collop, 53 Beedell Avenue, Westcliff-on-Sea, Essex.
*South Manchester Radio Club (G3FVA): c/o F. Nicholls (G3MAX), 125 Rochdale Road, Manchester 4, Lancs.
*South Shields & District Amateur Radio Club (G3DDI): c/o K. Sketheway, 51 Baret Road, Walkergate, Newcastle-on-Tyne 6.
*Southport Radio Society: c/o J. E. Ford (B.R.S.15045), 278 Portland Street, Southport, Lancs.
Spen Valley Amateur Radio Society: c/o N. Pride, 100 Raikes Lane, Birstall, nr. Leeds, Yorks.
S.R.D.E. Amateur Radio Society (G3DMZ): c/o J. Singleton, A.M.I.E.E., S.R.D.E., Ministry of Aviation, Christchurch, Hants.
Standard Radio Club (Harlow) (G3NIS): c/o Hon. Secretary (Radio Club), Standard Telephones & Cables, Rectifier Div., Edinburgh Way Harlow, Essex.
Stockport Radio Society: c/o G. R. Phillips (G3FYE), 7 Germans Buildings, Buxton Road, Stockport, Cheshire.
Stoke-on-Trent Amateur Radio Society (G3GBU): c/o A. Bucknall (A2320), 35 Freehold Street, Newcastle, Staffs.
Stourbridge & District Radio Society: c/o A. K. Davies (B.R.S. 20650), 48 Church Avenue, Amblecote, nr. Stourbridge, Worcs.
Stratford-on-Avon & District Radio Club: c/o Fl/Lt. W. B. K. Searle, Avon View House, Shipston Road, Stratford-on-Avon, Warwickshire.
*Students' Union Radio Society Northern Polytechnic & National College of Rubber Technology: Holloway, London, N.7.
Surrey Radio Contact Club: c/o S. A. Morley (G3FWR), 22 Old Farleigh Road, Selsdon, South Croydon, Surrey.
Sutton & Cheam Radio Society: c/o F. J. Harris (G2BOF), 143 Collingwood Road, Sutton, Surrey.
Sutton Coldfield Radio Society: c/o L. E. R. Hall, 24 Calthorpe Road, Walsall, Staffs.
*Thames Valley Amateur Radio Transmitters Society: c/o K. Rogers (G3AIU), 21 Links Road, Epsom, Surrey.
Thanet Radio Society (G3DOE): c/o J. P. Barnes (G3BKT), 18 Grange Road, Ramsgate, Kent.
Torbay Amateur Radio Society (G3NJA): c/o Mrs. G. L. Western (G3NQD), 118 Salisbury Avenue, Torquay, Devon.
University of Bristol Amateur Radio Society (G3KAC): c/o University of Bristol Union, The Victoria Rooms, Bristol 8.
*Unit Amateur Radio Club, 46 (NM) Corps Signal Regiment: T.A. Centre, Kingsway, Derby.
*Upton House School Radio Club: c/o R. H. Lamb, 17 Queens Road, London, E.11.
Vickers-Armstrongs Social & Athletic Club (Electronics Section) (G3IVW): c/o S. G. Masterson, Tool Drawing Office, Vickers-Armstrongs (Aircraft) Ltd., Weybridge, Surrey.
*West Kent Radio Society: c/o H. P. Richards, 17 Reynolds Lane, Tunbridge Wells, Kent.
Wirral Amateur Radio Society (G3NWR): c/o A. Seed (G3FOO), 31 Withert Avenue, Bebington, Wirral, Cheshire.
Wolverhampton Amateur Radio Society (G8TA): c/o J. Rickwood (G3JJR), 738 Stafford Road, Fordhouses, Wolverhampton, Staffs.
Wolverton & District Radio Club: c/o D. A. Shepherd (G3LCS), 35 The Crescent, Haversham, Wolverton, Bucks.
*Worthing & District Amateur Radio Club: c/o P. J. Robinson, 46 Hillview Road, Worthing, Sussex.
Yeovil Amateur Radio Club (G3CMH): c/o D. L. McLean (G3NOF), 9 Cedar Grove, Yeovil, Somerset.
York Amateur Radio Society (G3HWW): c/o M. Watson (G3JME), 36 The Paddock, Boroughbridge Road, York.

OVERSEAS

*Northern Rhodesia Amateur Radio Society: c/o G. A. Wafer (VQ2GW), P.O. Box 332, Kitwe, Northern Rhodesia.
*Radio Club of Uganda: c/o P.O. Box 3433, Kampala, Uganda.
Royal Air Force (Akrotiri) Amateur Radio Club (ZC4AK): R.A.F Station, Akrotiri, B.F.P.O.53, Cyprus.
Royal Air Force (Ayios Nikolaos) Amateur Radio Club (ZC4GT): c/o Hon. Secretary, R.A.F. Station, Ayios Nikolaos, B.F.P.O.53.
Royal Air Force (Changi) Amateur Radio Club (VS1GZ): c/o Sgt. A. J. Topp, Sgts' Mess, R.A.F. Changi, Singapore 17.
Royal Air Force (Pergamos) Amateur Radio Club (ZC4PC): c/o S.A.C. Colin J. Thomas (ZC4CT), Dayworkers, 264 Signals Unit, B.F.P.O.53.
205 Amateur Radio Club: c/o 205 Signal Squadron (Infantry Brigade Group), B.F.P.O. 24.
254 Signal Squadron (Aden) Amateur Radio Club: c/o 254 Signal Squadron, Aden, B.F.P.O. 69.

**Address subject to confirmation.*

Royal Charter for the British Institution of Royal Engineers

BY an Order in Council dated August 2, 1961, Her Majesty the Queen approved the grant of a Royal Charter to the British Institution of Radio Engineers.

The Institution was founded in 1925 when radio engineering as an industry was in its infancy. The Royal Charter sets the seal on the achievements of the Institution during the 36 years that have since passed.

Admiral of the Fleet The Earl Mountbatten of Burma, K.G., who became a member of the Institution in 1935 and was President in 1947/48, is named in the Royal Charter as Charter President, and Mr. Graham Clifford, who has been Secretary since 1937, is named as first Secretary of the Chartered body.

Radio amateurs throughout the world extend warm congratulations to the British Institution of Radio Engineers on the honour conferred by Her Majesty. The granting of the Charter is Royal recognition of the vital role played by radio and electronic engineering in modern times.

Radio Amateurs' Examination 1961

THE City and Guilds of London Institute has announced that 1251 candidates sat for the Radio Amateur's Examination on May 5, 1961. Of this number 866 passed and 385 failed. These figures include five special cases (four blind and one disabled).

Forthcoming Events

Details for inclusion in this feature should be sent to the appropriate Regional Representatives by the 18th of the month preceding publication. T.R.s and club secretaries are reminded that the information submitted must include the date, time and venue of the meeting and, whenever possible, details of the lecture or other event being arranged. Regional Representatives are requested to set out the copy, preferably typed double spaced, in the style used below. Standing instructions for more than three months ahead cannot be accepted.

DATES FOR YOUR DIARY

August 23-September 2.—National Radio and Television Show, London.
August 27.—Stamford Rally Fest at Burghley Park, near Stamford.
September 3.—G6UT's "Ham Party."
September 10.—National Mobile Rally at Woburn Abbey.
September 10.—Region 14 O.R.M.
September 16.—Region 10 O.R.M. at Cardiff.
September 17.—Lincoln Mobile Rally and Hamfest.
October 1.—Region 17 O.R.M. at Newbury.
October 8.—Region 6 O.R.M. at Cheltenham.
October 21-22.—Scout Jamboree-on-the-Air.
November 22-25.—R.S.G.B. International Radio Hobbies Exhibition, London.
December 16.—A.G.M., London.
May 6, 1962.—South Eastern Counties Mobile Rally.

REGION 1

Ainsdale (A.R.C.).—Wednesdays, 8 p.m., 37 Hawthorne Grove, Southport.
Blackburn.—Fridays, 8 p.m., West View Hotel, Revidge Road.
Blackpool (B. & F.A.R.S.).—Tuesdays, 8 p.m., Squires Gate Holiday Camp.
Bury (B.R.S.).—September 12, 8 p.m., Knowsley Hotel, Kay Gardens.
Chester.—Tuesdays, 8 p.m., Y.M.C.A.
Liverpool (L. & D.A.R.S.).—Tuesdays, 8 p.m., Gladstone Mission Hall, Queens Drive, Stoneycroft.
Macclesfield.—August 22, September 5, 19, 42 Jordangate.
Manchester (M. & D.A.R.S.).—Wednesdays, 7.30 p.m., King George VI Club, North Road, Moston, Manchester, 10. **(S.M.R.C.).**—Fridays, 7.30 p.m., Fallowfield Bowling and Lawn Tennis Club, 81 Wellington Road, Fallowfield 14.
Morecambe.—September 6, 125 Regent Road.
Preston.—August 22, September 12, 26, St. Paul's School, Pole Street.
Southport (S.R.S.).—Thursdays, 8 p.m., The Esplanade.
Stockport (S.R.S.).—August 16, 30, September 13, 27, The Blossoms Hotel, Buxton Road.
Wirral (W.A.R.S.).—September 6 (Lecture on Receivers with demonstrations), September 20 ("Bits and Pieces"), 15 Balls Road, Claughton, Birkenhead.

REGION 2

Barnsley.—September 8 (A.G.M.), 7.30 p.m., King George Hotel, Peel Street, Barnsley.
Bradford (B.R.S.).—September 22 (first meeting of new session), 7.30 p.m., 66 Little Horton Lane, Bradford.
Halifax (H. & D.R.S.).—September 5 (Open Night), Beehive & Crosskeys Inn. **(Northern Heights A.R.C.).**—August 23 (Ragchew), September 6 ("Astronomy" by Mr. Dougherty) September 20 (Informal), 7.45 p.m., Sportsman Inn, Ogden.
Scarborough (S.A.R.S.).—Thursdays, 7.30 p.m. Chapmans Yard, North Street, Scarborough.
Sheffield (S.A.R.C.).—Second Wednesday in each month, Dog & Partridge Hotel, Trippett Lane, Sheffield, 1.

REGION 3

Birmingham (South).—August 17 (Lecture and Film by M. L. A. Sandoz, G3GBS), September 21 ("Two Metres, Part 2" by J. A. Bratby, G3GVA) 7.30 p.m., Friends Institute, 220 Moseley Road, Birmingham, 12. **(Slade).**—August 25, 7.45 p.m., Visit to Taylor Controls Ltd., Sheldon. September 8 (Exhibition of Members' Equipment), 7.45 p.m., The Church House, High Street, Erdington. September 16 (Annual Dinner), 7.30 p.m., Roebuck Inn, High Street, Erdington.
Stourbridge.—September 5 (Talk or Film), 8 p.m., Foley College, Stourbridge.
Wolverhampton.—August 21 (Ragchew), September 4, 8 p.m., Neachells Cottage, Stockwell End, Tettenhall.

REGION 4

Derby (D. & D.A.R.S.).—Wednesdays, August 30 (Open Night), September 6 (Surplus Sale), September 13 (D/F Practice Run), 7.30 p.m., Room No. 4, 119 Green Lane. Exhibition at Art Gallery open daily until August 26. **(D.S.W. Exp. Soc.).**—Fridays, 7.30 p.m., Sundays 10.30 a.m., Nunsfield House, Boulton Lane, Alvaston.
Grantham (G. & D.A.R.S.).—Mondays, 7.30 p.m., Club Room (rear of Manners Arms) London Road, Grantham.
Grimsby (A.R.S.).—Alternate Thursdays, 8 p.m. R.A.F.A. Headquarters, Abbey Drive West, Grimsby.
Leicester (L.R.S.).—Mondays, 7.30 p.m. (Morse Tuition, 7.30-8.30 p.m.), Club Rooms, Old Hall Farm, Braunstone Lane, Leicester.
Nottingham (A.R.C.N.).—Tuesdays and Thursdays, 7.30 p.m., Community Centre, Woodthorpe House, Mansfield Road, Sherwood, Nottingham.
Northampton (N.S.W.C.).—Thursdays, 7 p.m., Allen's Pram Works, 8 Duke Street, Northampton.
Peterborough (P. & D.A.R.S.).—September 1 (Meters), 7.30 p.m., Peterborough Technical College. September 10, Barbecue at Alwalton.
Retford & Worksop (N.N.R.C.).—Tuesdays and Thursdays, 7.30 p.m., Club Rooms, Victoria Hall, Eastgate, Workshop, Notts.

REGION 5

March (M.A.D.R.A.S.).—Tuesdays, 7.30 p.m., Club Room (rear of Police Headquarters), March, Cambridgeshire.

REGION 6

Cheltenham.—First Thursday in each month, 8 p.m., Great Western Hotel, Clarence Street.
High Wycombe (Chiltern A.R.C.).—August 31 ("S.S.B." by G2TA), 8 p.m., British Legion Hall, St. Mary Street, High Wycombe.
Stroud.—Wednesdays, 8 p.m., Subscription Rooms, Stroud.
Wolverton (W.D.R.C.).—Fridays, 7.30 p.m., Science and Arts Institute, Church Street.

REGION 7

Acton, Brentford and Chiswick.—August 15 (Open Night), 7.30 p.m., A.E.U. Rooms, 66 High Road, Chiswick.
Bexleyheath (N.K.R.S.).—August 24, September 10 (Film Show), 8 p.m., Congregational Hall, Bexleyheath (near Clock Tower).
Croydon (S.R.C.C.).—September 12, 7.30 p.m., "Blacksmith Arms," South End, Croydon.
Dorking (D. & D.R.S.).—Second and fourth Tuesday in each month, 8 p.m., Star and Garter Hotel, Dorking.
Ealing.—Sundays, 11 a.m., A.B.C. Restaurant, Ealing Broadway, W.5.
East Ham.—August 22 and fortnightly, 8 p.m., 12 Leigh Road, East Ham.
East Molesey (T.V.A.R.T.S.).—September 6, 8 p.m., Carnarvon Castle Hotel, Hampton Court.
Enfield and District.—August 24 (Junk Sale and Ragchew), 7.30 p.m., George Spicer School, Southbury Road, Enfield.
Harlow and District.—Tuesdays, 7.30 p.m., rear of G3ERN (G. E. Read), High Street, Harlow.
Holloway (G.R.S.).—Closed for summer recess, club re-opens September 8, R.A.E. and Morse Classes, September 25.
Ilford.—Thursdays, 8 p.m., 579 High Road, Ilford (near Seven Kings Station).
Kingston.—Lectures alternate Thursdays, Theory and Morse classes weekly, 7.45 p.m., Y.M.C.A., Eden Street, Kingston (Morse at 2 Sunray Avenue, Tolworth).
New Cross (C.A.R.S.).—Fridays, 7.30 p.m., Sundays, 11.30 a.m., Wednesdays (Morse Practice), 8 p.m., 225 New Cross Road, London, S.E.14.
Norwood and South London (C.P. & D.R.C.).—August 19 (V.H.F. Evening), 8 p.m., Windermere House Annexe, Westow Street, Crystal Palace. September 5, Morse Class at G3FZL.
Paddington (P. & D.A.R.S.).—Wednesdays, 7.30 p.m., Beauchamp Lodge, 2 Warwick Crescent, W.2.
Romford (R. & D.R.S.).—No meetings in August. Tuesdays, 8.15 p.m., R.A.F.A. House, 18 Carlton Road, Romford.
Southgate and Finchley.—September 14 ("T.W. V.H.F. Equipment" by Tom Withers, G3HGE), 8 p.m., Arnos School, Wilmer Way, N.11.
Sutton and Cheam (S. & C.R.S.).—No meeting in August.
Welwyn Garden City.—Tuesday, September 12, ("Evolution of a stereogram" by Arthur Mead of Murphy Radio Design Lab.), 8 p.m. Conference Room, Murphy Radio Ltd., Welwyn Garden City.

LONDON MEMBERS' LUNCHEON CLUB

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

at 12.30 p.m. on Friday, August 18, September 15 and October 19, 1961

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

REGION 8

Crawley (C.A.R.C.).—August 23, mobile outing to Hog's Back, Surrey.
West Kent (W.K.A.R.C.).—September 8 ("Bandwidth in Communication" by W. H. Allen, G2UJ), September 22 ("Modern Developments in Domestic TV Receivers" by H. F. Richards), 7.30 p.m., Kent County Council Adult Centre, Culverden House, Culverden Park Road, Tunbridge Wells.

REGION 9

Bideford.—First Thursday in each month, 7.30 p.m., alternately at T. G. Ward (G2FKO), 38 Clovelly Road (Phone Bideford 964) and D. H. Jones (G3BO), Rosebank, Westcombe (Phone Bideford 550).
Bristol.—August 25, 7.15 p.m., Carwardines Restaurant, Baldwin Street, Bristol, 1.
Exeter.—Second Thursday in each month, 8 p.m. Y.M.C.A., St. David's Hill, Exeter.
Falmouth (F.R.C.).—First Wednesday in each month, Y.M.C.A., Falmouth.
Plymouth (P.R.C.).—Tuesdays, 7.30 p.m., Virginia House Settlement, St. Andrews Cross.
Torquay (T.A.R.S.).—Second Saturday in each month, 7.30 p.m., Y.M.C.A., The Castle. August meeting "R.A.F. Air-sea-rescue Communications" by W. Jones (G3BBF).
Weston-super-Mare.—First Tuesday in each month, 7.15 p.m., Technical College, Lower Church Road, Weston-super-Mare.
Yeovil (Y.A.R.C.).—Wednesdays, 7.30 p.m., Grove House, Preston Road, Yeovil.

REGION 10

Cardiff.—September 11 ("Communication Receivers" by J. N. Walker, G5JU), 7.30 p.m., T.A. Centre, Park Street, Cardiff.

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

REGION 12

Aberdeen (A.A.R.S.).—August 18 (Discussion on Field Day Equipment), August 25 ("Transmission Lines"), September 1 (Sale of Surplus Equipment), September 8 (Discussion—Reappraisal of Amateur Radio), September 15 (Members' Lecturettes), 7.30 p.m., 6 Blenheim Lane, Aberdeen.

REGION 14

Glasgow.—Second Friday in each month, 7.30 p.m., Woodside Halls, Claredon Street, N.W. (near St. George's Cross Underground).

Motherwell.—Third Friday in each month, 7.30 p.m., Carfin Hall, Motherwell.

REGION 16

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

REGION 17

Southampton.—Second Saturday in each month, 7 p.m., Engineering Lecture Theatre, Lanchester Buildings, University of Southampton, University Road.

Regional and Club News

Army Wireless Reserve Amateur Radio Society.—At the A.G.M. the following were elected: *Chairman*—A. D. Taylor (GW8PG); *Hon. Treasurer*—W. Whyte (GM3OJC); *Hon. Secretary*—Major D. W. J. Haylock (G3ADZ); *Hon. Editor*—J. E. Hodgkins (G3EJF). During training periods at Blandford, Dorset, the society was visited by the Life Hon. Vice-President, Major-General E. S. Cole, C.B., C.B.E. (G2EC). GB3AWR was active on the h.f. bands. Past and present Army amateurs may obtain details of membership from the Hon. Secretary.

Cheltenham.—At the July meeting, there was an R.S.G.B. recorded lecture on "Two Metres" by W. H. Allen, M.B.E. (G2UJ), and G3IER gave a progress report on the R.A.E.N. 2m transceiver. Plans for a DXpedition to Scotland and the forthcoming O.R.M. were also discussed. *Town Representative:* J. J. Yeend (G3CGD), 30 St. Luke's Road, Cheltenham.

Civil Service Radio Society.—The first meeting of the winter session will be held at the Science Museum, South Kensington, on September 5 at 6 p.m. Subsequent meetings will be held on the first and third Tuesdays in each month. The programme will include lectures on tape recording, s.s.b., crystals, and v.h.f. propagation. Refreshments are available at all meetings and GB2SM is active. Prospective members may obtain details from the *Hon. Secretary:* G. Lloyd-Dalton, 2 Honister Heights, Purley.

Cornish Radio and Television Club.—There was an attendance of 35 at the July meeting at the Y.M.C.A., Falmouth, when G3XC gave a talk on his transistorized communications receiver. Visitors present included G3GHI from Surrey and G3JLS from London. *Hon. Secretary:* W. J. Gilbert, 7 Poltair Road, Penryn, Cornwall.

Crawley Amateur Radio Club.—The meeting on August 23 will be a mobile outing to the Hog's Back, near Guildford. G3CTP/M, G3FRV/M and G3GRA/M, all on 2m, will be in the convoy which should arrive at 8.45 p.m. Members of other clubs are invited to join them for an informal ragchew. Details of the winter programme may be obtained from the *Hon. Secretary:* R. G. B. Vaughan (G3FRV), 9 Hawkins Road, Tilgate, Crawley.

Dudley Amateur Radio Club.—The inaugural meeting of this new club will be held on August 18 at the home of the *Acting Secretary:* D. H. W. Pratt (G3MHS), 23 Kent Street, Upper Gornal, Dudley, Worcs.

Charlie Smart, secretary of Slade, presenting the A.E.I. Trophy to Geoff Nicholson (G3HKC), winner of the Slade-Rugby R.S.G.B. D/F Qualifying event on May 28, 1961.

Harrow, Radio Society of.—A drive to increase membership initiated last year has been highly successful, the membership having increased by over 60 per cent during the past 12-18 months. Of the present total of about 85 paid-up members, over 40 have transmitting licences and of the remainder a pleasing feature is the fairly high proportion of enthusiastic young S.W.L.'s to whom all possible help and encouragement is given. Details of the Society may be obtained from the *Hon. Secretary:* A. C. W. Biddell (G3GNM), 114 Kingshill Avenue, Kenton, Harrow.

Liverpool and District Amateur Radio Society.—The society's annual Amateur Radio Exhibition at the Liverpool Show took place on July 13-15. Equipment used by the exhibition station, GB2LS, included a V-4-6 aerial loaned by Moseley Electronics, Tiger 200, K.W. Vanguard and LG50 transmitters and Eddystone 888 and R.C.A. AR88 receivers provided by members. More than 42,000 people attended the Show and great interest was aroused by the society's exhibits. *Hon. Secretary:* H. James (G3MCN), 448 East Prescot Road, Knotty Ash, Liverpool 14.

London Members' Luncheon Club.—The July meeting was fairly well attended, the influx of overseas visitors making up for the home members who were on holiday. In the absence of Stan Vanstone (G2AYC), the Chair was taken by Arthur Milne (G2MI) who welcomed the visitors, including I1WAS, I1CWZ, K6SVA, VQ4GK, ZD2NWW, ZS5S, GI6TK and his XYL who came with GI3LZS, making a total of 30 in all. The Club will meet at the Bedford Corner Hotel, Bayley Street, Tottenham Court Road, W.C.1, on August 18 and September 15. Overseas visitors will be made especially welcome. Bookings may be made to either RUIslip 2763 or HOLborn 7373.

Magnus Grammar School (Newark-on-Trent) Radio Society.—The Society is now licensed under the call-sign G3PAW. The Hon. Secretary for the school year 1961-62 will be J. Baxter.

March and District Radio Amateurs Society.—This is a newly formed society with quarters at the rear of Police H.Q. in March. The club room is open on Tuesdays and Fridays at 7.30 p.m. Monthly meetings are to be held on the first Tuesday in each month. Members are busy sorting over and stripping down various items of equipment donated to the club. *Hon. Secretary:* R. E. Ludman, 5 Kingswood Road, March.

Northern Heights Amateur Radio Society.—Recent activities have included a talk by G2SU on "Fifty Years of Radio" and a visit to a local television factory. Meetings will be held at the Sportsman Inn, Ogden, at 7.45 p.m. on August 23 (Ragchew), September 6 (Radio Astronomy) and September 20. *Hon. Secretary:* A. Robinson (G3MDW), Candy Cabin, Ogden, Halifax.

Paddington and District Amateur Radio Society.—An exhibition of home-built equipment and a live station were staged at the Little Venice Festival on June 24. Considerable interest was shown by the public and a member was kept busy the whole time answering questions. *Hon. Secretary:* N. A. Lambert (G3LVK), 2 Warwick Crescent, London, W.2.

Peterborough Amateur Radio Society.—At the July meeting arrangements were made for a barbecue to be held on September 10 at the society's riverside site at Alwalton—just off the Great North Road between Norman Cross and Stamford. *Hon. Secretary and Town Representative:* D. Byrne (G3KPO), Jersey House, Eye, Peterborough.

Plymouth Radio Club.—On July 8, the club was the guest of the Torbay Amateur Radio Society in an "Ask me another" quiz and although the home side won by 10 points, a very enjoyable evening was spent. A return contest is being planned. If there is

sufficient support, it is proposed to approach the Technical School to arrange a course in preparation for the R.A.E., commencing in September. The club room will be closed until August 24. *Hon. Secretary:* R. Hooper, 2 Chestnut Road, Peverell, Plymouth.

Reading Amateur Radio Club.—The June meeting was devoted to a discussion of the paper set for the May 1961 R.A.E. while on July 29 Mr. Johnson was due to lecture on power packs and transistor power supplies. *Hon. Secretary:* R. G. Nash (G3EJA) 9 Holybrook Road, Reading.

Rotherham Radio Club.—The club has now moved into its new H.Q. and G3OAM is on the air each club night on 20m. The special show station, GB3RRS, was operated on Bank Holiday Monday from Clifton Park, Rotherham and all cards should be sent to G3MBQ. A comprehensive programme of talks, quizzes, R.A.E. and Morse lessons and, it is hoped, visits to other local clubs is being planned for the remaining 15 meetings of this year. *Hon. Secretary:* S. J. Scarborough, 25 Crawshaw Avenue, Beauchief, Sheffield, 8.

Stockport Radio Society.—Recent activities have included participation in the Second 144 Mc/s Field Day under the call-sign G3AYT/P and an Amateur Radio display at the Northern Electronics Exhibition in Manchester where GB3NEE was in operation. Several members passed the May R.A.E. A recent talk by a junior member, I. Cotterill, was so well received it is hoped that other junior members will give talks in the future. Details of meetings will be found in *Forthcoming Events* and of the rally at Buxton on August 27 elsewhere in this issue. *Hon. Secretary:* G. R. Phillips (G3FYE), 7 Germans Buildings, Buxton Road, Stockport.

Wanstead, Woodford and District Radio Club.—The club's field day at Sewanstone Hill, near Gillwell, was due to commence on August 13 and will end on August 17. Operation is on 1·8, 14 and 144 Mc/s. Details of other activities may be obtained from the *Hon. Secretary:* J. R. Seaman, 67 Beattyville Gardens, Ilford.

Letter of the Month

I.A.R.U. Region I V.H.F. Contest

DEAR SIRS,—It has been noticed with regret that the Contests Committee have omitted the National V.H.F. Contest for September 2-3, leaving only the I.A.R.U. event on that date.

The A.E.R.E. (Harwell) Amateur Radio Club feel that their disappointment at the omission of the national section will not only be shared by many other v.h.f. operators, but also will lead to a much reduced entry and a diminished level of v.h.f. activity throughout the two days.

Furthermore, it is pointed out that if contestants in the United Kingdom are to be able to compete on equal terms with their rival Region I participants, it is most important that local activity should be as high as possible. The retention of a National contest is an essential factor in achieving this, and it is urged most strongly that the Contests Committee reconsider their decision and organize a national event to be run concurrently with the Region I contest as in previous years.

This request is made on behalf of the following club members: G3HS, G2HIF, G3AZT, G3NNG, G3NXR and G3OGC, all of whom regularly support v.h.f. contests and feel sufficiently strongly on the matter to formally register their dissatisfaction with the present arrangements.

Yours faithfully,
CLIFFE SHARPE (G2HIF),
Hon. Secretary,
A.E.R.E. (Harwell) Amateur Radio Club.
Wantage, Berks.

(*Editorial Note:* The National 144 Mc/s and 420 Mc/s contests were dropped from the *Contests Diary* some months ago but it was not until late June and early July that any comment was received at Headquarters. Although it is now too late for any plans to be made for this year, the Contests Committee will be pleased to receive comments on the subject from other v.h.f. enthusiasts for consideration when planning for 1962).

Held Over

DUE to pressure on space, a number of *Letters to the Editor* and other technical and topical features have been held over.

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PERSONAL

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BC221 complete with calibration charts £10.—G3EVP, " Rosedene," Langthorpe, Boroughbridge, York.

K.W. VICTOR, low pass filter, and s.w. meter, hardly used, best offer over £65. SX28 with handbook, perfect £30.—Collett, South Lodge, Eastgate, Lewes.

WAVEMETER W1191, £3 10s. Receiver type R1392A, good condition £5. 813 valves(2) 25s. each.—G8KU, " Roseacre," Irton, near Scarborough, Yorks.

FOR SALE.—LG 300 and PU/MOD companion unit. Mint, £95 o.n.o. R208 excellent condition with manual £8. Leak TL 12 Mint, with varislope pre-amp., cost £42. Offers? Chapman Tuner, cost £40, offers? Heathkit GD6, brand new condition, £5. UM2, 50s. Grampion M/C mike, transformer and stand £4. CR6 mint, cost £35, offers? Brand new power transformer 500-0-500 and usual LT windings, £3.—Box No. R.7023, c/o R.S.G.B. BULLETIN, 4, Ludgate Circus, London, E.C.4. Glasgow area.

APACHE TX-1.—Impressive DX record £100. Johnson 275 watt match box £15; G4ZU Minibeam £8; Rotator and Indicator including all cables £12; 115 volt; A.C. Dow Antenna Relay £3. Collection to be arranged or might deliver S.E. England.—G6RJ (Phone Thanet 41370), 4, Leslie Road, Birchington, Kent.

DX100U.—15 months old, very good condition. Owner going SSB, £50. Buyer collects and inspects.—Swain, (G3KXA), 145, Mill Lane, Bentley Heath, Solihull, Warwickshire. (Phone: Knowle 3815.)

FOR SALE—TRADE

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Printed in Great Britain for the RADIO SOCIETY OF GREAT BRITAIN, New Ruskin House, Little Russell Street, London, W.C.1 by Loxley Brothers Limited, Letchworth, Hertfordshire

IF UNDELIVERED Return to:— R.S.G.B., NEW RUSKIN HOUSE, LITTLE RUSSELL STREET, W.C.1