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DECEMBER, 1958

BULLETIN

2/6 Monthly

VOL. 34, NO. 6

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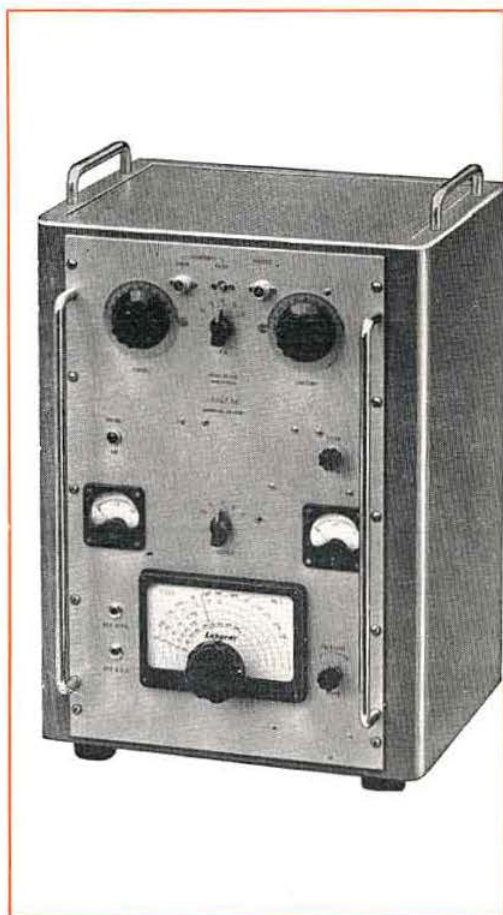
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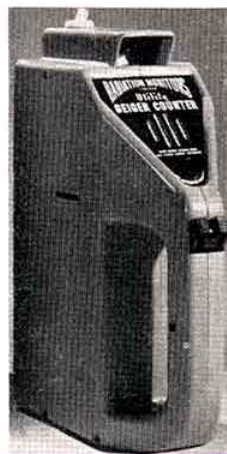
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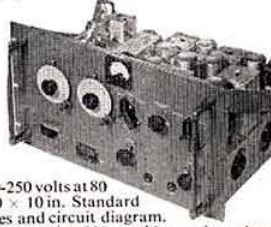
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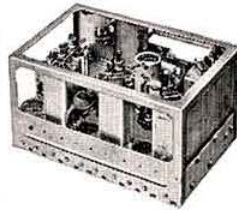
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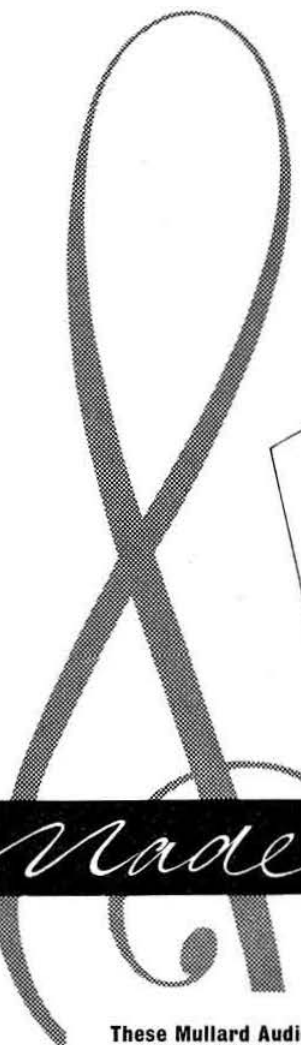
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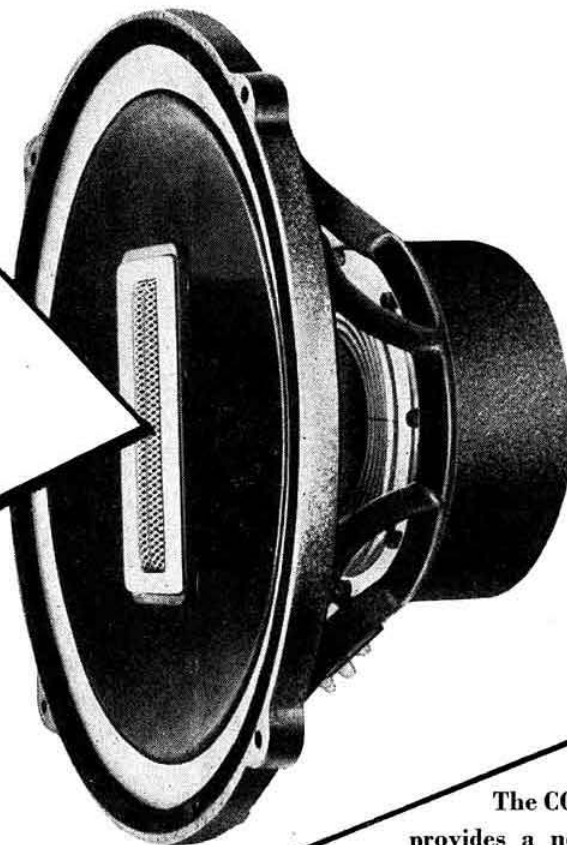
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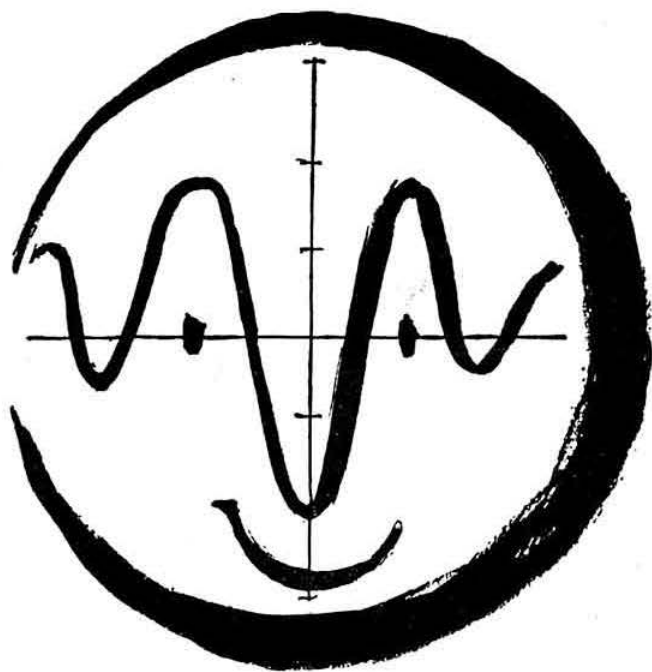
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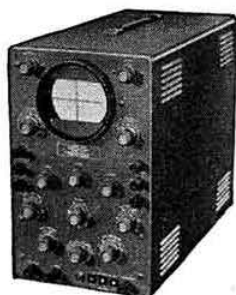


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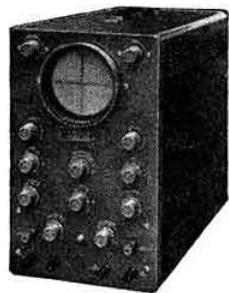


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The R.S.G.B. Bulletin is published on or about the 15th of each month as its official Journal by the Radio Society of Great Britain and issued free to members. Closing date for copy is the 22nd of the month preceding publication. © Radio Society of Great Britain, 1958.

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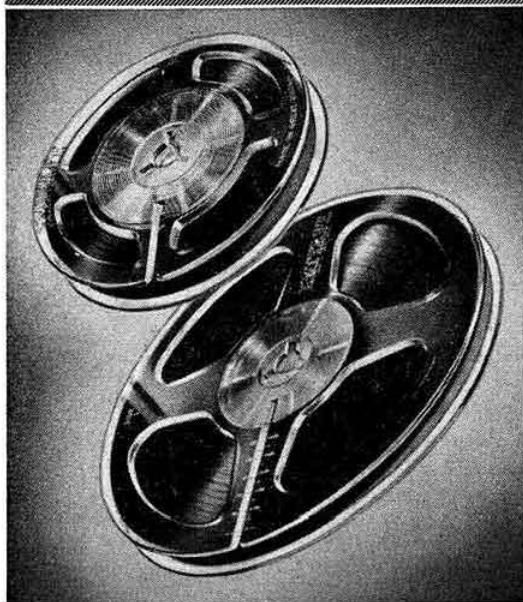
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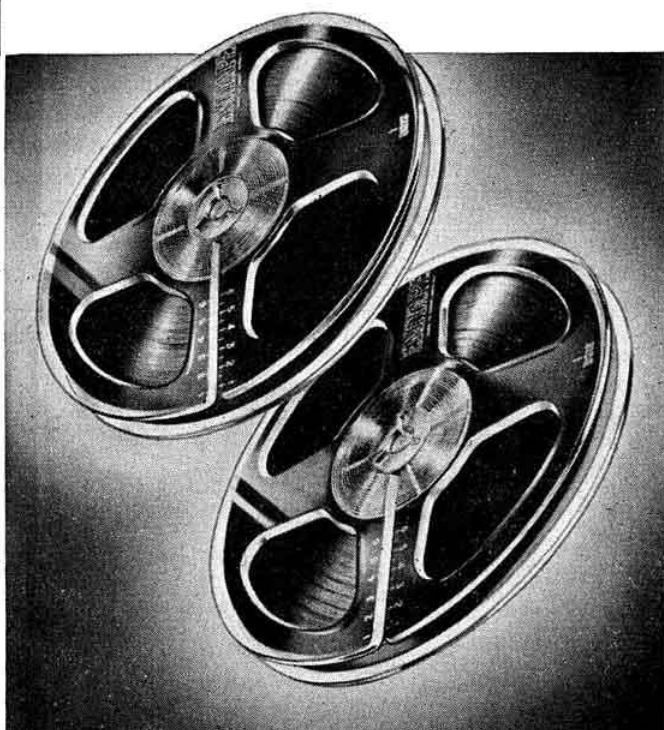
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Current Comment



discusses topics of the day

The Mullard Award

SHORTLY after the first world war a young Royal Air Force signals officer who had seen earlier service in the Royal Naval Air Service decided to try his luck in the then almost unknown field of valve manufacturing. His name was Stanley Robert Mullard. From these early days right up to the present time the Mullard Company has gone out of its way to assist the Amateur Radio movement in general and individual amateurs in particular.

The growth of the Mullard organization in recent years has been considerable, due in no small measure to the policy adopted by the Board of Directors in encouraging young men to enter the field of electronics. The Mullard Company has been behind many of the excellent educational displays at Earls Court and other

to submit a brief factual account of the personal service rendered by the nominee.

The Committee, consisting of three representatives of Mullard Limited and three representatives of the Council of the R.S.G.B., will consider the nominations and make a decision. The presentation will take place in April.

Here then is an Award which is unique in the annals of Amateur Radio. That it will fire the imagination of members generally is certain because they will recognize that the recipient may well be one of their own immediate circle.

Next month the Society will invite nominations for the first Mullard Award. In the meantime the thanks of all members is recorded to the Directors of Mullard Limited for their generosity.

The President, Council and Headquarters Staff

send Christmas and New Year Greetings to all

Members of the Society

radio exhibitions, while in the field of technical literature it has made an important contribution.

This month the Directors of Mullard Limited have provided further proof of their interest in the Amateur Radio movement by offering the Mullard Award. The Award is to be made annually to the member of the Radio Society of Great Britain, resident in the United Kingdom, who in the opinion of a committee has, through the medium of Amateur Radio during the preceding calendar year, rendered outstanding personal service to the community by his own endeavours or by his own example of fortitude and courage.

Each January the Society will invite nominations for the Award which will take the form of a gift in kind (preferably electronic or electrical apparatus and/or books) to the value of £25, and a commemorative plaque. Every nomination will require to be supported by at least three Corporate members who will be asked

New R.S.G.B. Publications

THE opening day of the Radio Hobbies Exhibition was also publication day for two new Society publications—the Seventh Edition of *A Guide to Amateur Radio* and the 1959 Edition of the *R.S.G.B. Amateur Radio Call Book*.

The new 72-page *Guide*, packed tight with useful technical and operating information, will appeal especially to those who are studying for the Radio Amateurs' Examination. It is the most ambitious edition of this popular best seller to appear since the war.

The 1959 *Call Book* lists all calls issued up to the end of October 1958 and records hundreds of amendments since the previous edition appeared.

The *Call Book* and *Guide* are offered at the low price of 3/6 each (by post 4/-). Both deserve a place on the operating table of every active amateur.

A Hand Winch Operated Telescopic Mast

BY P. PENNELL (G2PL)*

SINCE the Second World War, the writer has been experimenting with directional aerials for 14, 21 and 28 Mc/s. The majority have been of the Yagi type and in order to make measurements of the gain, etc., of such arrays when mounted at a height of 35 ft., it has been necessary to raise them through an arc into the vertical position. This has been accomplished by using two ropes fed via pulleys, fixed under the eaves of the house to a guy plate at the top of the mast, together with two ropes fed in a similar manner to a position half way up the mast. A total of three guys were also provided at the top, and two at a point half way up the mast for guying in the opposite direction.

When the pole reached an angle of 45° there was the possibility that it would get out of control. Furthermore, the maximum weight that could be mounted on top of the 35 ft. sectionalized mast was approximately 18 lb., thus severely limiting the size of the array.

An Improved System

The solution to the problem of raising the mast with an array appeared to be some means of attaching the beam to the mast at a low, and easily accessible, height and to raise it subsequently to the desired height whilst keeping it in the vertical position.

On the American amateur market there are several versions of such a mast but as far as could be determined none was available at the time in England. It was known that G3HLS had designed and installed a 100 ft. collapsible motor driven mast but the cost of such an installation is beyond the average amateur's resources. Low cost was con-

sidered to be of paramount importance. Accordingly a hand winch operated mast, compressible to a height of 14 ft. and extendable to a maximum height of 37 ft. was evolved. The arrangement is shown in Fig 1.

Basically standard lengths of 13 ft. aluminium alloy (specification HT10WP) of 2 in., $1\frac{1}{2}$ in. and $1\frac{1}{2}$ in. diameter and 16 s.w.g. are used. The three tubes are telescopic with a gap of $\frac{1}{16}$ in. between the outer and inner surfaces. Through these gaps are run lengths of steel wire (standard Terry No. 2/0) which are anchored to bungs at the end of the two inner tubes. The steel wire is then passed over two pulleys per section through an annulus (part of the top bearing). The pulley plates (Fig. 2) are made using standard 4×4 in. aluminium alloy sheet $\frac{1}{4}$ in. thick with $1\frac{1}{2}$ in. or 2 in. diameter holes and standard $1\frac{1}{2}$ in. pulley wheels fixed on to the plate. A U bolt is attached to the plate via aluminium alloy angle for the purpose of fixing to the aluminium alloy tube.

The top bearing is illustrated in Fig. 3.

* 122 Foresters Drive, Wallington, Surrey.

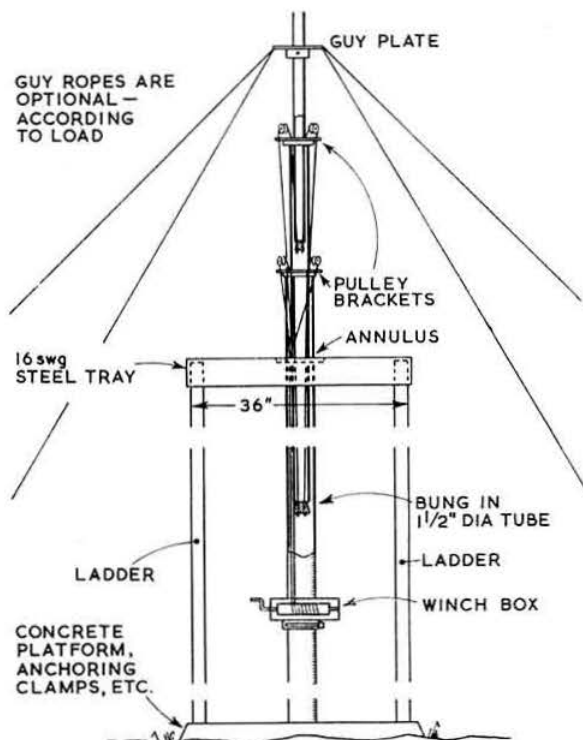


Fig. 1. The hand winch operated telescopic mast described by G2PL.

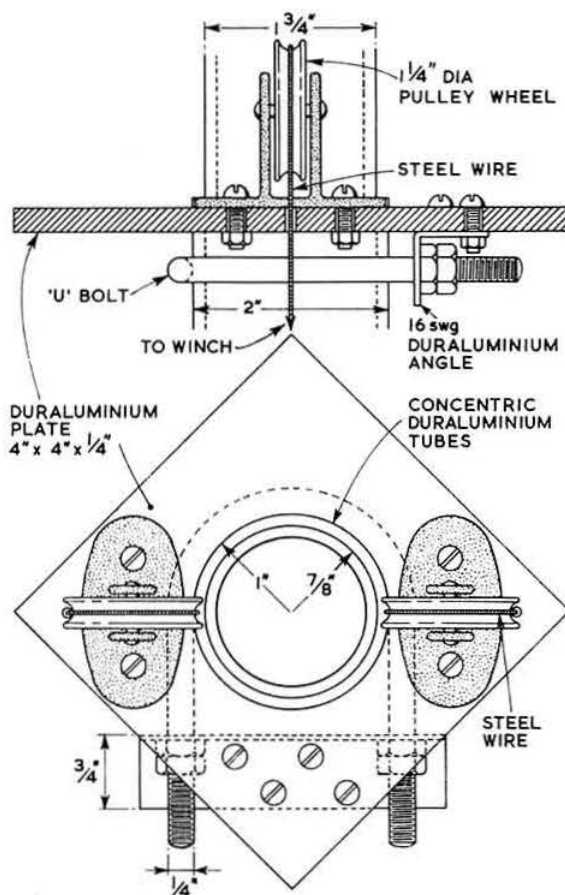


Fig. 2. The pulley plates showing the method of fixing with U bolts.

The Winch Box

The winch box (Fig. 4) is constructed as follows. Two $1\frac{1}{2}$ in. diameter rollers of hardwood are pinned to a $\frac{3}{8}$ in. steel rod which has previously been formed for use as a crank. These rollers can either be made in two sections or bought in solid form from a wood shop and a hole drilled centrally to accept the steel shaft. Spur gears, giving a 3:1 reduction, are used to drive the rollers from the steel handle. A lock for the winch drum is provided by a coarse spur gear attached to the end of the steel shaft: a strip of steel is fixed on two pillars opposite this gear, spaced about $\frac{1}{4}$ in. from the gear and a hole is drilled opposite the gap between

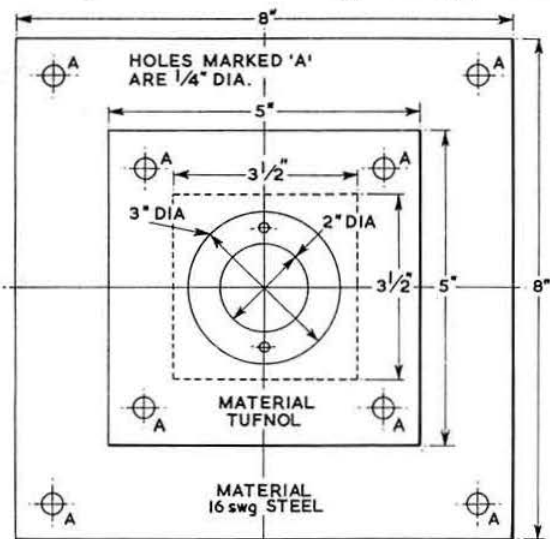


Fig. 3. The top bearing.

The material for the outer shell of the box can be aluminium alloy or steel of sufficient thickness to maintain rigidity and avoid distortion when the winches are under tension.

Assembly of the Mast Foundations

The location of the mast must first be decided and foundations laid. In the author's installation a rectangle 6 ft. \times 4 ft. was dug to a depth of 4 ft. and four 8 ft. steel angle members 2 in. \times 2 in. \times $\frac{1}{4}$ in. sunk in it to a depth of 4 ft. To position them correctly it is necessary to use wooden slats between the angles. A spirit level should be used to ensure that the angle members are straight. (Extra time spent on this operation saves trouble later on.) Rubble and concrete in alternate layers were used to hold the angle members in position.

When level with the ground, a platform of bricks and concrete 14 in. high was made for supporting the mast plate and locking arrangement (Fig 5). This consists of $\frac{1}{2}$ in. hardwood treated with Solignum and sunk into the concrete. A wooden bearing with a 2 in. hole in hardwood of $\frac{1}{2}$ in. thickness and size 5 in. \times 5 in. is in the centre. A steel plate ($\frac{1}{8}$ in. thick, 4 in. \times 3 in.) is used to prevent the mast base from cutting into the wood. Two blocks of wood measuring 5 in. \times 2 in. have a U section cut out of each (slightly under 2 in. in diameter) in order to ensure that when clamped they grip the tube tightly.

A vertical wooden member $\frac{1}{2}$ in. thick, supported by angles from the base, is used for anchoring the mast, carriage bolts $\frac{3}{8}$ in. thick being used for controlling the pressure of the clamps on the tube. An additional locking rod is passed via a hole drilled through the clamps, tube and supporting member, for use when there are high gales.

In the future it is intended to turn the mast remotely by means of a motor and this will require modifications to the locking arrangement.

Two 12 ft. ladders are bolted to the steel angles with their bases 18 in. above the ground. Two steel cross-braces are

two teeth through the side of the box and the steel strip. An $\frac{1}{8}$ in. thick nail can then be inserted for locking purposes. A ratchet mechanism is to be preferred but would be much more expensive. Whilst winding up the mast it is important not to release the handle until the winch is locked.

The wires are anchored in pairs via soldering lugs screwed into one end of the winch drums. The lengths of the wire must be made the same in order to avoid an excessive load being taken by one pair of wires. One winch controls the top section of the mast and the other the middle section. Simple pinned collars are used to hold the rollers and gears in position.

All gears and moving parts must be well greased. Ideally, silicone grease should be used but ordinary general purpose grease is satisfactory. It is essential that all wires are also well greased.

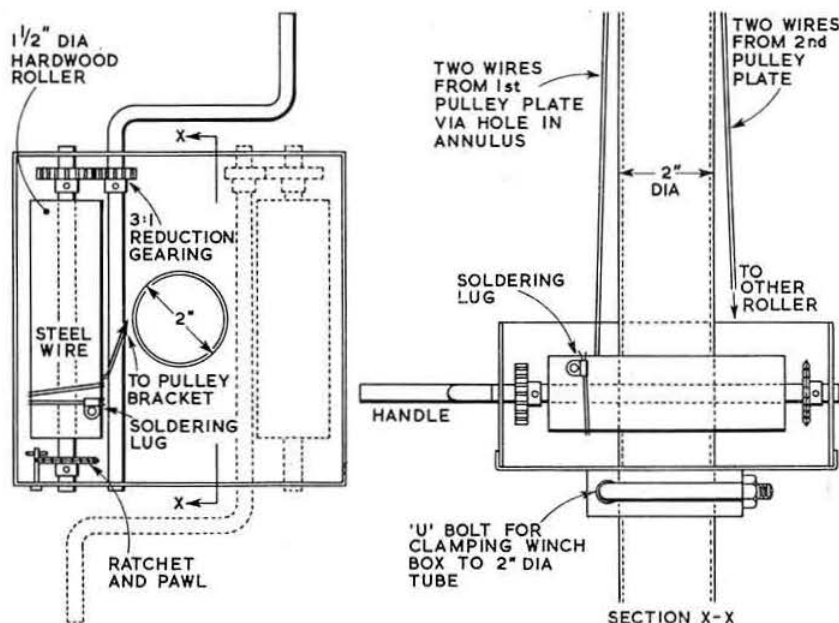


Fig. 4. Construction of the winch box.

added at a height of 6 ft. Additional bracing is provided across the sides by wooden slats 8 ft. \times 8 ft. \times $\frac{1}{2}$ in. A platform consisting of a tray of 16 s.w.g. mild steel and measuring 14 in. \times 36 in. is attached to the top, the tray being bolted through the side folds to the ladder. The tray has sides 2 in. deep and a rectangular cutout 6 in. \times 6 in. The cutout is filled by a piece of metal carrying the top bearing to allow complete assembly of the mast at ground level. This is attached by bolts to the tray.

Assembly of the Mast

To assemble the mast, lay the three tubes on a dry clean surface and attach anchoring bungs to the end of the $1\frac{3}{4}$ in. and $1\frac{1}{2}$ in. tubes. Thread the steel wires through the bungs and anchor to large solder tags. Having anchored the wire, grease the bung.

With the assistance of a helper, insert the $1\frac{3}{4}$ in. tube (well greased) into the 2 in. diameter tube, ensuring that the wire does not kink or twist as it is fed in. Repeat the same process placing the $1\frac{1}{2}$ in. tube inside the $1\frac{3}{4}$ in. tube, again applying grease liberally. It is advisable to unwind the steel wire slowly as it will tangle if more than is required is uncoiled.

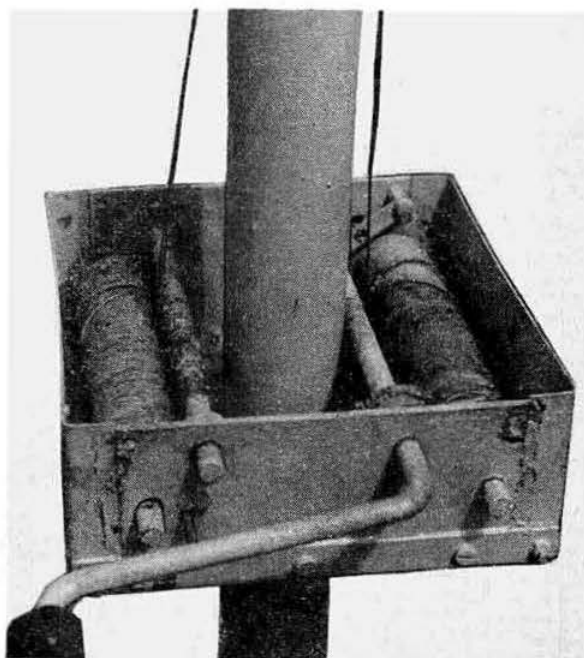
Complete the assembly of the mast in the following order:

- Winch box—this slips over the 2 in. tube and is anchored with the U bolt at a height of approximately 3 ft.
- Pulley plate for 2 in. tube anchored with U bolt.
- Collar and guy plate for $1\frac{3}{4}$ in. tube.
- Pulley plate for $1\frac{3}{4}$ in. tube anchored with U bolt.
- Collar and guy plate for $1\frac{1}{2}$ in. tube.
- T support for attachment of array.

Placing the Mast in Position

The mast is now ready to erect. It is first placed against one side of the base and passed through the 6 in. \times 6 in. cutout. The rectangular plate attached to the top plate is then bolted to the inverted tray.

The next operation is to attach the beam to the top of the mast. There are several methods of doing this. The writer attached two $\frac{3}{8}$ in. steel spigots to the same side of each



A view of the winch box.

ladder at a height of 5 ft. and also at the top. The boom of the beam is then rested on the first pair of spigots, a rope either side is attached to the boom, passed via two pulleys at the top of the ladders and the boom is pulled up until it is just under the top spigots, and then lifted over them to the top tray. The use of two pieces of wood with V cuts to accept the boom, attached to two poles about 12 ft. long, facilitates the lifting of the boom into position on the T section.

The beam is now ready for raising to full height. One pair of wires is wound up as the other is released on the other winch roller. The following procedure should be carried out:

- Wind the top section up slowly to a height of approximately 3 ft. above the next section and pin the collar supporting the top guy plate with a $\frac{1}{8}$ in. bolt. Terylene guy ropes, although expensive initially, will last longer than waxed rope and will not shrink or stretch with changes in humidity. The guys should be run to the final fixing stakes and returned via pulleys for control from the base of the ladders. The angle subtended by each guy should, ideally, be not less than 45° and each should be positioned at 90° intervals around the mast. However, there is considerable flexibility in their disposition.

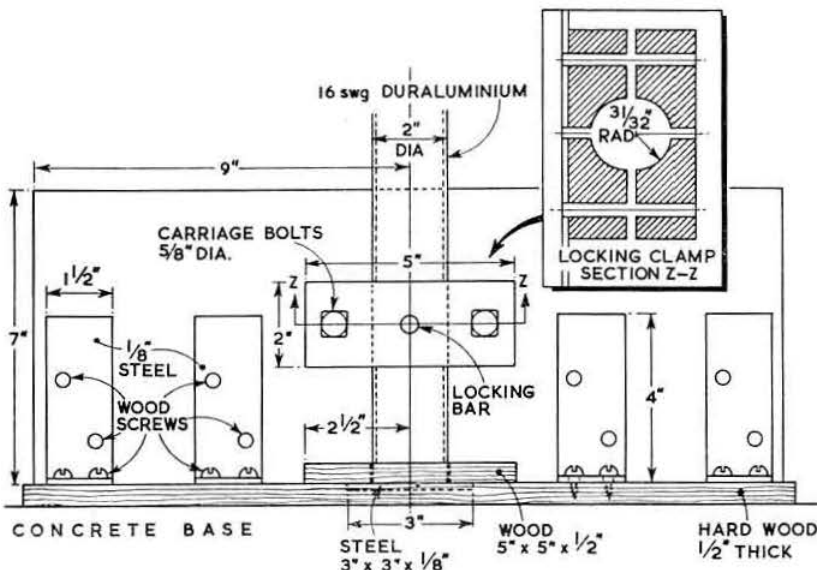


Fig. 5. Base and locking arrangement.

- (b) Wind the top section up to a height of 10 ft. above the tray and pin with a bolt. This section should then be lowered slightly to rest in the notch provided in the tube into which it compresses. This locking will prevent the section turning independently of the section into which it compresses.

- (c) Repeat (a) for the next section.

In carrying out operation (c) when there is a wind blowing, care must be taken to ensure that the mast goes up vertically by controlling the top guy ropes.

The number of guys is largely dependent on top loading. For beams of less weight and span the bottom ones could be omitted and three guys used at the top.

As will be seen from Fig. 2 "gaiters" or plastic covers have been placed around the pulley plates to provide additional protection against the weather. The same form of protection has been applied to the winch box although this may not be necessary if the winch has a metal cover.

It takes approximately 10 minutes to raise the mast, including pinning operations, etc.

In the original installation the beam weighs 29 lb. and the overall boom length is 18 ft. This boom carries a full-size 14 Mc/s reflector and director.

Mast Radiator

The mast may be earthed at the base or it can be used as a radiator on 3.5 Mc/s via a series tuned coupling circuit with 75 ohm feeder. Good results have been obtained with this top capacity loaded radiator even at a height of 34 ft. 6 in. European stations have been easily contacted with only 15 watts input. It has also been possible to make it radiate usefully on 7 and 14 Mc/s and even on 1.8 Mc/s.

Cost

The cost will depend to a large extent on the type of foundation which is provided. The mast with pulley plates, wire, bearings, etc., costs approximately £7.

Acknowledgment

The author would like to express appreciation for the suggestions and practical help given by both friends and relations.

South African Call Book

COPIES of the new 64-page South African Radio League Call Book can be obtained from S.A.R.L. Headquarters, P.O. Box 3911, Cape Town. The price is 7s. 6d.



In this picture of the I.f. station on Scroby Island are (left to right) G3IVH, G2YU, G3MSP, R. Skoyles and G3JDC.

DX-pedition on a Shoestring

ON September 14, the Norwich and District Radio Club and the R.A.F. (Watton) Amateur Radio Society made another DX-pedition to Scroby Island off the East Coast. Remembering the high seas and gales which prevented landing in 1957, it was arranged that the local R.A.E.N. net should stand by in case of emergencies!

A novel feature was added by the use of a helicopter from No. 275 Search and Rescue Squadron to airlift G3HRE/M and G3MSP (in their capacity as R.A.F. signallers) and the R.A.F. society's equipment. The airlift was part of a rescue winching exercise.



Landing equipment from the helicopter

Two stations were in operation—G3JGI/P (Norwich) on the DX bands and G3MSZ/P (R.A.F.) on the lower frequencies. The equipment at G3JGI/P comprised a Panda Cub transmitter (loaned by G3IWC) while G3MSZ/P used a much modified TCS12. Both stations used Mini-mitter converters feeding into Command sets for reception. Norwich worked most W call areas and a UA9 while the R.A.F. society's station had many contacts in western Europe.

Altogether a most successful day well meriting the hard work which was involved.

Mobile Operation

MR. C. J. LEAL (G3ISX), 1 Deepdene Road, Welling, Kent, would like to exchange correspondence with any member who has successfully worked Top Band mobile from a motor-cycle.

Atmospheric Radio Noise*

By F. HORNER, M.Sc., A.M.I.E.E.

IN present-day conditions the most serious sources of interference to reception on many frequency bands are man-made signals from other transmitters, and noise from electrical apparatus. Nevertheless, natural noise from lightning flashes in thunderstorms is still important on some frequency bands in many parts of the world. It is necessary to know the intensity of this atmospheric noise to decide on the transmitter power which is required to operate a given service.

Properties of Atmospherics

The best-known feature of a lightning discharge is the intense stroke to ground, with a peak current of the order of 20,000 amps., and this is the main source of noise at the lowest frequencies (below 30 kc/s). The noise consists largely of impulses of short duration from these ground strokes. At higher frequencies the ground stroke is less important, and the noise seems to originate in smaller but more prolonged discharges in the thundercloud. The difference between the two types of noise can be seen in Fig. 1, in which the upper and lower traces show atmospherics

variations with frequency, time of day, and season; the second is the type of noise structure—whether it is impulsive, as shown in Fig. 1, or more smooth, like thermal noise in valves.

Distribution of Noise Over the World

The parameter adopted for describing geographical and temporal variations is the noise power, averaged over a period of approximately one hour. All the available data have been expressed in this form and collected into a report published by the International Radio Consultative Committee (C.C.I.R.). [1] This report contains a series of charts for different seasons and times of day, an example of which is reproduced in Fig. 2. On these charts are plotted contours showing the noise power available from a short vertical aerial, at 1 Mc/s, expressed in decibels above the thermal noise from the aerial. High noise levels are seen to be encountered in the equatorial land masses and low levels in polar regions.

To obtain noise intensities at other frequencies from that at 1 Mc/s two series of curves are used. Fig. 3 shows that

to be used during daylight at the receiving location and there is a similar one for dark conditions. The noise is related to the intensity at 1 Mc/s as deduced from the charts. An indication is also given of the noise from the galaxy and the appropriate level of man-made noise at a good receiving location. This level is, of course, subject to wide variations depending on local conditions.

The higher curves in Fig. 3, which apply to places near the main thunderstorm centres, show how the noise power decreases with increase in frequency. Above 10 Mc/s the power decreases rather rapidly because the area of the world from which regular ionospheric propagation is not possible increases with frequency. In the middle frequency range ionospheric absorption reduces the noise levels at places well removed from the main thunderstorms, and the atmospheric noise is negligible compared with man-made noise on most of these sites.

The C.C.I.R. noise data are provisional and more measurements are being made to check them. In particular, equipment has been developed in the United States for the automatic measurement of noise power on eight frequencies, and it is hoped that this equipment will ultimately be installed at 50 stations.[2]

Noise Structure

Noise structure is a term used to describe the rapid fluctuations in amplitude in a short sample of noise—perhaps only a few seconds long. A means of describing this structure is required in studies of the interference to different types of radio service. For example, noise containing a few large peaks may interfere seriously with a service using pulse modulation, while a smoother type of noise of the same overall power would not.

A partial description of the noise structure can be given in terms of the fraction of time, in a short sample, that the amplitude exceeds different voltage levels—this shows whether any large peaks are present. Alternatively, the

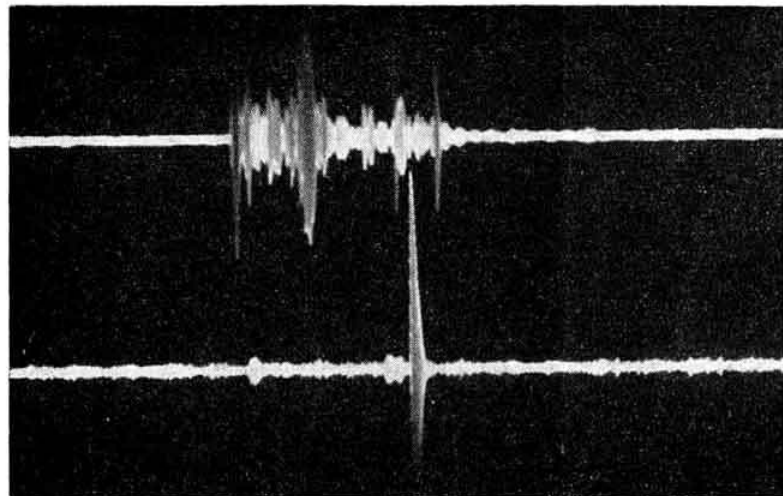


Fig. 1. Atmospheric noise from a single lightning flash. Upper trace—11 Mc/s; lower trace—6 kc/s; bandwidth about 250 c/s.

from the same lightning flash, recorded simultaneously at 11 Mc/s and 6 kc/s, both in a bandwidth of about 250 c/s. The duration of the h.f. burst was 100 milliseconds. The 6 kc/s pulse probably originated in a stroke to ground four miles away and the 11 Mc/s noise in the cloud discharges which preceded the ground stroke. Noise is impulsive at all frequencies but at high frequencies it tends to become similar to thermal noise if there are contributions from a large number of storms.

Although the noise has been depicted in Fig. 1 with about the same amplitude on both frequencies, the peak field at 6 kc/s is actually much greater than that at 11 Mc/s—200 mV/m compared with 0.4 mV/m.

In radio communication problems, two types of information on noise are required. The first is the distribution of noise intensity over the surface of the world, and its

*Official communication from the D.S.I.R. Radio Research Station based on a lecture delivered to the Society of the Institution of Electrical Engineers on November 29, 1957.

number of peaks which exceed different voltages may be counted. A full description must, in addition, give an indication of the lengths of the noise pulses and of the intervals between them. Methods of carrying out such observations have been developed, and it is hoped that as a result all the information on noise required by engineers will become available.

Examination of the noise structure, particularly at low frequencies, is also useful in studying the reflecting properties of the ionosphere. If an atmospheric is displayed on a cathode ray tube it is often possible, particularly at night,

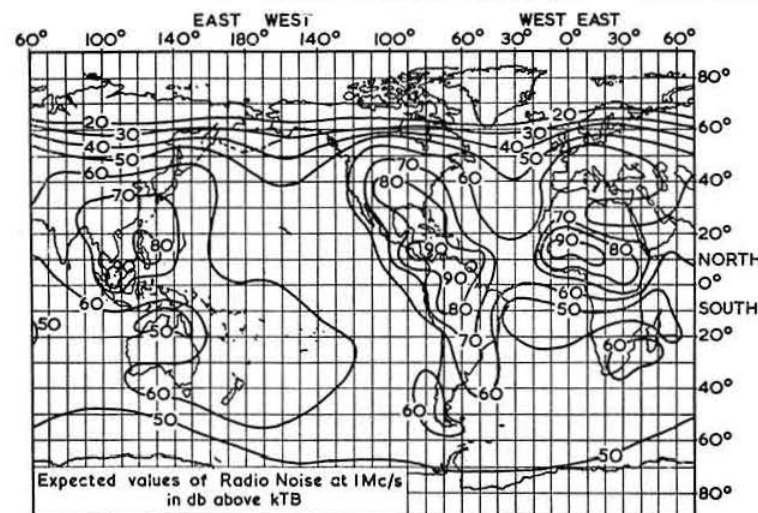


Fig. 2. Noise distribution chart for the period June, July and August, from 16.00 to 20.00 L.M.T.

to distinguish the part received by ground wave propagation, followed by the one hop ionospheric wave, the two hop wave, and so on. As many as 40 successive "echoes" have sometimes been recorded. An example of a waveform with 17 echoes is shown in Fig. 4. From the measurement of the time intervals it is possible to deduce both the distance of the flash and the effective height of reflection of the waves. The amplitudes of the echoes also furnish information about the reflecting properties of the ionosphere.

Location of Noise Sources

The problem of describing the noise would be simpler if we knew more about the lightning flashes in which it is generated. It would be useful to know the precise nature of an atmospheric, at any frequency, from a single discharge. Such observations are best made at close range to eliminate the effects of propagation. Records such as those in Fig. 1 provide information about the atmospherics, but it is necessary also to know the distance of each recorded flash. At ranges of only a few kilometres this can be deduced from the time-delay between the visual flash (or the recorded atmospheric) and the thunder, but at longer ranges direction finders are used.

The cathode ray direction finder for thunderstorm location [3] operates at about 10 kc/s and has two loop aerials, one in a north-south direction and the other east-west. The output voltages are amplified equally and applied to the two pairs of deflecting plates of a cathode ray tube. The arrival of an atmospheric from a particular direction is indicated by a momentary trace in a corresponding radial direction on the tube face.

The console of one of these direction finders is shown in Fig. 5. The top unit contains the twin amplifiers, with facilities for matching them exactly, the centre unit is the

display, and the bottom unit contains the power supplies. Instruments of this type are in regular use at four stations in the United Kingdom, operated by the Meteorological Office, and have been adopted by several similar organizations in other countries. A considerable amount of information on the movement of thunderstorms is therefore available regularly for use in the study of the origins of radio noise.

Lightning Flash Counters

It has been seen that the distribution of noise over the world is related to the distribution of thunderstorms, and noise information has in fact been based partly on thunderstorm data derived from visual and aural observations by large numbers of people. There would be some advantage in having an automatic recorder which would count the number of lightning flashes within a given radius and several designs have been proposed. All of these instruments are simple low frequency receivers, and one particular design has been selected as suitable for tests at a large number of stations. The selected instrument consists of a vertical wire aerial connected to a wideband v.l.f. amplifying stage, followed by a multi-vibrator actuating a mechanical register. In general the number of flashes is read at hourly intervals.

Whistlers

Interesting results have emerged from a study of radio noise in the audio frequency band. This noise often contains whistles of descending pitch, known as whistling atmospherics or whistlers. It has been shown that these originate in lightning flashes which radiate impulses containing energy distributed over a wide band of frequencies, with a maximum in the audio frequency band. Current theories indicate that this energy travels through the ionosphere into

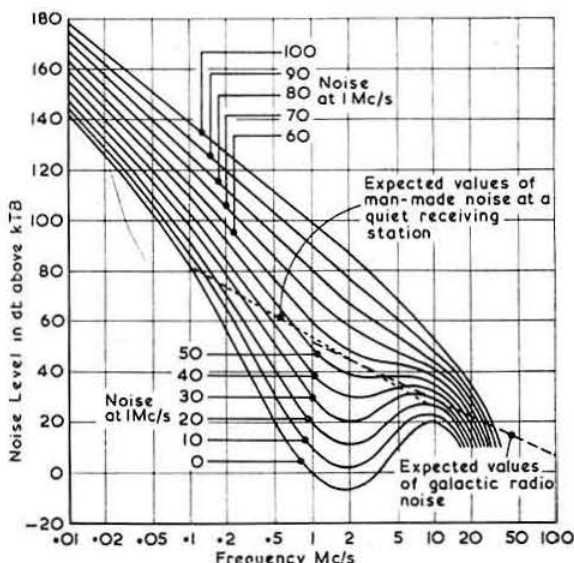


Fig. 3. Median values of radio noise expected for a short vertical aerial. For the times 08.00 to 12.00 and 12.00 to 16.00 (all seasons) and 04.00 to 08.00 and 16.00 to 20.00 (spring and summer).

the regions beyond, is guided along the earth's magnetic lines of force and returns to earth at a point in the opposite hemisphere. During this journey the higher frequencies travel at faster speed than the lower ones and arrive first at their destination, so the result is a whistle of descending pitch. Part of the energy may be reflected at the ground and travel back along the same path to the neighbourhood of the originating lightning flash, and by that time the frequencies are more spread out in time, giving a longer whistler. Several such reflections

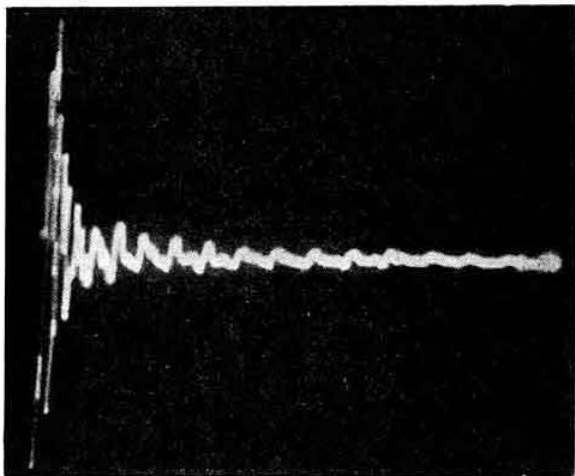


Fig. 4. Night-time echo type atmospheric.

may take place, the energy bouncing back and forth between the two hemispheres and taking the form of longer and longer whistlers. These observations show that there is appreciable density of free electrons at distances above the earth's surface of several times its radius.

Other types of audio frequency noise which are observed are more difficult to explain, but some are believed to result from the interaction of the earth's magnetic field with particles received from the sun.

Conclusion

To the communications engineer, atmospheric noise often causes interference and must be regarded as a nuisance. It has been shown, however, that it has useful properties. It can be used by meteorologists to locate thunderstorms and to study their electrical characteristics, and by research workers to investigate the properties of the ionosphere and the regions beyond. Even though noise has been widely studied since the earliest days of radio, it has many interesting features which are not yet explained.

Acknowledgments

This paper is based partly on work carried out in the programme of the Radio Research Board, and is published by permission of the Director of Radio Research of the Department of Scientific and Industrial Research.

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- [1] "Revision of Atmospheric Noise Data," C.C.I.R. Report No. 65. Documents of the VIIIth Plenary Assembly, C.C.I.R., Warsaw, Vol. I, p. 324 (International Telecommunication Union, Geneva, 1957).
- [2] Crichlow, W. Q. "Noise Investigation at V.L.F. by the National Bureau of Standards," *Proc. Inst. Radio Engrs*, 1957, 45, 778-782.

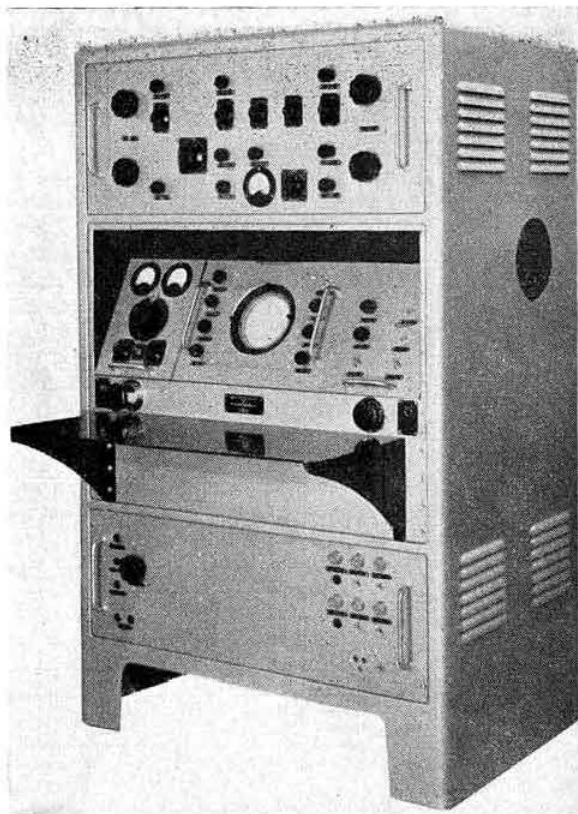
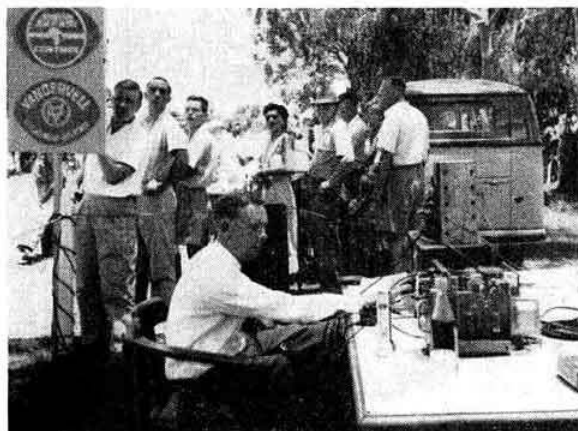


Fig. 5. Atmospheric direction finder. The height is 54 in., the width 36 in. and the depth 24 in. (Photograph by courtesy of Rank-Cintel Ltd.).

- [3] Clarke, C., and Harrison, V. A. W. "Low-Frequency Direction Finder," *Wireless Engineer*, 1955, 32, 109-114.



VQ4CW/P at Kitale, Kenya, during the 1958 Coronation Safari. The equipment comprised a B2 transmitter modulated by 6V6s in class AB1, an Eddystone S.640 receiver and a 7 Mc/s dipole. This picture was taken by VQ4CW's XYL. The Coronation Safari story is on page 285.

Radio Hobbies Exhibition

*Record Attendance—
Exhibitors Well Satisfied*

"BIGGER and Better" aptly and accurately describes the second annual Radio Hobbies Exhibition held in the Old Hall of the Royal Horticultural Society, London, from Wednesday, November 26, to Saturday, November 29, 1958.

By good fortune the weather remained fine throughout the period of the Exhibition and although fog was reported from many parts of the country, none came to Central London.

Valuable publicity by the National Press, the *Children's Newspaper*, and the B.B.C., coupled with the excellent support given by London and provincial members helped to create a record paid-attendance for any R.S.G.B.-sponsored exhibition of nearly 10,000—3,000 more than last year.

Opening Ceremony

The exhibition was officially opened by Air Marshal Sir Raymund Hart, K.C.B., C.B., M.C., M.I.E.E., Director of Engineering, Air Ministry, in the presence of many distinguished guests and a large gathering of early visitors. Among those supporting Sir Raymund on the platform were the President of the R.S.G.B. (Mr. L. E. Newnham, B.Sc., G6NZ), the President Elect (Dr. R. L. Smith-Rose, C.B.E.), Vice-Admiral W. K. Edden, C.B., O.B.E., the Executive Vice-President (Mr. W. R. Metcalfe, G3DQ), Lt.-Col. Eric Milner, Mr. T. E. Goldup, C.B.E., Mr. Hugh Pocock, Wing Commander A. R. Gilding, G3KSH, Mr. P. A. Thorogood, G4KD (Exhibition Organizer), Mr. C. H. L. Edwards, A.M.I.E.E., G8TL (Chairman, Exhibition Committee) and Mr. John Clarricoats, O.B.E., G6CL (General Secretary, R.S.G.B.).

In his speech Sir Raymund mentioned the debt of gratitude the Royal Air Force owes to the Radio Society of Great Britain for the assistance rendered prior to and during the 1939-45 War. He referred to the formation of the

Civilian Wireless Reserve in 1937 and remarked that it was the only reserve of men with knowledge of operating and maintaining wireless equipment upon whom the R.A.F. could call in an emergency. He recalled that the C.W.R. was so ready to serve the R.A.F. that members were on their way in uniform to man a Wireless Intelligence Screen in France the day before war broke out in September 1939. Sir Raymund also spoke of the valuable assistance given by the Society during the war in recommending skilled amateurs for important duties in the three Services. He referred to the work now being done by the Radio Amateur Emergency Network and of the helpful attitude of the G.P.O. in permitting members of the network to handle third party messages on behalf of the British Red Cross Society, the St. John Ambulance Brigade and the Police Forces, both in emergency and exercise conditions. He paid tribute



I.G.Y. Co-ordinator Geoff. Stone, G3FZL, explaining I.G.Y. data to Sir Raymund Hart at the opening of the Radio Hobbies Exhibition.

to the activities of those members of the Society who are engaged on I.G.Y. observations, and made special reference to the reports being prepared on trans-auroral path propagation in the 21 and 28 Mc/s bands; ionospheric propagation in the 52 Mc/s band; tropospheric propagation in the 70, 144 and 420 Mc/s amateur bands and in the television and f.m. bands I, II and III; auroral propagation in the 144 Mc/s band; the study of solar electro-magnetic noise; meteorological conditions and the reception of radio signals from artificial earth satellites.

Sir Raymund spoke of Amateur Radio as "that absorbing hobby" and of his pleasure at seeing so many other hobby aspects of radio catered for at the exhibition. He concluded by offering his congratulations to the Society and the Exhibition Organizer.

Mr. Newnham, on behalf of the Society thanked Sir Raymund for his much appreciated speech and spoke briefly of his own prewar and wartime activities with the Royal Air Force.

Winning Exhibits

At the conclusion of the formal speeches Mr. Thorogood announced that in the Home Constructors' Competition, the winner of the silver plaque was Mr. K. R. Clarke (G3KRC) of Barnet, Herts, who showed a very fine test instrument comprising a cathode ray oscilloscope, a.m./f.m. signal generator, valve voltmeter and capacity/resistance bridge. He also announced that the first prize for members resident outside the London Region had gone to Mr. E.



Air Marshal Sir Raymund Hart, K.B.E., speaking at the opening of the Radio Hobbies Exhibition. Also in the picture Mr. L. E. Newnham, B.Sc., G6NZ (President, R.S.G.B.), Lt.-Col. Eric Milner (Royal Signals, T.A.), Mr. John Clarricoats, O.B.E., G6CL (General Secretary, R.S.G.B.).

St.B. Sydenham (G3LOK) of Cowes, Isle of Wight, for his well constructed 12 valve all-band double conversion communications receiver, and that Mr. W. E. Thompson (G3MQT) of St. Leonards-on-Sea, had gained second prize with a hybrid mobile receiver for Top Band. The judges (Messrs. W. H. Allen, M.B.E., G2UJ, J. A. Rouse, G2AHL, and E. W. Yeomanson, G3IIR) had highly commended a mobile transmitter-receiver for 28, 70, 144 and 420 Mc/s exhibited by Mr. Frank Smith (G2DD) and a transistorized voltmeter shown by Mr. C. H. Noakes (G2AOP).

Following the opening ceremony an informal luncheon arranged by the Exhibition Organizer was held in the New Hall of the Royal Horticultural Society. Among those



Air Marshal Sir Raymond Hart examining the Amateur Radio equipment used by Sgt. "Taffy" Williams, ex-VP8BO, when he operated from Shackleton Base in Antarctica during 1957. Sgt. Williams was a member of the crew of the Otter aircraft which flew across the South Pole. In this picture Sgt. Williams is seen with Sir Raymond and Wing Commander Alec Gilding, G3KSH, who organized the R.A.F. stand. Also in the picture are Mr. Norman Caws, G3BVG (Honorary Treasurer), Mr. P. A. Thorogood, G4KD (Exhibition Organizer) and the General Secretary.

present at the luncheon were Air Marshal Sir Raymond Hart, Vice-Admiral W. K. Edden, Major-General Eric Cole, C.B.E. (G2EC), Mr. T. E. Goldup, C.B.E., Dr. R. L. Smith-Rose, C.B.E., Mr. L. E. Newham, B.Sc., (G6NZ), Mr. C. H. L. Edwards, A.M.I.E.E. (G8TL), Wing Commander A. R. Gilding (G3KSH), Mr. George Campbell, Lt.-Col. Eric Milner, Mr. Hugh Pocock, Mr. D. W. Morrell, Mr. M. I. Forsyth-Grant, Mr. H. Freeman, Mr. Austin Forsyth, O.B.E. (G6FO), Mr. John Gilbert and Mr. John Claricoats, O.B.E. (G6CL).

GB3RS in Operation

Throughout the period of the exhibition an amateur station was in operation from the R.S.G.B. stand using the call-sign GB3RS. The transmitter was loaned by Mr. Gerald Gibbs (G3AAZ) and the aerial system was loaned and erected by members of the Crystal Palace and Norwood group.

Special QSL cards (donated by Mullard Ltd.) have been, or will be, sent to those who worked or heard the station. More than 300 contacts were made during the exhibition period.

Colour Television

The colour television demonstrations arranged by Mr. B. Rogers (G3ILI) aroused very great interest. Transmissions were made on 420 Mc/s from a station some eight miles from the Royal Horticultural Hall and results were excellent.

Exhibitors were Satisfied

Since the exhibition closed, both the Organizer and R.S.G.B. Headquarters have been advised that business far exceeded expectations; in fact, one well-known company received so many firm orders that a move into more spacious premises has become urgently necessary.

Appreciations

A comprehensive review of the exhibition will appear in the January 1959 issue of the BULLETIN. In the meantime thanks are recorded to those members who assisted on the Society's stands or helped to operate the Headquarters station. The R.S.G.B. Bookshop was managed by Mr. F. F. Ruth (G2BRH) with great zeal and enthusiasm. The Exhibition Committee, under the Chairmanship of Mr. C. H. L. Edwards (G8TL) was responsible for organizing the Society's participation in the exhibition.

Receiver Competition

The Racal RA17 receiver offered in connection with the exhibition was won by Mr. Kenneth R. Rogers of Walsworth, Hitchin, Herts., who is a keen short wave listener. Mr. Rogers is an officer in the Hertfordshire C.I.D., and his brother is a licensed amateur.

Forthcoming Conferences and Exhibitions

THE following conferences and exhibitions have been arranged to take place during 1959.

January 19-22.—Physical Society Exhibition, London.

March 17-21.—Electrical Engineers Exhibition, London.

June 17-27.—International Plastics Exhibition and Convention, London.

August 17.—Opening of Ordinary Administrative Radio Conference, Geneva.

DL2 Licensees

FROM DL2BB, it is learnt that 28 DL2 licences are now current in the British Zone of Germany. The call-signs are DL2s AA to AK and AP, BB, BC, BF, BG, BH, BJ, GA, GL, MU, ND, UA, VW, VY, XP, ZD and ZN. This list includes licences issued to civilian personnel and Canadian servicemen.

Members of the British Forces wishing to obtain licences must now apply to the German Posts and Telegraphs.

London Meeting
Friday, January 23, 1959

Presidential Address
by Dr. R. L. Smith-Rose, C.B.E.

at the

Institution of Electrical Engineers
Savoy Place, Victoria Embankment

Buffet Tea 6 p.m.

Lecture 6.30 p.m.

Ferrite Rod Aerials for Direction Finding

By F. C. JUDD, A.Inst.E. (G2BCX)*

RECENT pirate activity on frequencies between 2 and 3 Mc/s called for several compact but reasonably accurate D/F loops which had to be constructed quickly and used with existing mobile receivers and special portable units. In order to operate free from observation the conventional square or circular loops were considered unsuitable because of their obvious shape; most of the work had to be carried out in the open in residential districts. The ferrite rod aerial is small, has D/F properties with an accuracy of 5 degrees or less; which is considered sufficient for comparatively short range operation. The ferrite rod aerial has directional characteristics similar to those of a conventional loop with sharp nulls and broad maxima. The nulls occur at each end of the rod with the maxima at right angles to it. One pirate transmitter was located within 15 minutes from a distance of three miles by taking bearings from two points about a mile apart. The fix was within 100 yards of the actual location.

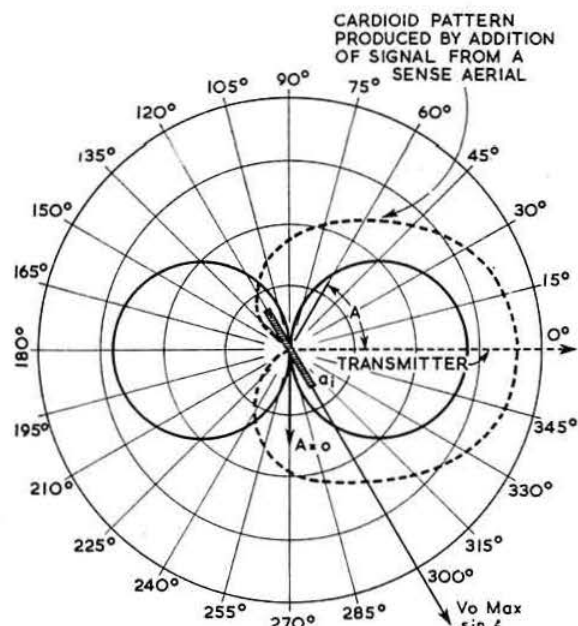


Fig. 1. Figure-of-eight polar diagram of an inductive aerial (ai) having no capacitive component. The signal voltage in the aerial is $V \sin A$, A being the angle between the perpendicular to the plane of the loop and the direction of the transmitter.

The signal voltage induced in a frame or loop aerial, assuming the complete absence of capacitive reception, is proportional to $\sin A$, where A is the angle between the perpendicular to the plane of the loop and the transmitter. Plotting the signal voltage as a polar diagram gives the well known figure-of-eight curve (Fig. 1). At a value of $A = 30$ deg. the voltage is reduced to half the maximum value, whilst the minima at $A = 0$ deg. are sharply defined. Therefore much greater accuracy of bearing can be obtained by using the nulls.[1] However, as two bearings would be obtained,

each a reciprocal of the other, some means of *sensing* the direction of a transmitter with respect to true north, is normally required. This can be done by adding the signal voltage from a small vertical aerial to that from the loop so that the polar diagram is changed to one of a cardioid pattern. The single null thus produced will indicate direction, but as the bearing will not be too accurate, the sense aerial must be switched out and the loop used on the null relative to the direction of a transmitter and true north. For practical purposes it is probably quicker to obtain bearings from two points about a mile or so apart and plot the fix directly on a map.

Ferrite rod aerials have reasonable sensitivity and the efficiency is usually judged by the voltage delivered to the grid of the first valve in the receiver. In considering a capacitive type of aerial this voltage is proportional to the effective height (h) and the coupling transformer turns-ratio. For inductive aerials such as the ferrite rod type the voltage is a function of the effective height (h) and the Q factor of the aerial circuit. It has been found that Mullard Ferroxcube grade B.2 is most suitable for use up to about 2.5 Mc/s.

A typical rod aerial using this grade has an hQ value of about 1 metre at 1 Mc/s; this corresponds to a capacitive aerial with an effective height of 1 ft. and a transformer ratio of 3.1. This is about three times the performance of a wire stretched across the room and about half that of a very good outside aerial. A Ferroxcube rod aerial has a Q approaching 200 at about 1.5 to 2 Mc/s, and will operate efficiently with a conventional communication receiver.

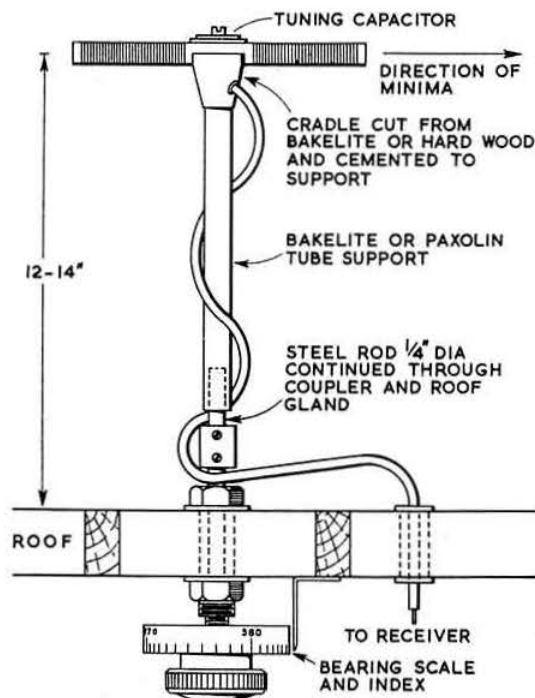


Fig. 2. Constructional details of a ferrite rod D/F aerial. Metal should not be used for the support except where indicated for coupling through the bearing to the scale.

* 152a Maybank Road, South Woodford, London, E.18.

They have been used successfully over the range of 1.5 to 3 Mc/s; in fact the loop illustrated in Fig. 2 will cover approximately 1.5 to 2 Mc/s, with the 100pF tuning capacitor.

Details of a Ferrite Rod Aerial

The basic circuit is shown in Fig. 3. A rod about 6-8 in. long and $\frac{1}{2}$ - $\frac{3}{4}$ in. diameter will suffice. The types listed below are quite suitable. All are Mullard Ferroxcube rods.[2]

Type	Grade	Length	Diameter
Fx.1183	B.2	5 in.	0.562 in.
Fx.1057	B.2	6 in.	0.5 in.
Fx.1268	B.2	7 in.	0.5983 in.
Fx.1247	B.2	8 in.	0.375 in.
Fx.1267	B.2	9.5 in.	0.5938 in.

Winding details are given in the caption to Fig. 3 but some adjustment may be necessary with rods of different lengths and diameters. The aerial may be connected to a receiver and the tuning range and resonance adjusted on fairly weak signals or noise.

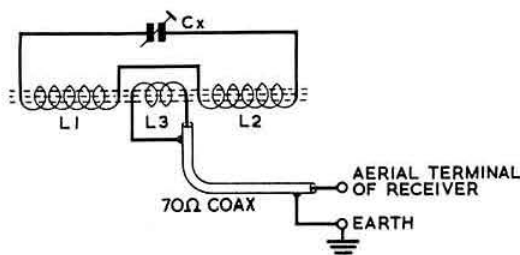


Fig. 3. Basic circuit of a ferrite rod aerial. L1, L2, 20-22 turns 22 s.w.g. enamelled; L3, 10 turns 22 s.w.g. enamelled at centre of rod between L1 and L2; Cx, 100pF flat variable ceramic capacitor (may be tied to centre of rod with p.v.c. string). The winding L1 plus L2 should be spaced out along the rod with a gap at the centre of about $\frac{1}{2}$ in. long to accommodate the coupling winding L3. The windings may be held fast with Cellotape or similar material. Some adjustment to the total number of turns of L1 and L2 may be necessary in order to cover the desired frequency range. The number of turns specified should provide coverage from about 1.5 to 2.5 Mc/s.

Metal clips or supports must be avoided as they will upset the tuning and D/F properties of the rod, but the finished aerial may be covered with a polythene bag as protection against weather.

Connecting the ferrite aerial to a receiver calls for no special precaution providing the instrument is completely screened and has a low input impedance. Standard 70 ohm co-axial cable should be used to couple the aerial to the input terminals but the outer screening of the co-axial cable must be properly earthed at the receiver.

Construction requires a little mechanical ingenuity but should otherwise present no difficulty if Fig. 2 is used as a guide. In setting up the aerial the deviation of magnetic north by 7 deg. 50 minutes west of true north must be taken into account and the aerial aligned with true north which is shown on most maps. A few checks on known stations will soon show whether the loop is accurate. As this depends on determining the exact null point, it is advisable to use the receiver "S" meter as indication for zero signals.

Effects Likely to cause Inaccurate Minima

If the loop is to be used at home the main transmitting aerial and others of appreciable size must be earthed, otherwise inaccurate bearings will be obtained due to re-radiated signals. Another effect often referred to as "vertical" or "aerial effect" is due to e.m.f., caused by unbalance in the loop circuit, which is independent of the

direction in which the loop is pointing. If the phase of the effect happens to be nearly coincident with the normal loop e.m.f., the minima are sharp and slightly displaced as shown in Fig. 4(a), but if the phase differs widely the minima are more or less displaced and impure (Fig. 4(b)). It is therefore, difficult to take direction at all from a loop suffering this effect, but it is important to note that if the minima are fairly pure the correct bearing can be ascertained by making allowance for the vertical effect. Thus, in Fig. 4(a), supposing the two minima of the figure-of-eight pattern were N^1 deg. and N^2 deg., it would in most cases be reasonably safe to assume that the correct figures were N^1c deg. and N^2c deg. which are obtained by subtracting and adding respectively the difference of N deg. so as to bring the readings 180 deg. apart on the bearing scale. Vertical effect is independent of the loop tuning and any attempt to get rid of it by altering the tuning will only result in further distortion of the pattern. The effect is generally due to unbalance in the loop circuits and improvements in design could undoubtedly be made to correct this. Although this has so far not been attempted, the diagrams of Fig. 5 may suggest one or two ideas for experiment in this direction.[3]

The Sense Aerial

In order to determine the general direction of a transmitting station a cardioid pick-up pattern must be produced by adding the e.m.f. from a short vertical aerial, in phase, to the e.m.f. from one of the loop maxima. A single minima broadside to the loop is now produced. The sense aerial may be situated near the loop and need be no longer than 20 in. It may be coupled to the loop circuit via a co-axial line but it is essential that no signal be picked up on this line when the aerial is disconnected. The capacitor C and the sense switch must also be screened.

With the aerial switched in, C is adjusted (if necessary the aerial length must be altered) to obtain the cardioid pattern which may be plotted in the same way as the figure-of-eight

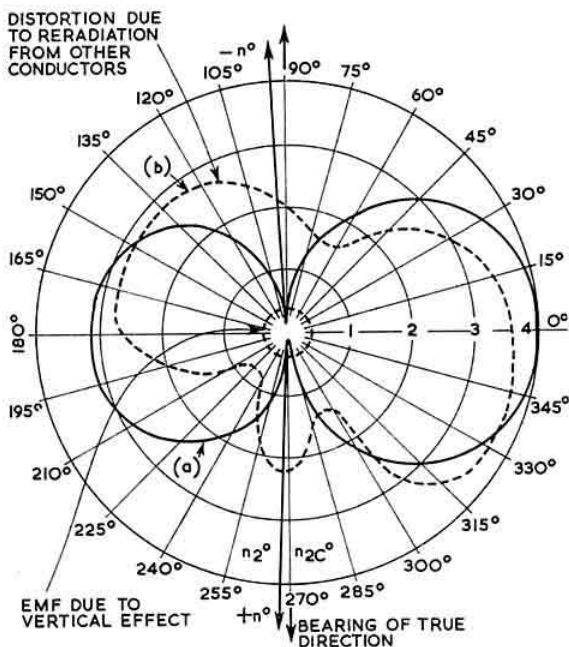


Fig. 4. Displacement of minima due to vertical effect (pattern taken from a ferrite rod aerial).

polar diagram. Suggested methods of coupling in the sense aerial are shown in Fig. 6.

The figure-of-eight pattern of the loop should also be carefully plotted with the aid of the receiver "S" meter and a constant signal from an accurately known direction. This will show up any distortion due to re-radiated signals from other conductors or from vertical effects. When a true pattern with pure minima is obtained it may be compared with the cardioid.

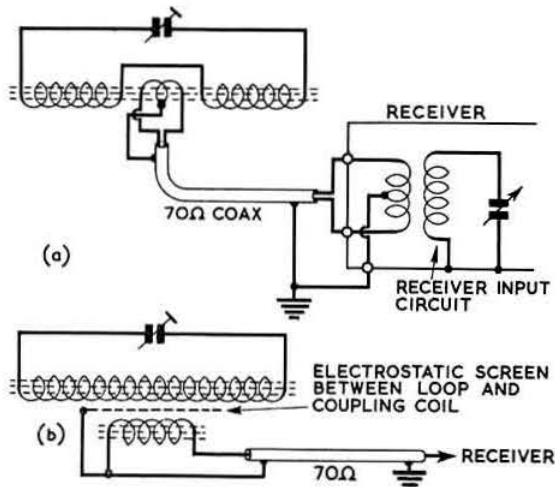


Fig. 5. Suggested methods for eliminating vertical effect.

Special Portable Equipment

Special equipment was designed for the purpose of obtaining fixes when very close to a transmitter, i.e. less than 100 yards. Owing to the great field strength at close range the high gain of a superhet receiver has the effect of reducing the sharpness of the nulls, so that accurate D/F becomes difficult. A system of attenuating the signals could be used of course, but in order to avoid modifications to the receivers and to operate without being observed, small t.r.f. receivers with ferrite rod aerials were constructed and concealed in (a) a leather brief case, (b) a cigar box disguised with a book cover and (c) a small attache case. A hearing aid earpiece with leads to the receiver, suitably hidden, completed these somewhat "cloak and dagger" combinations, which proved invaluable for operating at close range in broad daylight. A deaf man carrying a book arouses no special curiosity!

Very little gain is required from the t.r.f. receivers, in fact they were deliberately adjusted so that signals from a nearby transmitter were inaudible at more than a hundred yards. One receiver was provided with a micro-ammeter to operate from rectified r.f. so that the source of continually running unmodulated carriers could be traced.

It is hoped that the foregoing may be of use to others in tracking down pirate transmitters and other sources of interference, deliberate or otherwise.

Since this article was prepared, samples of Mullard B3 grade ferrite rod have been tested and found suitable up to frequencies of 5 Mc/s.

References

- [1] "Inductive Aerials," H. Block and J. J. Rietveld, *Philips Technical Review*, Vol. 16, No. 7, pp. 181-194.
- [2] "Mullard Ferroxcube," Mullard Publication, Components Division, May, 1955.
- [3] "Wireless Direction Finding" (1941 Edition), R. Keen, B.Eng., Iliffe & Sons Ltd.

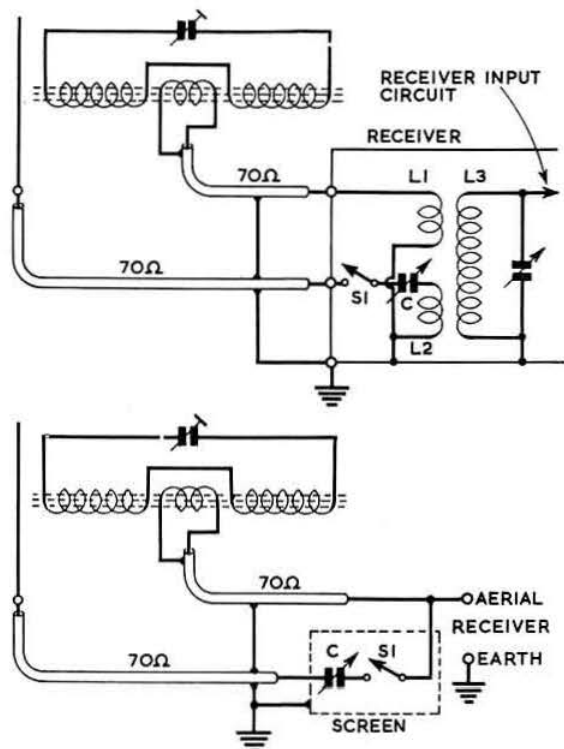


Fig. 6. Methods of connecting sense aerials. In the upper diagram L1 is the aerial coupling coil while L2 is an additional coil with the same number of turns. C is 100pF and S1 the sense switch.

Addendum

Since this article was written further experiments with the sense aerial coupling have been made. It has been found advantageous to include a 5 K ohms variable resistor in series with sense aerial and the coupling capacitor C of Fig. 6. Like the coupling capacitor and switch S1, the variable resistor should be screened within the receiver or separate screening box. The resistor will be found useful for controlling the amount of signal necessary to produce cancellation of one lobe of the loop in the formation of the cardioid pattern. The capacitor "C" is used for phasing. Although it may be correctly phased, too much signal from the sense aerial will spoil the pattern.

Can You Help?

- M. S. Batt (A.1437), 123 Manor Road, Fishponds, Bristol, who wishes to know a source of supply for the tuning key for use with BC455 Command receivers?
- J. G. Whitney (G3MFB), 104 Grand Drive, Raynes Park, London, S.W.20, who wishes to obtain the circuit diagram for the ex-R.A.F. receiver unit type R.1933?

LONDON MEMBERS' LUNCHEON CLUB Special Christmas Lunch

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Modifying the W.S. No. 18 for Top Band

By DAVID NOBLE (G3MAW)*
and DAVID M. PRATT (G3KEP)†

THE No. 18 set walkie-talkie admirably fulfills the requirements of a portable station for R.A.E.N. use apart from the frequency range. Top Band is preferable for this purpose due to the reduced amount of interference. The 68P set is a 160 metre equivalent to the 18 set, but as it is not readily obtainable on the surplus market, the writers decided to carry out modifications to the 18 set Mk III which is at present available at a reasonable price. Action was also taken to improve the quality of modulation in so far as this can be effected with a carbon microphone.

An 18 set acquired for modification should first be tested on the original frequency coverage to ensure that any failure to function after modification is due to some fault in the alterations. The original circuit diagram of the transmitter is shown in Fig. 1 and the modified circuit in Fig. 2.

The modifications suggested can be divided into the following stages:

- (i) The transmitter is modified first, as the p.a. coil is also the grid coil of the receiver r.f. stage.
 - (a) V.f.o. coil assembly;
 - (b) P.a. coil assembly;
 - (c) Aerial current indication;
 - (d) Modulation and grid drive.
- (ii) The receiver, only two modifications are required to the receiver; these being to the r.f. anode and oscillator tuned circuits.

Transmitter

The v.f.o. coils, L6, L7, are removed and inspected, a note being made of the connections. First, it is necessary to remove the v.f.o. screening box and under-chassis cover. The coils are rewound as specified in Table I ensuring that the windings are wound in the same direction.

It will also be necessary to alter the values of the following components:

- Coupling condenser C31 from 30 pF to 47 pF;
- Padding condenser C36 from 10 pF to 56 pF;
- V.f.o. trimmer C35 from 15 pF to 50 pF.

The p.a. tank coil, L8, is also removed and rewound according to Table I. The neutralization winding is omitted as this was not found necessary on the lower frequency band. The neutralization components C44 and R26 are also removed as these are no longer required. The aerial coupling condenser C47 is increased to 2000 pF.

With the normal aerial current indicator, it was found that only a very small reading of r.f. was shown on the meter; a simpler and more effective arrangement was therefore installed. The original aerial metering components are removed as also is the metal tube through which the aerial lead originally passed. The negative meter lead is shortened and the positive one replaced by a length of co-axial cable. Another short length of co-axial is fed from the meter to a coupling lead within the r.f. indication box. The braiding of these co-axial leads is of course connected to chassis. A germanium diode is connected from the switch end of the latter lead to a solder-tag mounted on the front panel. With this arrangement, it will be found that too much current passes through the meter. The preferred way of adjusting this is, doubtless, to alter the coupling by moving the coupling lead; but this is very tedious, as the box has to be removed, and replaced each time an adjustment is made until the correct position is achieved. It will be found

simpler to shunt the r.f. by placing a condenser across the meter terminals. This is approximately 300 pF but, by experiment, the exact value can be chosen to give full scale deflection under maximum r.f. conditions.

Modulation and Drive

Modulation of much better quality can be obtained by substituting an r.f. choke for R23 (Fig. 1). On c.w., the junction of R23 and C42 is connected to earth by the key jack, and with the r.f. choke in this position, gives a virtually shorted d.c. path from grid to earth resulting in the absence of bias. The wire from the key jack is, therefore, connected to the junction of R22 and R21. As can be seen from Fig. 1, an emergency bias supply is normally obtained from V5. Should the 12 volt battery bias supply at any time fail, C37 extracts a small amount of r.f. from the oscillator which is rectified by a diode of V5, thus providing a small negative voltage at the junction of R21 and R22, so preventing V6 from drawing excessive current. This, however, reduces the p.a. efficiency slightly, and it was accordingly decided to omit this arrangement. C37 is, therefore, removed. As the diode pin of V5 is used as an anchoring point for R21 and R22, the rest of the circuit should be untouched as this diode will not conduct with the negative voltage on its anode. C41 is increased to 47 pF as it was found that grid drive was slightly greater with this value and better efficiency was obtained. The modifications to the transmitter are now complete and it may be tested on its new coverage.

Receiver

Attention may now be turned to the modification of the receiver (Fig. 3). The r.f. anode coil L1 is rewound (see Table I) and its padding condenser replaced by a 100 pF shunted by a 50 pF trimmer. All other components of this stage are unaltered.

The oscillator coil is rewound and C14 and C15 are replaced by 680 pF and 56 pF silvered mica condensers respectively. No further modifications were found necessary.

Alignment

The actual modifications now being complete, the 18 set is ready for alignment. First, the receiver oscillator is adjusted to operate on 2265 kc/s with C17 at maximum capacity. This can be done by injecting a signal of 1800 kc/s at the aerial socket and adjusting C16 until the signal is heard. The output from the signal generator is then injected at 1900 kc/s, and the trimmer C6 adjusted for maximum output.

The transmitter should next be switched on with the aerial disconnected. With the v.f.o. tuning condenser C34 at maximum capacity, C35 is adjusted so that output on 1800 kc/s is obtained. The netting compensation trimmer C33 is adjusted so that with the netting button depressed, the radiated frequency corresponds to the actual received frequency.

It will be found that both the transmitter and the receiver frequency range is from 1800 to about 2300 kc/s, and calibration graphs may be plotted using a 100 kc/s sub-standard crystal.

Results

With a half-wave end fed aerial on c.w. the best DX is about 300 miles, while on telephony a good report has been received from a station 70 miles away. Using a 12 ft. whip aerial consistent reports of about RS58 are received over a 20 mile radius of the writers' location.

* "Heather Bank," Menston, Yorkshire.

† "Glenluc," Lyndale Road, Eldwick, Bingley, Yorkshire.

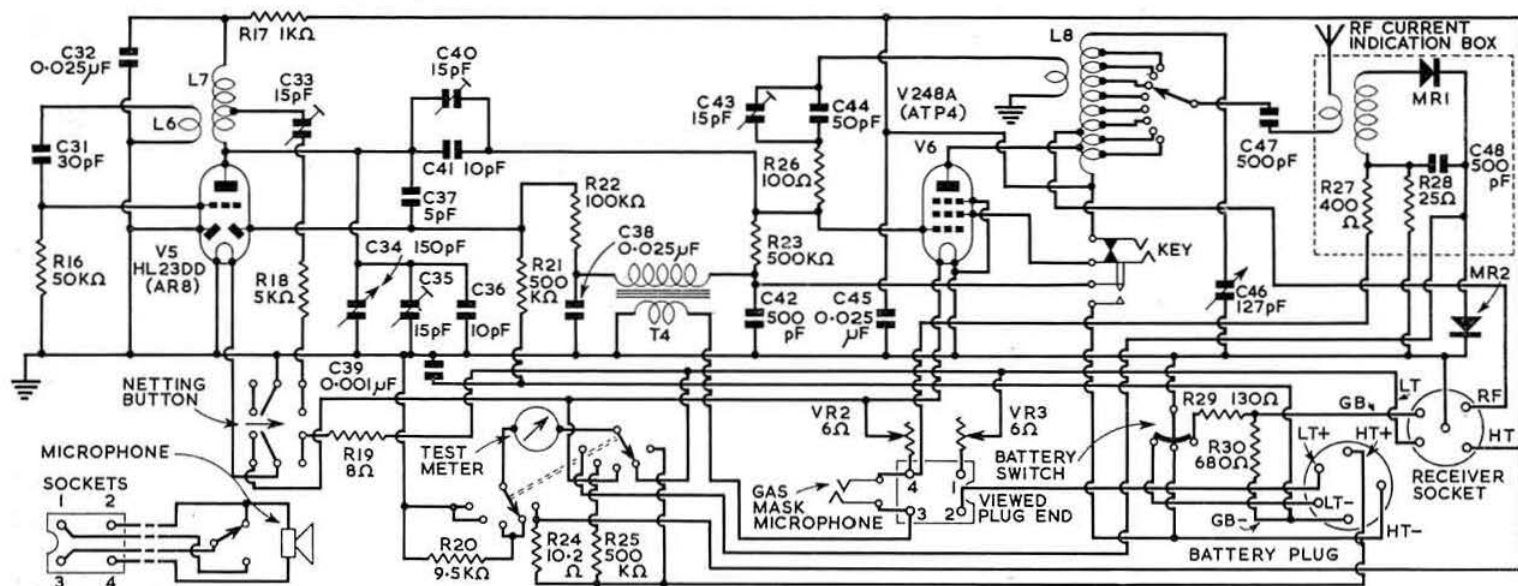


Fig. 1. Circuit diagram of the transmitter section of the W.S.18 before modification.

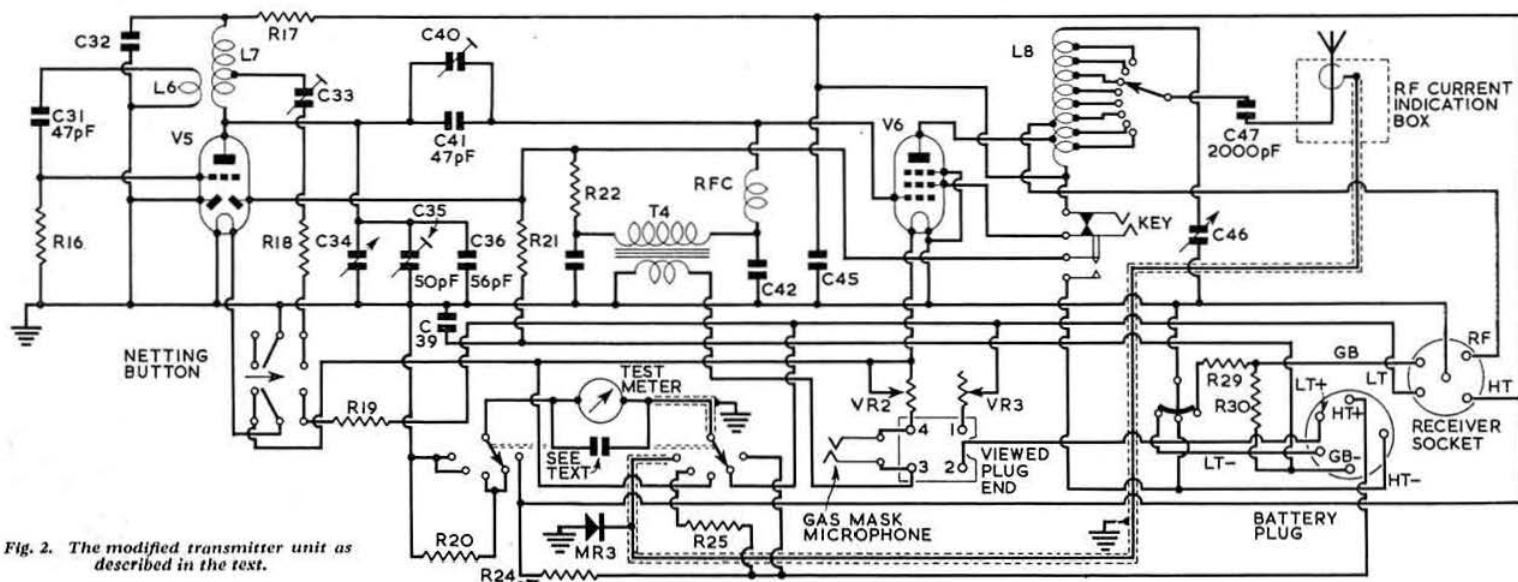


Fig. 2. The modified transmitter unit as described in the text.

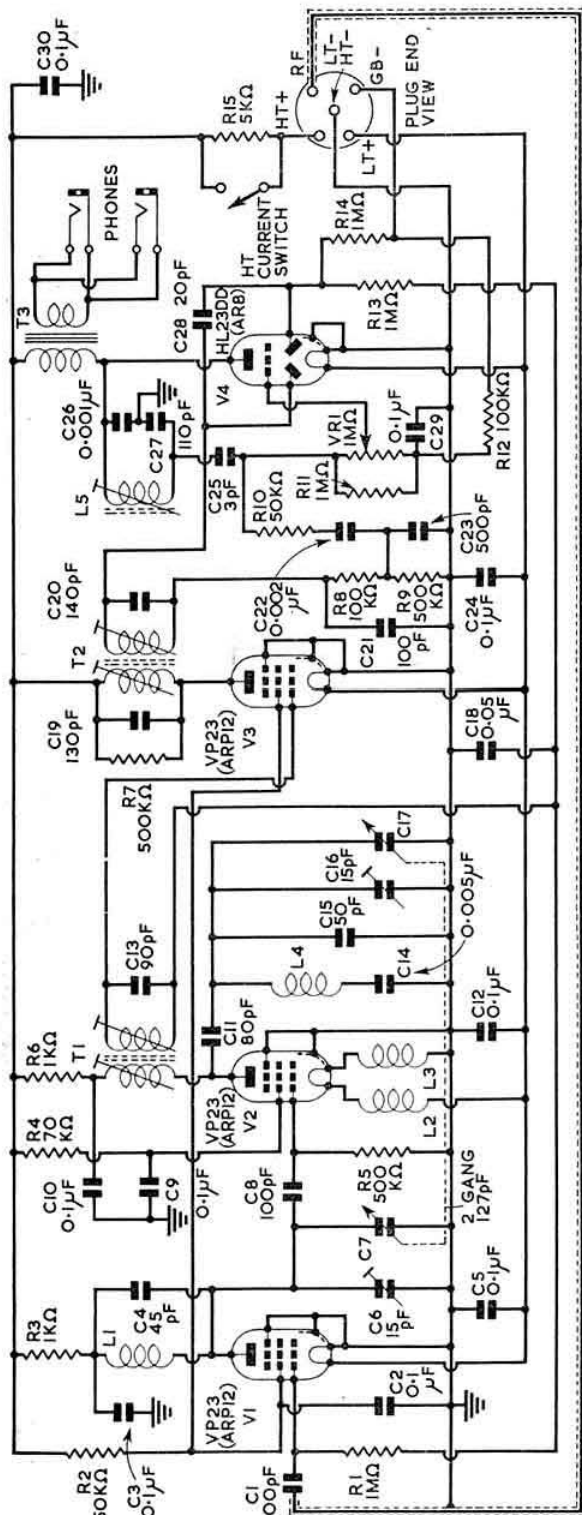


Fig. 3. Original circuit diagram of the receiver section of the W.S. 18

TABLE 1 — COIL DATA

- L1, 52 turns 24 s.w.g. enam. copper, close-wound on original former.
- L2, L3, 16 turns 36 s.w.g. enam. copper, bi-filar wound over centre of L4.
- L4, 74 turns 30 s.w.g. enam. copper, close-wound on original former.
- L6, 31 turns 36 s.w.g. enam. copper, close-wound over h.t. end of L7.
- L7, 43 turns 24 s.w.g. enam. copper, close-wound on original former tapped at 19 turns from h.t. end.
- L8, 60 turns 24 s.w.g. enam. copper, close-wound on original former tapped at 4, 9, 15, 21, 27, 35, and 44 turns from h.t. end.

Ferrite Beads for Suppressing Feedback

FERRITE beads are a convenient method of suppressing parasitics in radio and television equipment caused by feedback along supply and control lines. Such parasitics are normally prevented, with varying degrees of success, by conventional decoupling methods or by the introduction of inductive components in to the leads concerned. However, the use of ferrite beads is rather simpler.

With Ferroxcube, for example, the losses normally associated with magnetic materials are extremely low over the frequency range for which it is designed, but outside this range the residual losses increase rapidly. A piece of Ferroxcube threaded on to a lead acts as a highly inductive toroid and thereby considerably increases the impedance of the lead to high frequencies.

The method of use is to thread the ferrite beads on to the leads in positions where they are found to be most effective. Because of their small size and weight the beads need no support and they can therefore be used even in congested wiring. No soldered joints are involved and there is no low frequency loss or d.c. voltage drop in the lead. If one bead is insufficient to eliminate the feedback, the impedance of the lead can be further increased by adding additional beads.

It is seldom possible to decide in advance exactly where beads will be required and it is therefore usual practice to experiment with beads in various parts of the circuit and at various positions on the leads until unwanted feedback is eliminated.

Two types of Ferroxcube beads are at present available: type FX1115 for use at frequencies between 2 and 15 Mc/s and type FX1242 for frequencies between 15 and 100 Mc/s. Ferroxcube is made by Mullard Ltd.

Can You Help?

- L. Deavin (B.R.S.19831), 94 Northampton Road, Road, Northants., who wishes to obtain information on the construction of a transistorized electronic key?
- H. E. Horton, Box 25, Mount Hope, Ontario, Canada, who wishes to obtain the circuit diagram and operating manual for the ex-Admiralty Tuner Amplifier B21B?

Silent Key

JACK K. WRIGHT (G3KUH)

It is with deep regret that we record the death of Mr. J. K. Wright (G3KUH) of Parkgate, near Rotherham. Jack was well-known on the v.h.f. bands and was chairman of the Rotherham Radio Club, of which he was also a founder member. He was a keen constructor and experimenter and in every sense a true "ham."

On behalf of his many friends, we express our deepest sympathy to his widow in her great loss.—R.R.P.

A General Purpose Power Unit

By E. A. BOVEY (B.R.S. 1953) *

THE power unit to be described was designed to supply h.t. and l.t. voltages to ex-Service equipment having valves with 12.6 volt heaters wired in parallel or series/parallel where it is not desired to change the heater wiring or substitute alternative valves. As will be seen from Fig. 1, the unit is entirely orthodox in design. The mains switches S1 and S2 are wired so that voltage is applied to the heaters via T2 before T1 can be switched on.

frame taken from a TU unit was used for this purpose. Actual layout of the components may be left to the individual constructor, a suitable arrangement being shown in Fig. 2. The numbers on the circuit diagram refer to the pin connections on the output socket.

The maximum unstabilized voltage is 450 volts, while with a jumper between pins 7 and 8 the maximum is 350 volts. Stabilized voltages of 230 to 240 and 115 to 120 are also available. Heater voltages of 12 volts at 1 amp., 12 volts at 1.5 or 3 amp., or 24 volts at 1.5 amp. are provided.

If it is desired to extend the range of the unit, octal valveholders for stabilizers of the VR105/30 and VR150/30 type may be fitted and additional heater transformers added. A larger chassis and additional output sockets would then be necessary.

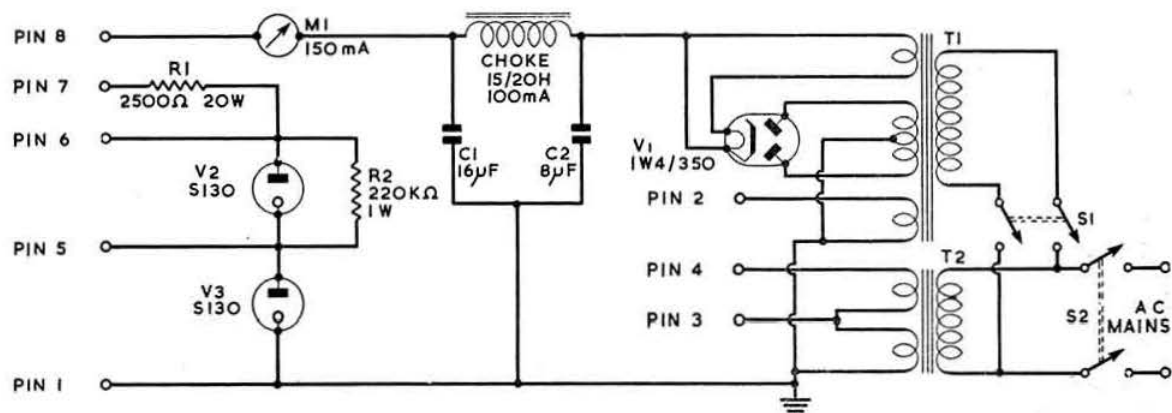


Fig. 1. Circuit diagram of the power supply for ex-Service equipment. T1, 300-0-300V, 80 mA, 4V 2.5A, 12V 1A; T2, 12V 1.5A twice. S1 and S2 are double pole single throw toggle switches.

The unit may be easily accommodated on a chassis measuring 9 in. by 8 in. Condensers C1, C2, and resistors R1, R2, are mounted under the chassis, and switches S1, S2, the milliammeter, and an octal valveholder, which is used as an output socket, on the front panel. If desired a space can also be found for a diagram of the output socket connections to be fitted on the panel. In the original model a calibration chart

* 1 Chapel Lane, Dartmouth, Devon.

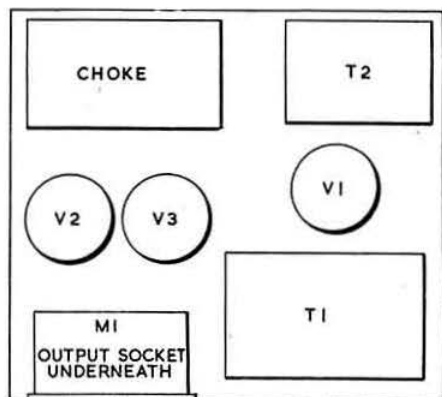


Fig. 2. Suggested layout for the general purpose power supply. The chassis measures 9 in. by 8 in.

Filling Holes in Panels

ONE of the main difficulties encountered when rebuilding equipment, or modifying ex-government gear, is that there are often a large number of unsightly small holes where parts have been removed. This particularly applies to the front panel of such things as receivers where the resulting "honeycomb" look is most annoying. No originality is claimed for the method to be described, but as the writer has no recollection of having seen anything on the subject published in the BULLETIN before, it is thought it might be some help to anybody faced with the problem.

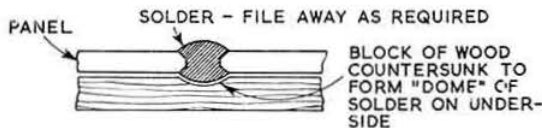


Fig. 1. Method of filling a hole in a panel with solder.

The idea will work on most metals, including aluminium, but is most effective with those which will solder. The scheme is to countersink the hole on both sides and then fill it with solder. When the material has cooled the surplus solder can be removed from one, or both, sides leaving a clean flat surface which can then be touched up to match. Best results are obtained if the inside of the hole is nicked or roughened first so that the solder grips easily.

FOUR METRES



AND DOWN

By F. G. LAMBETH (G2AIW)*

LOOKING back on the great opening during the last week of October, it is remarkable how soon some of the prophecies were realized, although G6LI, writing some three weeks after the event, divests the occurrence of some of its glamour by comparing it with similar openings about seven years ago when the Continent was as mysterious "as the inscrutable Orient" and when we were playing with wide band receivers, three element beams, 10 watt transmitters and converters with poor signal-to-noise ratios. Only a few Dutch and Belgian signals were then received occasionally, but the appetites they sharpened have led those with progressive ideas to experiment and improve so that, in the interim, ideas have been provided for more efficient installations which have made it much easier than once seemed possible to probe Continental activities at every likely time. The result has been that there have been many gratifying discoveries of signals from new countries, the logical outcome being the very fine efforts which have placed OK and SP within the lists of British "firsts" and have produced a new European record on 2m.

G6LI points out that British signals would doubtless have been heard in Spain had there been anyone available to receive them; with F8CT and F8XT in mind, there is little doubt that some of our signals got across to EA. Don't forget also that this is the first time British 2m signals have crossed Scandinavia to the SM5 (Stockholm) region, which was in itself, for some a short period, a 2m record. The U.S.S.R. and OH "firsts" are possibly not far away, although we may have to enlist the aid of an aurora for these, but after the events of October, who can tell? There does not really seem to be a close limit—after all, the new records would have been characterized as impossible not so long ago. It seems rather a pity that someone does not set up a v.h.f. station in the Faroe Islands! This would be a real snip for some of our country hunters!

One feature of the Scandinavian portion of the opening was that the London and Home Counties stations hearing and working were nearly all in better sited positions than the average. Many inland stations nearer sea level could not hear the SMs and LAs. Apart from this, the DX seemed to be generally audible during the remainder of the period.

OZ7BR (Lyngby) worked G3HBW and G5KG on 2 m. single side-band during the opening, receiving reports of R5 from both stations.

The OK1VR/P Story

OK1VR, who lives in Prague, writes that he chose Snezka, (The Snow Mountain, or Schneekoppe, 4,900 ft. a.s.l.) on the northern border where Bohemia meets Poland, because his home location is not favourable for v.h.f. It was luckily possible to combine a love of mountain climbing with that for v.h.f.—climbing during the day, and working v.h.f. during the evenings. The effort to work British stations meant much preparation—the idea was to work "tropo" if possible rather than by aurora, as with tropospheric propagation the experimenter is able to learn and choose for himself the best times and directions for DX conditions,

whilst aurora, especially in Czechoslovakia, is practically limited to the peak of the solar cycle. Having judged that October 20 to 29 was a period when favourable conditions were to be expected, OK1VR transported his 2m gear up Snezka as early as October 12 to be sure of being ready in time. On October 25 at 1 p.m. Prague time, OK1VR started on the 106 mile trip by motor-cycle. Over 2,000 ft. of the mountain had to be climbed on foot, no easy task because the slopes were already snow-clad. The last 900 ft. were difficult by reason of strong winds. Conditions began to improve on Sunday, and on October 27 at 18.40 the first OK/G QSO was established with G5YV (Leeds). Such an early appearance surprised OK1VR a little—it seems that a message sent to G5YV via OK1UK and OK1KPR caused the British station to give a call in order not to miss the opportunity of recording the first OK/G contact. Later that evening followed QSOs with G6LI, G3HBW, G8MW, G3DVK, G6XM, G3JWQ, G3GFD, G3CCH, and again G5YV. This series was crowned by the best contact, that with G13GXP (Kilkeel) at 00.40 G.M.T., for a new European record. All contacts were 100 per cent with no QSB except during the Irish QSO. Reports: OK1VR/P 549, G13GXP 539. OK1VR regrets that he had to return to Prague after this, thus missing even better conditions. The new European record made by G13GXP and OK1VR/P on October 27 is 943½ miles by great circle calculation. (How was such accuracy achieved?—EDITOR.)

However, the favourable conditions of October 28 were put to good use by the Polish operator of SP6CT/P, who has worked for two years on the Polish side of Snezka. Previously, because of an unsuitable receiver, he was unable to work stations more than 160 miles away. Together, OK1VR and SP6CT have solved the problem of the receiver, and SP6CT/P is now QRV for DX from Snezka.

OK1VR is happy to have been able to help to make it possible for SP6CT/P to work several G stations on 2m and wishes SP6CT the best of luck with the improved



A view of Snezka (the Snow Mountain) showing the locations of SP6CT/P and OK1VR/P on the Polish and Czechoslovak sides of the border respectively.

*21 Bridge Way, Whittin, Twickenham, Middlesex.

technical facilities. All G stations are thanked for the excellent QSOs, and on their behalf the writer extends congratulations and thanks to OK1VR for the personal efforts he made, resulting in these great successes. The rig on this occasion comprised a c.c. converter (6AK5, RD12TA, RD12TA, RD12TA (mixer), the first i.f. being 28.8 to 30.8 Mc/s. The transmitter line-up was 4 Mc/s c.c. oscillator, p.a. (829B) running 50 watts. The aerial was an 11-element long Yagi.

OK1VR appeared again, with even stronger signals than previously, on the evening of November 22. The band was open in that direction from 19.30 to 23.30 G.M.T. and G6LI (Grimsby) worked him (599) at 20.05 G.M.T. DM2ABK in Sonneberg, nearly on the border of OK,



OK1VR/P's portable equipment during a recent field day.

was worked at 21.35. The opening lasted until late on November 23 but was very limited—only a few Dutch and German stations being audible. On the Saturday evening the band was wide open to Scotland and Northern England. OK1VR was often the loudest signal for hours—and sometimes the only one audible! G3HBW and G3HAZ both heard the OK station weakly from time to time. G5YV is believed to have worked him again, while G6XM and G3CCH were heard calling him. G3HBW worked DL6WUA and PA0EZ but reports only a few stations heard.

Two Metre News

England

B.R.S. 21136 (Week St. Mary, near Bude) has been doing very badly for a long time, due, he says, to his new QTH in the "iron curtain" county. Normally the only stations receivable are G2ADZ, GW3MFY and GW8UH, but the weekend of October 25 brought a crop of signals from more than 40 stations, many over 200 miles distant. The opening appeared mainly east to west.

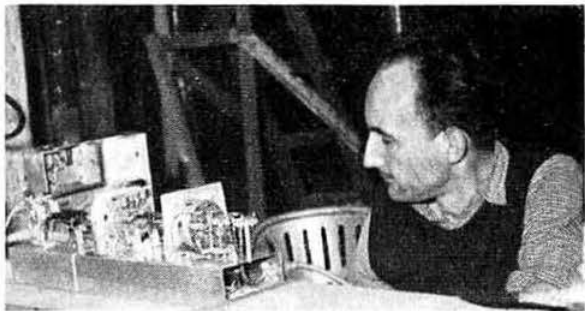
B.R.S. 20133 (Melton Mowbray) has had a superb month's listening, which brought his country total up to ten. During the period '20133 had only 41 hours sleep in seven days, and was almost glad when the opening was over! B.R.S. 19162 (Dewsbury) sent no list this month as it would only be a string of the DLs, ONs and PAs everybody else was hearing. None of the exotics like SP or OK, LA or SM were heard however. The opening, says '19162 appeared to have exhausted both the amateurs and the troposphere as things have been dead since with nothing doing night after night. November 4 was a little better, but the

only station over 50 miles was G3FAN. '19162 heard about a dozen Gs who had given the band a miss for some months, some of whom had deserted the lower frequencies to rejoin "2." The small amount of c.w. was again noted—Morse keys are apparently unfamiliar to many continental stations.

B.R.S. 20162 (Selsdon) reports the most amazing month in a record of listening going back to 1954. The opening was the "best and largest," lasting from the 19th to the 29th. For the rest of the period conditions were reasonable but activity low. On many occasions the odd station was audible from the North Midlands or the West at quite good strength. During the opening no two consecutive evenings produced the same results, different areas being audible on different evenings. The first OZ was heard on the 27th, the first SM on the 29th. Some of the signal strengths were fantastic. '20162 reports "50db over S9" for stations in Cheshire, Lincolnshire and Yorkshire (and the counties in between). Some signals appeared to be going overhead; F and ON signals normally audible at Selsdon being unheard whilst stations 25 to 30 miles away were working them. LX1SI was inaudible at '20162, although the frequency is known and stations to the West were heard working him! (This kind of thing is quite general sometimes, and makes people doubt their converters—G2AIW.)

A.1491 (Palmer's Green N.13) found the opening most exciting and received a host of stations on the bedroom four-element beam. Stations all over England were heard including the Midlands; usually very difficult. ON4ZK and ON4DW were logged on the 24th. G3JGJ (Paignton) was heard on c.w. on the 25th as well as G2HOP (Lincs.), a fantastic S9 signal. West Country stations were later heard, two of them were calling LX1SI.

G6LI (Grimsby) has sent a very detailed report. October 22 saw pressure rising for the anticyclone off Western Ireland, which moved over Central England and finally drifted off south-east. Odd German and Dutch signals were heard weakly. By the 23rd pressure was at the unprecedented high of 30.7 ins. Dutch stations were heard working local stations and PA0BL reported abnormal conditions, with a tendency for good reception from south and south-west. However, several calls to the Continent produced no reply. Pressure was maintained on October 24 but nothing worth mentioning happened. On October 25 (a.m.) PE1PL was worked with very good steady signals. Between 20.00/23.00 hours many British stations were worked from the south—a very nice opening with good phone contacts. G3IRS was heard working GM3EGW. On October 26—pressure slowly falling—at 11.20 G.M.T. F3LP was heard. From 19.00/21.00 F8XT was heard. October 27 was the beginning of the great event. OK1VR/P (Mount Snezka) was worked by G5YV and G6LI and the nearer Europeans came over "in cartloads." Between 18.40/22.30 G.M.T. on the 28th there was another feast of nearer continentals



OK1VR with his experimental 70cm transmitter.

with stress on the further parts of Germany. A feature of this period was the number heard calling eastward; obviously heard off the backs of their beams. At 21.40 G5YV raised SP6CT/P (on the Polish side of Mount Snezka) closely followed by G6LI, who may have lost a "first" for the sake of going QRT for a cup of tea! On October 29 the Scandinavian stations came into the picture; many OZs were heard and LA9T and many Swedish stations were worked. The opening ended with falling pressure and rain at about 22.00 G.M.T. but London stations could still be heard working LA and SM at 23.00. G6LI very much missed old favourites of earlier openings such as DL1LB, OZ2FR and SM7BE.

G3HAZ (Birmingham) worked into the West Country on the 23rd. On the 27th various PA0 and DL/DJ stations were worked. PA0, DL/DJ and ON4 stations were worked on the 28th but the great disappointment was SP6CT/P who was heard and called for nearly two hours, but not raised even after German help. The SP started at 519 and gradually built up to 599. SM and LA were getting through on the 29th and at 22.28 SM5AY was worked, signal levels then were generally low and faded out eventually.

G3LHA (Coventry) could not hear any SMs, LAs or the OK and SP stations although careful search was made and the stations were being heard all round him! Good DX was worked to the south on October 22, and the south and west on 23rd. The 24th found fair conditions during the day and PE1PL was worked. On the 25th F8XT was the best QSO at 515 miles with conditions very good to the south. No other continentals were heard. The rest of the opening provided signals from PA0, ON4, DL/DJ but none were strong and none worked. British QSOs were too numerous to mention on October 26. G5YV (Leeds) reporting on his successes with OK1VR/P and SP6CT/P (both firsts) says that reports with the OK station were 559 each way; the SP was 579 (no QSB) and reported G5YV 589. Two hours afterwards the SP was 599.

G5CP (Chesterfield) who also operates mobile, found October 25/26 surprising, and has never previously heard so many foreign stations coming through. F8XT was particularly strong during the evening of October 25. F3LP was S8 in Chesterfield the following night; DL3YBA was worked among others.

G3JGJ (Paignton) only worked 12 stations during the opening, the furthest being G2CIW (Cambridge), and heard about 18 including ON4ZK, DJ3ENA, and PA0LQ who were all called without result. Two French stations were worked (F9JY and F8RK) while G3HBW and G3FZL were heard S9+ from the back of their beams while calling the Continent!

G5DW (Ashcott) says it was quite an occasion for stations in the west to hear and work so much DX! One very good thing about most European stations is that they do tune h.f. and there was thus no difficulty in working anyone he could hear. Apart from the excitement of working 700 miles or more, it was good also to work distant stations in bad locations. A very good QSO was had with a station in Antwerp with an indoor three-element Yagi! **G2HDR** (Bristol 9) reports that the weekend November 15/16 was quite good to the north. Activity was low, however, and no Midlands stations were heard, but Lancashire and Yorkshire stations were strong for long periods. They were, however, working locals and phone and c.w. calls from G2HDR were fruitless. **G5MR** (Hythe, Kent) spent some time on 2m from October 24 to 28 and had some interesting British and continental QSOs. F2BC (near Cognac) and ON4YG (Chimay) received their first G contacts and F9LL (La Rochelle) and F9QW (Corbeil) were new ones for G5MR.

G3JR (Barnes) received 599 from G3GYQ (Swindon) on October 24. G3JR also called ON4HC and ON4TQ without result. Good c.w. chats have been had with

G2CIW (Cambridge) and G2FNW (Leics.) during the same period. Nothing was heard of SM, LA or OZ. **G3ENG** has started up on 2m less than 100 yds. from G3JR, and there have so far been two QSOs (we hope friendly ones!). On November 15 at 23.30, G3MED's (Northwich) phone CQ was heard at S8—much above normal—but no QSO resulted. G3KEQ also called G3MED in vain.

G3KQF (Derby) considers the continental opening was a pleasant change, although conditions in the Midlands were not so good as they were in the south. All the same, ON, PA, and DL were worked, and OK1VR/P was heard, but no other new countries were audible.

G2CZS (Chelmsford) sends a good list and mentions working SM also, although this country is not included in the list. SM6-2917 sent a useful report to G2CZS of reading his phone while G2CZS was working OZ stations.

Wales

B.R.S. 21476 (Penarth) says that although Gs were heard working continentals during the openings very few penetrated to Wales. The effect was very marked in the lower portion of the v.h.f. spectrum. On October 25 Caen TV (sound) on 41.25 Mc/s was a colossal signal. First class pictures were received for the first time ever from Crystal Palace on 45 Mc/s. This continued day and night on the next two days.

GW3MFY (Bridgend) refers to the "so called opening" and was on every night from October 24 to 29, the only continentals heard, however, were Fs, with the exception of ON4BZ whose key could only send the symbols "GD3UB"! **GW8UH** and **GW4CG** were on the band, and noted also that none of the exotic stuff was coming through. How frustrating it was to hear stations across the Bristol Channel (G5DW and G3FIH) working all the DX! Can anyone please explain what was happening to the signals? However, to compensate a little, F8XT (Chillac) and F9JY (Cherbourg) were worked. The Gs were well received, but again c.w. was conspicuous by its absence. Those stations in the south-east and London area who weren't interested in the Continent (what a blessing, says **GW3MFY**) were worked, including G3FCQ, G3GVC, G3GYQ, G6OX, G2DDD, G3JHM and G3FEX (all first contacts). The Welsh mountain barrier was broken at last and G3CCH (Scunthorpe) and G3MED (Northwich) were also raised for the first time.

B.R.S. 20284 (T.R., Prestatyn) has reported on his own listening, with a brand new 6BQ7A converter. He also reports that a new station is on 2m, **GW3JGA** (Prestatyn) with 30 watts to an 832A p.a., and a four-over-four slot beam. At 100 ft. a.s.l. the position is difficult, and overshadowed by a nearby mountain-side. The frequency is 144.2 or 145.0 Mc/s. **GW2FVZ** (Caerwys, Flint) also using 30 watts to an 832A and six-over-six slot beam, is 800 ft. a.s.l. As might be expected, **GW2FVZ** gets QSOs much further afield than does the less fortunate **GW3JGA**. Frequencies 144.2 or 145 Mc/s. **GW2HIY** (Holyhead) now has a six-over-six slot rotary aerial, as well as the fixed array; the p.a. input is 40 watts, and a new frequency is 144.42 Mc/s.

LONDON U.H.F. GROUP ANNUAL DINNER

Bedford Corner Hotel, Bayley Street, Tottenham Court Road.

Saturday, January 31, 1959, at 7 p.m.

All v.h.f. and u.h.f. enthusiasts welcome.

Tickets, price 12/6 each, may be obtained from P.A. Thorogood (G4KD), 35 Gibbs Green, Edgware, Middlesex.

Scotland

GM2FHH (Aberdeen) reports consistent signals in the sked with **G3BA** (Sutton Coldfield). It is astonishing how **G3BA** comes through sometimes on an otherwise apparently empty band. Although **GM2FHH** was on during the opening, he missed it and says he hadn't noticed how good it was! Seriously though, it doesn't seem to have touched Scotland very much. There was a strong visible aurora on October 24 and **GM3LAV**, **G3FGJ**, **G6XM** and **G15AJ** were worked. One of the **G3BA** QSOs was by aurora on the 27th.

GM6WL (Glasgow) reports little activity and obviously the opening didn't get across there! **GM3GAB** and **GM6SR** have been in QSO and **GM3BDA** ("the old ace") is now active again from North Berwick. The sked with **G15AJ** has been well maintained, over the period.

Channel Islands

GC2FZC (St. Peter Port, Guernsey) reports that **PA0** stations were the only continentals raised there during the opening. A large number of **Gs** was, however, heard and worked. **GC2FZC**'s frequency is 145.36 Mc/s and the station is active every evening from 18.30 to 19.00 and later if the band is open.

France

A national v.h.f. meeting is proposed for May 9, 1959, in Paris under the auspices of R.E.F. There will be an exhibition, and talks by **F9ND** (R.E.F., V.h.f. Manager), **Ingenieur General Revirieux** (**F8OL**) and the R.E.F. President, **F9VR**. It is hoped that if **W1HDQ** comes to Europe, he will attend and speak. It is the hope of R.E.F. that any European v.h.f. men who can will honour the meeting with their presence.

Norway

LA9T (Moss) reports the Norwegian side of the grand opening. October 28 was the great night, but activity extended to the evening of the 29th. During this time, **LA3AA** worked **PA0s**, and heard many other stations, including **G3FZL**. **LA4VC** worked several countries, including **G5MA**, **G6NB**, **G3HBW** and **DL3EZA** (1340 km, a record from Norway). **LA7WA** worked **G3FZL** among others. **LA8MC** had a grand list, including **G3HBW**, **G3WS** and **G5KG**, and make the first **LA/SP** QSO with **SP6CT/P**. **LA9T** himself worked **G3HBW**, **G6LI**, **G3FZL**, and **G6NB**, together with many continentals.

Seventy Centimetre News

England

G3HAZ (Birmingham) found 70cm very good during parts of the opening. The usual beam was not available but a ten-element Yagi was used in the shack and **G3FP** exchanged reports "surprisingly enough." On October 26 **G3FP**, **G3FNW**, **G3MED** (a new county and difficult direction) were worked. **G5YV** (another difficult direction) was heard. October 27 brought a QSO with **G2DDD**, another new county—the total on 70cm now stands at 20 counties and five countries.

G3LHA (Coventry) worked **G3IRA** on October 23 at 559. Tests were made as usual with **G3MED** and **G3HYH** but were unsuccessful. **G3LHA**'s frequency is now 433.45 Mc/s which seems to account for no replies as everyone is between 434/435.5 nowadays. It is hoped to return to 434.7 soon.

G2XV (Cambridge) was able consistently to work **G3MED** (Cheshire) and had about ten 100 per cent QSOs with him, but in spite of a regular sked **G2OI** in Lancashire could not be heard, although regularly hearing **G2XV** and only a few miles beyond **G3MED**. Any county in Wales, also Dorset, are additions to the "skeds wanted" list. **G3HYN** (Lancs.) was worked on November 17 after the same long struggle, for the 32nd county on this band.

G5YV (Leeds) notes the terrific strengths of all 70cm signals heard during the great 2m opening. A total of about 20 were heard or worked.

Scotland and Northern Ireland

GM6WL reports with regret that **G13FWF** has had influenza and that the 70cm tests may not be resumed until next spring. It may be possible to keep tests cross-band with **G15AJ**, who is, however, somewhat scared of keeping the aerial up during the winter gales.

Four Metres

G5MR (Hythe, Kent) found a refreshing increase in **G** activity for the 70 Mc/s contest on November 15/16. For once in a way, conditions were very good, particularly across the Channel—signals were heard for almost the whole period of the contest and some good contacts were enjoyed. Worked for the first time **F9EA** (Rouen) who is already well known for 2m portable work, and **G6NB** (Brill). The best DX worked during the contest was **F9CZ** (near Montecarlo) at 200 miles. **G3EHY** (Banwell) was repeatedly heard and called, but no QSO resulted. **F2EY** (Champigny, near Paris) is now listening for **Gs**; he comes in well at Hythe and there should be a QSO soon.

GW3MFY (Bridgend) made a special effort to come on for the contest. The gear was: transmitter—**6J6** overtone oscillator to 70.26 Mc/s, **QV04/7** p.a. (10 watts); receiver—**RF26** into **HRO**; aerial—three-element Yagi. The results were QSOs with **G3EHY** (Banwell) and **GW4CG** (Porthcawl). **GW3MFY** considers this a farce, and possibly he has something there! Anyone interested in working **GW** on 4m is invited to approach **GW3MFY** who will be delighted to co-operate: c.w. only at present.

G3EHY (Banwell) was able to come on for only a short time during the contest (Sunday a.m. November 16). During this short time conditions were good and QSOs were had with **G6NB** (Brill), **G5KW** (Kent), **GW3MFY** (South Wales) and **G5JU** (Birmingham). Several other London stations were heard and called without success. As, however, a listener in Sussex submitted an **S9** report the signal was apparently getting through. **G3EHY** was surprised there appeared to be very little activity.

Six Metres

G3EHY (Banwell) reports that the m.u.f., true to expectations, has been rising gradually over the path Great Britain/North America. On November 1, it rose above 50 Mc/s between 14.00 and 16.30 G.M.T., and a number of solid contacts were made between **G3EHY** (on 28 Mc/s) and **W1** and **W2** stations on 6m. Some phone stations were peaking up to **S9**, and quite a number of low power c.w. stations were putting in very useful signals. One **W** station reported hearing an **SM7** station calling **CQ** on 6m but no QSO resulted. The following were worked cross-band by **G3EHY**—**K1BHR**, **W1FCP**, **W1FOS**, **W1LBE**, **K2ITP** and **W2ZKE**. **B.R.S. 20133** (Melton Mowbray), who was hopeful last month, must be quite happy now that the **Ks**, **Ws** and **Ves** have begun to come into the net. Between 13.00 and 16.00 G.M.T. in the weekend of November 8/9, many were heard on phone and c.w. The band was practically full of amateur stations, with what were apparently South American and Italian broadcast stations nearby. The station they were all calling and working was **G3EHY**—most of them were working cross-band to 10m. **SMs** and **OHs** were also being worked, but '20133 heard none of these. The 6m gear comprises an **RF26** unit into the **AR88** at 7.5 Mc/s and a simple rotary dural dipole, in the shack 30 ft. above ground.

B.R.S. 21476 (Penarth) says the band opened on November 5 and **K6KFY** was the first to be heard in this new **F2** season. **G2RVN** and **E12W** have been in great demand, and stations calling them have caused great pile-ups on 6m.

This was particularly so on November 12, when the band was full of S9 QRM—all calling EI2W! He heard XE1PFE. '21476 thinks that XE has not been heard on 6m in Europe previously. **G4LX** (Newcastle) worked the following stations on 6m up to the expiry of his permit to use the band: G2BDQ, HB9BZ, HB9QQ, OH2HK, ZE2JV, WILGE, W4UCH, W4UMF, W8HXT and VE1BB. It seems a pity that the permit should have expired on October 31 (for the useful time of operation) just when the band was opening up properly to U.S.A. and Canada. Over 150 different W stations were logged in the three weeks up to November 16. All districts were received, together with VE1, VO and XE1PFE. The highlights were W7MAH (Idaho) and W7AGG (Arizona). Six metres is very lively at the moment, and is opening earlier in the day than last year (around 12.30 G.M.T.).

From *PRP News* we learn that CT3AE made at least two contacts with JA3CE and JA3GR during October. The point is that these were the long way round, a distance of over 17,000 miles. One of the QSOs was heard by LU3EX. KA2AS was also worked by CT3AE on October 8.

G2BVN (Romford) reports a poor opening on October 19; the first real opening was on the 31st when the first and second W districts were worked cross-band from 28 Mc/s. A very good day was on November 4 when W1, 2, 3, 8 and VE1 were heard. This was followed by almost daily openings, until the 15th when W4 and W5 stations were heard for over two hours at excellent signal strengths. These were followed after 16.00 G.M.T. by W1 and 2. W7GRA (Arizona) was first heard on the 15th at 16.20 at local strength and a ten minute recording made. This station was then worked cross-band on the 20th at about the same time. The only W6 heard has been K6GRK briefly on November 4. Another good opening to W4 and 5 took place on November 16 with VO2DA heard for the first time.

Since the band opened this autumn G2BVN has heard all W districts and VE1 and VO, and most have been worked cross-band. Generally the signal strengths of the American stations have been greater than during the corresponding period last year.

G3EHY says the m.u.f. reached 54 Mc/s on November 17. Consequently it has been possible to work W stations at some time in the afternoon on every day lately. The earliest time was 11.55 on November 9 and the latest 17.50 on November 7 (VE1OD). Cross-band contacts have been had with 6m stations in W1/5, 8 and 9 and VE1 and call areas, W6, 7 and 0 have been heard at S9 or better! The best DX heard was XE1PFE on approximately 50.2 Mc/s at RS57 on November 16 at 16.30. A test was made with K2JUL on November 17, who reduced his power from 100 to 10 watts by stages. The signal was readable at S9 down to 20 watts, and was still readable in spite of QSB down to 10 watts input. W8CMS informed G3EHY that VU2CQ puts out a signal on 50.03 Mc/s each day, beamed on the U.K.

* * *

A Merry Christmas to all members and good hunting in the New Year. The January deadline is the 18th of December. Please try to make it!

London Audio Fair 1959

THE London Audio Fair 1959 will be held at the Russell Hotel, Russell Square, London, W.C.1, from April 2 to 5. All previous exhibitors have been notified.

IT'S DIARY TIME AGAIN

Order Your 'Wireless World' Diary from Headquarters—Price 4/6 (5/- Post).

Worked and Heard on V.H.F.

Due to pressure on space, details of inter-G calls heard or worked on 2m can no longer be published.

A.1491 (Palmer's Green). October 11—November 17.

Heard: F3LP, ON4BZ, 4DW, 4ZK, PA0LQ.

B.R.S. 20133 (Melton Mowbray) October 10—November 10.

Heard: DL3BJ, F3LP, G13GXP, GW4LU/M, ON4TW, 4ZK, PA0CML, 0LQ, PE1PL.

B.R.S. 20162 (Selsdon, Surrey) October 14—November 13.

Heard: DJ1EY, DL1RX, 3HX, 3ML, 3VJ, 3YBA, 6SV, F3LP, GC2FZC, GW3MFY, 4CQ, 6UH, ON4DW, 4FG, 4HN, 4PE, 4ZK, OZ2BB, 2EM, 2NH, 6JI, 6RI, 7BR, 7CK, PA0BA, 0BI, 0BL, 0CMH, 0CML, 0FB, 0FC, 0FHB, 0FP, 0GER, 0HRX, 0JMS, 0KT, 0LOD, 0LQ, 0MU, 0MZ, 0TC, 0PAJ, 0QC, 0QT, 0RBM, 0RG, 0ROD, 0SK, 0TG, 0TP, 0UG, 0WAR, 0WL, 0WU, 0YVS, PI1VKL, SM6ANR, 6BTZ, 7AED, 7BAE, 7BOX, 7BE, 7YO.

B.R.S. 20284 (Prestatyn) Mid-September—November 17.

Heard: GD3UB, G13GXP, 5AJ, GM3EGW, 3HLH/A, GW2FVZ, 2HIY, 3JGA.

B.R.S. 21136 (Week St. Mary, Cornwall) Week ending October 25.

Heard: GW3MFY, 3MFY/P, 8UH.

G2CZS (Chelmsford) October 23-29.

Worked: DJ1XX, F8XT, OZ2BB, 2EM, 3NH, 6CK, 6JI, PA0JMS, 0LQ, 0TP, 0WAR, 0WL, 0YVS, PE1PL.

G2HDR (Bristol 9).

Heard: F8XT, GW3HAW, 3MFY, 8SU.

G3JGJ (Paignton, S. Devon) October 18—November 17.

Worked: F8RK, 9JY, GC2FZC, GW3MFY. Heard: DJ3ENA, F3LP, ON4ZK, PA0LQ.

G3KGF (Derby) October 18—November 18.

Worked: DL3VJ, ON4ZK, PA0CML, 0LQ, 0TP. Heard: OK1VR/P.

G3LHA (Coventry) October 22-27.

Worked: F8XT, GC2FZC, GW2FVZ, PE1PL. Heard: F3LP, DL3VJ, ON4TW, PA0LQ, 0TP.

G5CPC (Chesterfield, Derby.) October 26.

Worked: DL3YBA, PA0CML.

G5DW (Ashcott, Bridgwater, Som.) October 15—November 17.

Worked: DL3NQ, 6WUA, F3AK, 3LP, 3ND, 8UK, 9XG, LX1SI, ON4HC4XT, PA0AYVS, SM6ANR, 7BAE.

GC2FZC (St. Peter Port, Guernsey) August 26—October 31.

Worked: GW8SV, 8UH, GW3MFY, 3MFY/P, PA0LQ, 0FD. Heard: GW3HAW.

GW2FVZ (Caerwys, Flint) up to November 17.

Heard: G2ANT, 2FNW, 2JT, 3BA, 3DKF, 3HBW, 3HWC, 3HYH, 3IWI, 3JAZ, 3KYT, 3LGI, 3LTF, 3MAX, 3MED, 5MA, 8AL, G13GXP, G24HIY, GW3JGA, 3FJIA.

F.R.S. 296 (Malsryd, Sweden) October 28-29.

Heard: DL6EZA, 0IGY, G2CZS, 3ENS, 3EVV, 3FZL, 3HBW, 3IIT, 3WS, 5KG, 5YV, 6LI, 6NB, 6YP, ON4BZ, 4ZH, 4ZK, PA0MU, 0TP.

Four Metres

G5MR (Hythe, Kent) October 5—November 16.

Worked: F8GH, 8LO, 8MW, 8NB, 8QL, 9CZ, 9EA, 9IW. Heard: F2EY, 3NY, 3QH, 3RR, 3XY, 9AJ, 9BI, 9IL, 9RC, 9ZA, G2AHP, 3EHY, 3KQC.

Six Metres

B.R.S. 21476 (Penarth) October 18—November 16.

Heard: K1BFK, 1BW, 1CXX, 1HVV, 2KLP, 4DSR, 5AEY, 5AJW, 5CKZ, 5DOZ, 5DQA, 5DTF, 5DTL, 5ESZ, 5GEH, 5HDB, 5HDS, 5HYF, 5IET, 5IQL, 5KFN, 5LEP, 5MIS, 5MGP, 5STT, 6KGFY, 6VLM, 9LFS, VE1BB, 1II, WIGKE, 1JHJ, 3TYX, 5AIG, 5AWG, 5DAA, 5DSA, 5SERG, 5JXV, 5RDL, 5SPW, 5TKP, 5UNH, 5NRM, XE1PFE.

B.R.S. 20133 (Melton Mowbray) November 8-9.

Heard: K1BHY, 1DIR, 1DIT, 1GPI, 1HFK, 2CEH, 2ISP, 2JDI, 2KGH, 8BDK, VE1HT, VE1II, 1IK, 1OD, 3AGU, W1CRT, 1FOS, 1LGE, 1QIG, 1ZAW, 2NNN, 2UTH, 2YJI, 3GWQ, 3GXL, 8CMS, 8GPH, 8SSD.

G4LX (Newcastle-upon-Tyne) November 1—November 16.

Heard: K5ABV, 5CYK, 5DCG, 5HYF, 5IQL, 5JFN, 6EWS, 6JCA, 6QVY, 6UNQ, 6VLM, 6ZEH, W5FEG, 5FHS, 5SPW, 6BJI, 7AGG, 7MAH, 7YKK, KOLSK, W0UTH, XE1P.

Two Metres

G3HAZ (Birmingham) October 17—November 17.

Worked: DJ4TE, DL3VJ, 6XB, GC2FZC, GW3MFY, 4LU/P, PA0JHC, 0KT, 0LOD, 0ROX, 0TP, 0WAR, PE1PL, ON4DY, 4TW, SM5AT, 6ANR.

70cm

G3HAZ (Birmingham) October 17—November 17.

Worked: G2CIW, 2DDD, 2FNW, 2HDJ, 2RD, 3BA, 3FP, 3IOO, 3JZG, 3KEQ, 3KPT, 3MED, 3MYD/T. Heard: G2XV, 2HCG, 3HYH, 5YV, 6NB, 6JZG (Willenhall, Staffs.) October 20—November 20.

Worked: G2RD, 2HDJ, 3BA, 3HAZ, 3IRA, 3JMA, 3KEQ, 3KPT, 3MED, 3MYD/T, 3MYD/T, 5KG, 8AL, 8RW. Heard: G20I, 3HBW, 3HYH, 3LNN, 6NB.

Can You Help?

● O. F. Quantrill (B.R.S. 21660), U.K. Commission, New Delhi, c/o Commonwealth Relations Office, King Charles Street, London, S.W.1, who requires the circuit and other details of the U.S. Signal Corps Communications Receiver type BC1147?

Coronation Safari - 1958

By M. C. PAVELY (VQ4CW)*

AS readers will remember, Her Majesty Queen Elizabeth II, acceded to the Throne in February 1952 at Tree Tops Hotel, Nyeri, Kenya. This historic occasion, coupled with Her Majesty's Coronation the following year, gave rise to the idea that there should be in East Africa an event befitting the "Royal" mood of the moment. Therefore, in 1953 the first Coronation Safari took place. Briefly, the Safari is a motor rally which compares very favourably with such great international events as the Monte Carlo Rally and the Round Australia Race. The route is usually over a distance of between 2,000 and 3,000 miles, traversing some of the toughest roads in the world, which vary in altitude from sea level to over 8,000 ft. in places. Among the hazards to be met are deep mud, suspension-shattering corrugations, choking dust and wild game, to mention a few!

Amateur Co-operation

The event was held again in 1954. Before the 1955 Safari began, the Radio Society of East Africa was approached with a view to providing a network of communications to work in close liaison with the Organ-



VQ4ZFW operating from Mombasa during the Safari, assisted by his son and a friend of his son.

izing Committee. With the blessing of the East African Posts and Telecommunications Administration, amateur stations were set up at some of the important check points, and were able to pass back to a control station in Nairobi important information about the progress of cars.

In the ensuing years the Society was able to provide similar help with the exception of 1957. The absence of the Society from last year's Safari brought home very forcibly to the organizers, and perhaps more important the general public, the need for adequate communications in an event of this kind. In fact many people followed the progress of the previous Safaris by listening in to the 7 Mc/s amateur band on their domestic receivers instead of to the official bulletins from their local broadcasting station.

* P.O. Box 5681, Nairobi.

The 1958 Safari

So to the Coronation Safari of 1958. This was held as usual over Easter weekend, the reason for this choice of dates being that around that time of the year conditions are eminently suitable for a motor rally, when more often than not the long rains are in full swing, thus turning the roads into quagmires in certain stretches. However, this year the rains were late, and instead of mud the drivers had to contend with clouds of dust.

For weeks before the Safari, amateurs in East Africa had been modifying and testing portable gear ready for the "great day" and on the Thursday before Easter all was ready. The Control Station was set up in an office of one of the leading motor dealers in Nairobi, on a frequency of 7090 kc/s, the aerial in use being a 7 Mc/s dipole.

The Safari actually started at 8.30 a.m. on Good Friday morning from Nairobi, and in the writer's particular case he had to be in position with his portable gear at Kitale, a point some 250 miles from Nairobi. This entailed an overnight dash in a Fiat 500 complete with gear and family, to be ready for the first cars which were due through at approximately 11 a.m.! During the course of setting up the station many incidents occurred including the "blowing" of the fuses at least three times in the local police station, from which source the a.c. mains were "borrowed." As luck would have it there were two trees by the operating position, spaced approximately 66 ft. apart, thus facilitating the erection of the 7 Mc/s dipole. Contact was quickly established with Nairobi and much information was passed during that day. The Control Station in Nairobi experienced much difficulty due to heavy QRN from a local source, but despite this, contacts were soon established with the various out-stations around East Africa.

The following day, VQ4CW/P was established at Eldoret, some 40 miles from Kitale, to handle the "traffic" caused by the cars returning from the Uganda stretch of the course, where VQ5EK had done a good job. For the rest of the weekend the route took in a portion of Tanganyika, the coast to Mombasa and a 300 mile trek back to Nairobi. The VQ3s handled the Tanganyika side of things very efficiently and particular tribute must be paid to VQ3GH, VQ3DQ, VQ3PBD and VQ3SS, plus a host of helpers.

Radio Conditions

During the weekend conditions on 7 Mc/s remained quite good with occasional fade-outs from various parts of East Africa. There was, of course, a lot of interference from broadcast stations during the evening operating periods, but this difficulty was in the main overcome. Much credit goes to the staff at Nairobi Control who worked a continuous 24 hour shift system, coping with many difficulties. The operators at Control included VQ4EV, VQ4GM, VQ4DS, VQ4AA, VQ4BP, VQ4CH, VQ4GO, SWL Munro and Mrs. Munro and SWL Bramwell. Amongst the other amateurs who manned out-stations were VQ4WCP, who travelled 100 miles to Nyeri, and VQ4AQ who went to Arusha in Tanganyika.

As a tail-piece, one unfortunate driver suffered the indignity of having a giraffe squat down on the roof of his car! This finished his Coronation Safari for 1958!

Did You Know?

- That the first G3 two letter calls were issued during the latter part of November 1937?
- That the GM prefix was introduced in March 1937 and the GW prefix in July 1937?
- That the R.S.G.B. was responsible for obtaining special prefixes for the constituent parts of the British Isles?

THE MONTH

THE MONTH										REMARKS	
DATE TIME	FREQ.	STATION CALLED	CALLED BY	STATION HEARD OR WORKED			IF QSO RESULTED				
				R	S	T	MY SIGS.	TIME OF ENDING QSO			
						KC/S OR DIAL	R	S	T		
								</			

ON THE AIR

By S. A. HERBERT (G3ATU)*

DURING the period under review, conditions on all bands have remained reasonably good, although there has been a fall-off compared with the previous month, when the appearance of numbers of the more sought-after variety of DX (coinciding with superb propagation on all the h.f. bands) made things hum in no uncertain manner. However, things have been interesting enough on the whole and even the select coterie of chasers after the 300 countries—and there are a surprising number who are capable of reaching that total—have been able to set their sights on yet another country previously unworked. Which brings us rather aptly to this month's big news item.

Juan Fernandez to take the Air

The Radio Club de Chile is sponsoring an expedition which it is hoped will reach this isolated island group, 360 miles of ocean distant from Valparaiso, some time in January 1959. Transport to the islands is both scarce and irregular, so that an exact date cannot be fixed in advance. However, once Juan Fernandez is reached, four experienced operators manning two complete stations will be on the air for the ten to fifteen days stay envisaged. Equipment will comprise a Collins 32S-1/75S-1 and a Collins 32V/75A, with suitable petrol electric power plants.

CE0ZA, operated by Luis (CE3AG, ex-CE0AA) will be on c.w. and s.s.b. On c.w., 14,030, 21,030 and 28,030 kc/s will be the basic frequencies, with Luis tuning for replies 10/15 kc/s higher. S.s.b. will be on 14,310 and 21,410 kc/s, with CE0ZA announcing his listening frequency.

CE0ZB will be used on a.m. telephony, on or near 14,100, 21,200, and 28,200 kc/s. Operators CE3HL, CE3DY and CE3GI will control the mob by indicating the chosen listening spots.

All QSLs must be sent to the Radio Club de Chile, Box 761, Santiago de Chile. An s.a.e. plus I.R.C. will bring a direct reply, otherwise cards will go via the QSL Bureaux.

Good luck to the expedition and may their plans go smoothly and without a hitch.

DX News from Far and Wide

U.S.A.: John Knight (W6YY) confirms the Fernandez trip, and adds that ex-CE2BM is already using a CE0 call from the island. He is on phone at the low end of the U.S. 14 and 21 Mc/s voice bands, but with rough modulation and little English. John also has it that BY1PK on 14,111 kc/s dispenses QSOs to Communist countries only, while SU1MS appears to have a similar preference. UM8DX is active on *phone*. Rare! VS9AC slipped over to Oman's Sultanate with an 8 watt portable for a few days. Few QSOs resulted but perhaps he will try again.

VS9O, who made lots of noise while at Salalah, is back at G3IRQ. He tells W6YY that as there was no apparent official means of obtaining a licence—the Sultan knew nothing about Amateur Radio and there is no post office to approach—he just went on the air and was doing fine until British Authority came along and told him to desist forthwith and with all speed, ere he found himself in the local jail. Ah, well!

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

G3FPI (Solihull) indicates that **W2CTN** handles QSLs for JZ0HA, 9G1BQ, XZ2TH, OX3RH and VK9BW in addition to those listed last month.

W4ESP thanks G3JBR for tracing Geoff Wade, AP2F, who is now VE3DVA in Toronto. W4ESP worked VP2SI on 21,410 s.s.b. VP2SI is active from 20.00 to 24.00 G.M.T. and locally in the mornings.

Canada: **G3KMH** (Hexham) says that **VE6EY** is anxious to contact Birmingham, his home town, on 28 Mc/s *phone*. He is active around 15.30 to 16.30 G.M.T.

Alaska: Terry Murray (KL7CDO) will have a 40m beam on the air this winter. At first, 100 watts or so will feed this monster, with a full kW later! European QSOs should now be easy.

Singapore: **G3IJU** (ex-ZB1EB) shortly hopes to be active, possibly as VS1EB and will be looking for old friends.

Christmas Is.: **G3KHZ**, doubtless cursing fate for putting him on VR3 with everything except the vital permission to



This picture of the three-element beam used by VQ1PBD was taken from the top floor verandah of the house (the beam is well below roof level). The elements are made of aluminium curtain rail and the complete beam folds up for transport into a bundle 9 ft. long. This view was taken looking south; to the north and east the palms are even thicker. For story see next page.

operate, consoled himself by listening to FK8AB, FK8AT, FK8AR/MM, (030), FO8AC, FO8AU, VK0T, ZK1AK, ZK1BG (034), ZK1AU, 3W8FM, VS9MI, FB8CH, FB8BK (066), UM8DX (050, 17.30), UM8AG, ZD9AF, UJ8AG (100, on phone), KX6BT (s.s.b.) and other 14 Mc/s rarities. Derek says ZK2AD likes 14,050 kc/s and his QSLs should go via W6ZVQ. C2AA (T8) has been working Ws. QSL 15AAW (076, 18.30) via Box 85, Mogadiscio.

Cyprus: ZC4GT (R.A.F. Ayios Nikolaos, Cyprus, B.F.P.O. 53), is active again after a break of six months. Should anyone want a QSL for a QSO before May 1958, details to the above address will suffice.

Germany: DL2GA (Lieut. J. E. P. Philp, 2 L. of C. Signal Regt., B.F.P.O. 34) is keen to get things really moving in the DL2 radio world. He has written the 27 odd licensed DL2s with a view to getting together and producing such things as a newsletter, a hamfest, etc., and in addition, he is in a position to help the several U.K. amateurs who are in Germany but are not yet DLs by putting them in touch with the right quarter. R.S.G.B. membership forms are also available and a note to DL2GA will set the ball rolling.

Zanzibar: VQ3PBD recently put the 10m band in a considerable uproar when he spent 38½ hours on the air from VQ1PBD. Peter used a 40 watt transmitter and a three-element beam only 21 ft. up to give QSOs to 447 stations in 55 countries, a fine job, as he operated single-handed throughout. Operation was on phone only, and Peter apologises to the c.w. boys who called in vain.

France: To G3FPK (3A2BT) comes a note from Danny Lockyer (G3HCL and holder of many rare calls) who is at present cut off from Amateur Radio due to lack of F/U.K. licensing reciprocity. It occurred to him that his experience as a DX operator (he is, in fact, a top class c.w. man.—S.A.H.) may prove useful in future expeditions to rare spots and accordingly he suggests that should anyone be planning such a trip and be in need of an experienced second operator, here is one ready and waiting.

The British Two-Call Club's *Newsletter* reveals that G2DHV plans a tour next year as DJ0AA/3A2CK, with F, I, YU, OE and HB thrown in, if he is lucky.

Fifteen Metres

With 20 full of horrible noises and short-skip, and 10 full of W and VE, 15 interests more and more DX minded people, though jammers and Novice stations tend to complicate matters somewhat at times. But the band can be very good indeed when the skip is right and early risers have been reaping a rich reward in Pacific rarities.

G3KGV (Sunderland) has a brand new rotary quad and is delighted with his results with the beam pointing North, even though it is only 32 ft. off the ground. Ken works ZL every morning, and has gathered in KM6, KR6, KX6, CX and PY0NE (Trinidad Is.) for new ones. Nearby **G3LKZ** (Cleaton) worked JT1AA on November 16, despite rumours of his leaving Mongolia. VP5BL (200, 11.30) was raised on phone. Owen has QSLs from W3ZA/3W and HP1BR to make him 120/93 so far. **G3FPK** (London, E.10) says commercials continue to annoy him so he worked nothing but heard ISICFX and ZD1GM (Box 67, Freetown). Norman had Zone 19 QSLs from UA0RF and UA0KDA, as usual via the I.S.W.L. Bureau, which handles all U.S.S.R. cards, it appears.

G3KAA (Luton) worked CR6CK on c.w., heard KA and KR6 (c.w.) and HL9KP (11.00) on phone. **G3EYN** (Macclesfield) used c.w. to work SV0WAE (Rhodes), a new one and KX6BT (12.30). **G3AAE** (Barnet) came on between spasms of decorating to seize PY0NA (Trinidad) on A3, while **B.R.S. 21918** (Hayes) logged VP7BX (21.00). Phil had a card from VS9AO, who wants to work any station in the Southall-Hayes area. He is on 21 Mc/s phone (17.00 to 18.00 G.M.T.) and on 28 Mc/s (07.00 to 07.30 G.M.T.).

A.1399 (Prestwich) logged 9G1BD, ZD1EO (16.30), VQ3DQ, ZB2R on A3, with YK1AT on A1. **B.R.S. 21762** (Roker) heard 70C during the CQ phone contest, but 15FL and HL9KT were the only new ones. Vernon's dipole is approaching roof-level and he is hearing things at last, though the unexpected appearance on the air of G3ATU—all of 100 yds. distant—must have dealt a mortal blow to his 680X! H18GA, UA9AA, UP2KBC and VS1GZ obliged with QSLs to make the 21762 total 182 confirmed.

Frequency Predictions for January 1959

PREPARED BY J. DOUGLAS KAY (G3AAE)

BAND	NORTH AMERICA East Coast	NORTH AMERICA West Coast	CENTRAL AMERICA	SOUTH AMERICA	SOUTH AFRICA	NEAR EAST	MIDDLE EAST	FAR EAST	AUSTRALIA	ANT-ARCTICA
M.U.F.	42.5 Mc/s 1515	24.5 Mc/s 1830	40 Mc/s 1500	36 Mc/s 1400	34 Mc/s 1145	40 Mc/s 0930	38 Mc/s 0800	32 Mc/s 0800	28.5 Mc/s 0800 SP	22 Mc/s 0800 or 2200
28 Mc/s	1215/1900	1830	1300/1915	0930/1930	0800/1745	0700/1700	0700/1600	0730/1500	0745/0815 SP	0800 or 2200
21 Mc/s	1130/2100	1545/1715	1230/2100	0830/1200 1830/2300	0700/0900 1330/0000	0630/1815	0630/1730	0700/1700	0830/1230 LP 1000/1630 SP	0800/1000 1730/2215
14 Mc/s	1000/0215	1430/0800	1100/1230 2100/0230	0700/0930 2200/0430	1900/0400	0500/2100	1300/1900	1230/1800	0800/0900 LP 1430/1800 SP	0000
7 Mc/s	2100/0830	0800	0600	0700	2300	1530/0830	1700/0200	1630/2300	1600 SP	0000
3.5 Mc/s	2300/0700	0800	0600	0700	2300	2100/0430	2300	2000	1600 SP	0000

DX TELEVISION PREDICTIONS: BERMUDA 1330/1545. MONTREAL 1430/1630. NEW YORK 1430/1630. Based on B.B.C. Channel 1 Sound Frequency of 41.5 Mc/s. (Video Frequency is 45 Mc/s).

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

B.R.S. 20135 (Newport, I.O.W.) logged VR2AS, KL7PIV (s.s.b.), PZ1AP, SV0WT (Crete), YN1JR, EL1H and VK/ZL on phone. **B.R.S. 20106** (Petts Wood) comments on the mob calling VP2KFA and feels the whole thing begins to verge on the ridiculous when strings of reports are sent with no call sent—just “W2 . . . 579 . . . K” or “G3 . . . 569 . . . K.” Everyone knows it is him, but it still doesn't sound right. As to DX, Norman heard ZD1GM and VP8CV (c.w.) and VK5MS (21.00), ZS9G, 11A1M/M1, KX6AF and CP5CD on phone.

Ten Metres

Seventeen year old **G3MMP** (Pinner) was amazed at the success of a 66 ft. wire, which enabled him to have QSOs with ZS6ASW, ZD6RM, MP4BC1, MP4BBZ, ZE and ZB1. **G3AAE** made it with VS9MA (104, 08.35) on c.w. and he worked VK9SB (Papua, 284, 12.15), AP2AD (345, 15.40), KR6LW (360, 12.50) and VS6DL. **G3FPK** is happy about increased c.w. on 10 and he added ET2, UC, DL and ZP, plus UA0GF and JA7AD as a result, but LA2JE/P, UO5PK and a VP6 ignored his phone.

ZC3RF has been causing a stir on phone around 28,200 kc/s and he seems to be genuine.

Twenty Metres

“Poor old Twenty” as some of us may be tempted to call the band, still has its moments of glory. It would be a sorry day for DX chasers if it were allowed to go the way of 40, but don't worry—that hasn't happened yet. **G3AAE** QSO'd FF8AC/GN (Guinea, 040, 08.00), VP2MX, 2KFA (075, 08.00) and OK7HX/M, who was using one of the two KWM-1s which will go on the mammoth five year expedition. **OK1MB** was operating and said they should be in Albania next January. John heard that VQ4ERR was to be in VQ1 in November and will be in VQ9 next spring. He also heard FU8AE and FW8AS being called on c.w. up around 14,340 kc/s. **G8KS** (Petts Wood) heard FU8AE and FW8AS up there and also VR6TC (010, 06.30), but he remarks, “they were all being worked by the U.S. amateurs and I found it impossible to break through the W QRM.”

G3EYN came upon yet another thought-transference type of QSO, this time from FW8AB. If he heard your call you got your RST. He didn't wait for his but just got on with the next man. Result, hundreds of U.S. boys are wondering if they worked him or not. **G3EYN** worked VP2MX, PJ3AB and ZP5AY (c.w.), but he did not call KC6CJ after hearing the latter deal with three telegrams and a phone-patch!

G3KAA contacted VE8FO (Banks Is.) and VP2KFA (c.w.) and SV0WB (Rhodes), but he missed VP2GAW, AP5B (22.00) and SU1IC (23.45) on the key.

G3FPK sadly deletes ZD2FNN, worked while the real one was on leave. However, Norman was lucky with ET2TO, JA, KL7 and UA0FF (Sakhalin), though F9QV/FC, XW8AI (032, 19.00) and XZ2TH (090, 20.00) escaped. **G3LZK** worked 11A1M/M1 on A3 and VS1JF and HP1BR on A1.

Your commentator heard a G confess he was using an indoor long wire and wonders when some enterprising amateur will start using an outdoor short-wire!

B.R.S. 20106 used phone to log the rare VK9AD (s.s.b., 18.40), VU2RX's s.s.b., HV1CN (06.45) and FU8AE and FO8, ZK1AK, HSIC, YSIO, LU2ZA, VP8DT, LA1VC/G, LA2JE/P and PK4LB (11.17) on the key. **B.R.S. 20135** heard SV0WT (Crete), 0WB (Rhodes), 9K2AZ, VE3EGD/SU and HX1AB (s.s.b.), all on phone.

B.R.S. 21919 heard HP1GA, HR3HH, HR2DK(YL), VP1EE and TG9HB on A3.

Gentlemen, **MP4TAC** has been heard on 14 Mc/s phone. His QTH is Trucial Oman and he is perfectly genuine.

Future “T.O.” stations will presumably now sign “MP4T,” which will help everyone to sort out what was formerly a tangled MP situation.

News from the L.F. Bands

From now until late spring, l.f. conditions should be good and often absolutely excellent for DX, especially on 40m, but in these troubled days it seems obvious that only an international DX contest has a chance of stirring up activity which only ten years ago would have been a daily matter of course both on 40m and 80m.

The man who puts this column together used to be a fervid 40m addict—he worked upwards of 160 countries on the band quite easily between 1947 and 1950—but now like many others he works DX the easy way—h.f. things have changed!

Fortunately, enthusiasts still check the band and a good example is **B.R.S. 20106**, who dug up VE6SZ (04.00) and CT2A1 (c.w.) and 11A1M/M1, K2, W2, W4 and W5ZHR (09.15) on phone. Norman also checked 80 and was rewarded by W1AW and VE3BZB (c.w.).

G3FPK is another keen and expert l.f. exponent and although grinders are S5 in the evenings, with a particularly disgusting jammer playing tunes from 7024 kc/s up, he talked to T12PZ, a new one and another staunch l.f. bander, at 00.30. W6MOJ and K6VTQ were S5 at 01.00 and LU2ACH (003, 00.20) got away. On 80m, UA9CM (3517, 23.00), UB5EF and YO8DD make the score 34, while UP2AL was there, as was 4X4WF—on 3498 kc/s!

G3KAA worked VP7BT (00.30) and UL7BG (23.00) on 40m and listened to the *V. O. A. Amateur Programme* which recently announced that (a) VK3ARX is a new station on from Lord Howe Is.—14,060 kc/s. (b) French Guinea has been granted country status by A.R.R.L. and (c) The VS2 prefix is to be replaced by 9M2!

Herewith, the merriest of Christmasses to one and all and a New Year filled with good health and super-DX or what you most wish. Many thanks from your attendant slave for the increasing and most welcome support for this column. Good hunting and 73.

DX-pedition to Andorra

MEMBERS of the University of Bristol Amateur Radio Society are proposing to make a DX-pedition to Andorra during 1959 and require information concerning licence regulations, local activity and mains supply voltages. Readers able to help are invited to write to J. David Last (G3MZY), Wills Hall, Stoke Bishop, Bristol 9.

Fourth European (WAE) DX Contest 1959

COPIES of the rules for this contest and official log sheets may be obtained by sending a self-addressed envelope and one I.R.C. to the D.A.R.C. DX Bureau, Fuchsienweg 51, Berlin-Rudow, Germany.

The contest will take place between 21.00 G.M.T. on January 9 and 21.00 G.M.T. on January 11, 1959. C.w. only will be used.

The Radio Amateur Operator's Handbook

THE Fifth Edition of this popular Data Publication, compiled by the staff of *The Radio Constructor*, has been revised and brought up to date in respect to Amateur Prefixes, Call Areas and the like. To help those with rotary beams a list of prefixes with the bearings from true North has been included for the first time. A frequency/wavelength conversion chart is on the varnished back cover.

The Handbook can be obtained from R.S.G.B. Headquarters price 3/6 (by post 3/10.)

"The Small World"

SOCIETY MEMBERS INVITED TO PROVIDE RADIO LINK WITH BALLOON

DURING the last few days of October 1958, the General Secretary was asked by a representative of Siemens Edison Swan Ltd. whether the Society could recommend the names of a few experienced radio amateurs who might be willing to provide a short-wave radio link between England and a balloon which was then being prepared for a flight across the South Atlantic from Tenerife to some point in South America. The names, addresses and call-signs of four members who it was thought would be willing to assist were communicated to the representative, who explained that his company had offered to construct certain parts of the radio equipment.

Shortly after the request for co-operation had been received, the London *Daily Mail* published a full account of what was being arranged, together with an announcement that the project (now described as "The Kon Tiki of the Air") had received the patronage of H.R.H. Prince Philip. On November 18, 1958, a representative of that paper contacted the Society and explained that his paper had acquired the exclusive rights of all messages from the balloon. Headquarters then had to explain that the Society's offer of co-operation applied only to the reception of messages of a technical nature which it had been understood would be addressed to a scientific body, such as the Royal Society. It was also pointed out that amateurs as such, are not permitted to handle third party messages of the type envisaged. The *Daily Mail* accepted the position but decided, as a matter of public interest, to ask the G.P.O. to issue a special licence to the captain of the balloon which would authorize him to nominate certain stations to accept, and pass on to an approved centre, messages of a scientific and personal nature.

The Radio Services Department of the G.P.O., at very short notice, agreed to produce such a licence, assigning the call G7AA to the balloon. Calls in the series G7AB-G7AE were assigned to the four persons nominated by the R.S.G.B. (At a later date two additional base stations were licensed.—EDITOR).

In order to settle details, a meeting of interested parties took place at R.S.G.B. Headquarters on November 21, 1958, when representatives of the *Daily Mail* and Siemens Edison Swan Ltd. expressed their appreciation to the Society for its readiness to assist. At this meeting, which was also attended by the four nominated amateurs, it became apparent that (a) the spot frequencies which the balloon operator proposed to use were unsuitable for reliable communication between the South Atlantic and England; (b) neither the transmitter nor the receiver had been designed for the band which frequency prediction charts indicated would be the most reliable. Accordingly three of the nominated operators offered to make the journey to Cardington, Bedfordshire (where the balloon was being fitted out) during the weekend November 23-24 with a view to modifying the equipment. Unfortunately many difficulties were encountered, with the result that it appeared at one stage that the expedition would have to leave England without the radio equipment having been modified. However, the combined efforts of a number of people ultimately led to a solution of the difficulties.

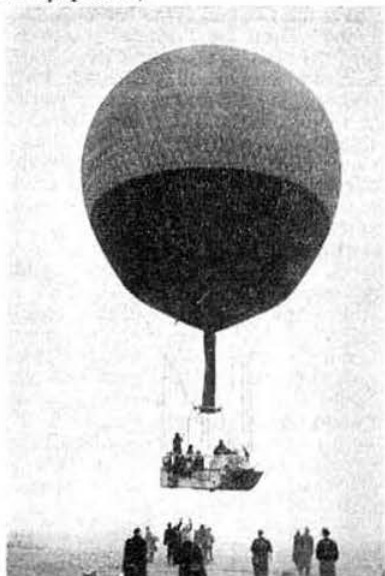
For the record the following is a list of the four operators nominated by the R.S.G.B. and the call-signs allotted to them by the G.P.O.:

- G7AB—Mr. T. A. St. Johnston (G6UT).
- G7AC—Mr. J. D. Kay (G3AAE).
- G7AD—Mr. F. W. Fletcher (G2FUX).
- G7AE—Mr. S. L. Hill (G8KS).

Messrs. Fletcher and Hill, together with Mr. A. Woolven (G3HLS) visited Cardington on November 23 and Messrs. Fletcher and Kay on November 25.

By the time this issue of the *BULLETIN* appears it is anticipated that the balloon will have commenced its journey across the South Atlantic. Assuming that the radio equipment is working effectively the base stations should by now be receiving messages from the balloon in accordance with a predetermined schedule and code.

The balloon is *not* authorized to work amateur stations. (In addition to the four members nominated by Headquarters, Messrs. G. T. Sassoon (G3JZK), D. B. Smart (G3MGB) and R. Kerley (G3MIK) also co-operated in connection with the construction, installation and testing of the radio equipment.)



"The Small World" airborne at Cardington during proving trials.

Late News

At the request of the *Daily Mail*, Mr. J. Douglas Kay (G3AAE), accompanied the equipment to Tenerife to supervise its installation and final testing in a professional capacity.



The gondola of "The Small World" showing location of the radio equipment.

Official Regional Meetings

Aberdeen

AN Official Regional Meeting was held at Ardoe House Hotel, Aberdeen, on Saturday, October 25.

Prior to the meeting, the President, Mr. L. E. Newnham (G6NZ), the Honorary Treasurer, Mr. N. Caws (G3BVG), the Zonal Representative Mr. E. G. Ingram (GM6IZ), Region 12 Representative Mr. A. G. Anderson (GM3BCL) and the Aberdeen T.R., Mr. G. M. Jamieson (GM3HTL), were received by the Lord Provost of Aberdeen at the Town House where they were entertained to coffee and invited to sign the visitors' book. The Lord Provost showed the visitors over the Council Chamber with its magnificent Heraldic ceiling. Even the "locals" came away with a greatly increased knowledge of the City.

At the business meeting in the afternoon, Mr. Newnham, Mr. Caws and Mr. Ingram addressed a gathering of about 50 members, many of whom had come great distances to attend. Subjects discussed included the Bad Godesberg I.A.R.U. Conference, R.A.E.N., membership, R.S.G.B. News Bulletins, Scottish conventions and contests. Many members had questions to ask and these were ably dealt with by the Council members.

The business meeting was followed by a talk and demonstration of the GM3BQA three band quad aerial by GM3BQA himself and GM3LAV. GM3FRZ went on the air to put the array through its paces. Excellent results were obtained.

In the evening a company of 60 sat down to dinner. The toast of "Our Guests" was proposed by GM2FHH and Mr. Newnham replied. At the conclusion of the dinner a free raffle was held. Many valuable gifts were distributed and happily no one went away empty handed. The generosity of manufacturers and dealers, together with many members, in donating such magnificent prizes is gratefully acknowledged.

As members departed by devious routes it was interesting to note that GM2FHH was in contact with GM4HR/M on 2 metres on the latter's journey to Dundee.

The arrangements for the meeting were carried out by a small committee consisting of GM6IZ, GM3HTL and GM3BCL with the enthusiastic support of the Aberdeen Group.

Edinburgh

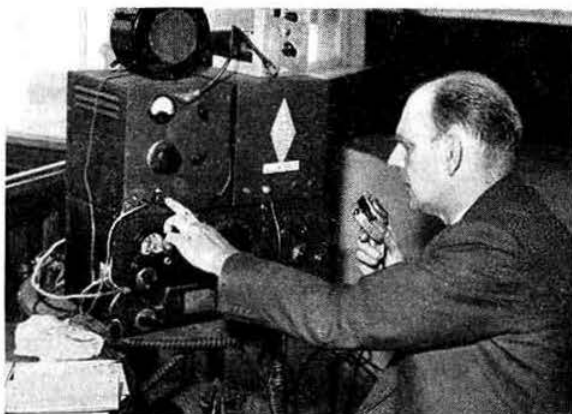
THE Region 13 Meeting held on Sunday, October 26, in the Carlton Hotel, Edinburgh, was attended by about 40 members including several from Region 14. The Council was represented by the President, Mr. L. E. Newnham, B.Sc. (G6NZ), the Honorary Treasurer, Mr. N. Caws, A.C.A. (G3BVG), and unofficially by the Scottish Zonal Representative, Mr. E. G. Ingram (GM6IZ).

The Regional Representative, G. P. Millar (GM3UM), who was in the chair, welcomed the members and expressed appreciation that the President and Honorary Treasurer had been able to attend.

Before the business meeting, the President, wearing his chain of office, presented the Scottish N.F.D. Trophy to Ian Mackenzie (GM3FGJ), the Edinburgh T.R.

After brief addresses by the official guests, who gave a comprehensive review of current Society activities, the meeting was opened for general discussion. The questions covered many points of interest which were dealt with fully by the delegates.

After tea an interesting talk on the cubical quad aerial was given by Colin Davidson (GM3LAV), ably assisted by Jim McCraig (GM3BQA) on the tape recorder and Ian Mackenzie on the projector.



To talk-in mobiles attending the Region 2 Meeting at Bridlington on September 21, 1958, G3GBH/A was installed in the Spa Royal Hall. (Photo by courtesy of Hull Daily Mail)

Lincoln Hamfest and Mobile Rally

LINCOLN Short Wave Club was pleased to welcome 120 visitors to the Hamfest on September 21. Eighteen mobile stations were in operation. The event was held at the Technical College by kind permission of Dr. E. R. Walter, M.Sc.

The competition for the best home-built mobile equipment was decided by ballot, the first prize going to G2CAJ (London) with G3KDO (Doncaster) and G3HRP (Scunthorpe) in second and third places. A lecture on diodes and the use of transistors was given by members of the staff of British Thomson-Houston, which, with excellent practical demonstrations, proved of great interest. An appeal for active support for R.A.E.N. was made by G3ELZ, Area Controller.

Meanwhile the YLs and XYLs explored the Usher Art Gallery and the Cathedral, joining the menfolk for tea at the historic Cardinal's Hat. The traditional sale of surplus equipment rounded off the proceedings.

All prizes for the mobile competition and raffles were generously donated by radio firms, with the exception of the prize for GW2FOF of the Rhondda, the amateur who had travelled the greatest mileage to attend; his prize—a leak—was grown locally!

A telegram of good wishes was received from the Regional Representative, Dr. E. S. G. K. Vance, G8SA, who was unable to attend.

The club station, G3IXH, talked-in many of the visitors on Top Band during the day. The club looks forward to seeing them all again next year.

(Unfortunately the Lincoln Hamfest and the Region 2 meeting in Bridlington clashed.—EDITOR.)

British Kinematograph Society

THE Christmas Lecture of the British Kinematograph Society will be given by Miss Mary Field, O.B.E., at the National Film Theatre on December 29 at 3 p.m. The title of Miss Field's lecture will be "Making Films for Juniors."

Physical Society Exhibition 1959

THE Physical Society Exhibition will be held at the Royal Horticultural Society's Old and New Halls, Westminster, London, S.W.1, on January 19, 20, 21 and 22.

Society News and Proceedings

MULLARD AWARD

THE terms and conditions governing the Mullard Award, as agreed to at a meeting between representatives of Mullard Limited, Torrington Place, London, W.C.1, and representatives of the Radio Society of Great Britain, New Ruskin House, 28/30 Little Russell Street, London, W.C.1, are as follows:

- (1) The Award will be offered annually by Mullard Limited during the pleasure of the Directors of that Company.
- (2) The Award will take the form of a gift in kind (preferably electronic or electrical apparatus and/or books) to the value of £25, and a plaque.
- (3) The Award will be made to the member of the Radio Society of Great Britain resident in the United Kingdom who (in the opinion of a Committee consisting of three representatives of Mullard Limited and three representatives of the Council of the Radio Society of Great Britain) has, through the medium of Amateur Radio during the preceding calendar year, rendered outstanding personal service to the community by his own endeavour or by his own example of fortitude and courage.
- (4) The presentation of the Award will take place during the month of April each year on a date and at a place to be decided by the Committee.
- (5) In January of each year, the Radio Society of Great Britain shall, through its Official Journal, invite nominations for the Award. Each such nomination shall be supported by at least three Corporate Members of the Society and shall be accompanied by a brief factual account of the personal service rendered by the nominee.

Mullard Limited reserve to themselves the right to discontinue the Award at any time after giving 12 months' notice in writing to the Council of the Radio Society of Great Britain.

The Award for the year 1958 will be made by the President of the R.S.G.B. at a function to be held at Mullard House during April 1959.

London Lecture Meetings

NEARLY 100 members were present at the Institution of Electrical Engineers on Friday, October 24, 1958, when Mr. A. W. Nicol, B.A., of the Cavendish Laboratory, Cambridge, lectured on "Radio Signals from Earth Satellites."

The chair was taken by Mr. D. A. Findlay, D.F.C., G3BZG (Immediate Past President) and a vote of thanks to the lecturer was proposed by Mr. G. M. C. Stone, G3FZL (R.S.G.B. I.G.Y. Co-ordinator).

ABOUT 50 members were present at the Institution of Electrical Engineers, London, W.C.2, on Friday, November 14, 1958, when Major G. Watson (ex-VP8BP) described his experiences as a member of the Royal Society's Advance Party which went to Halley Bay three years ago, to prepare for the I.G.Y. During his talk Major Watson described radio conditions in South Polar regions, referring

in particular to the effects noticed during periods of auroral manifestation.

Major Watson's talk was followed by the screening of a coloured film, the commentary being spoken by Surgeon Lt.-Com. David Dalglish, leader of the Advance Party.

Major Watson was warmly thanked by Mr. J. Douglas Kay (G3AAE). The chair was taken by Mr. Arthur O. Milne (G2MI) (Past President). Mr. Douglas Findlay, D.F.C. (G3BZG) and Mr. W. H. Allen, M.B.E. (G2UJ) were in the audience. A welcome was extended to VK3ACS.

R.S.G.B. Film Library

FOR the past five years Mr. Leslie Gillham has undertaken the duties of Honorary Curator of the R.S.G.B. Film Library. Due to pressure of private business Mr. Gillham now finds himself unable to continue that work and is anxious to hand over the duties to a qualified person.

The Film Curator is responsible for posting films to Societies and Groups who have applied for them and for the checking of the films themselves before despatch and after their return. His out-of-pocket expenses are paid by the Society. The Honorary Curator should have some knowledge of film processes and be in possession of, or have access to, a 16 mm. film projector.

Offers should be addressed to the General Secretary at R.S.G.B. Headquarters.

1250 Mc/s Tests 1958

ONLY two entries were received for the 1250 Mc/s Tests held on September 7, 1958. Certificates of merit in connection with the Tests have been issued to Messrs. C. J. Beanland (G3BVU) and W. F. Neal (G3FUL) who were assisted by G3JZW/P whose equipment provided a 2 metre link.

All the 1250 Mc/s equipment was built by G3FUL. The transmitter, to a design published in the June 1956 issue of *QST*, used a 703A valve running 17½ watts input and tone modulated by an 807. The 1250 Mc/s aerial comprised five full-wave elements centre-fed and stacked a half wave apart with a wire mesh reflector. Signals up to about 50 miles were excellent on 1250 Mc/s.

R.S.G.B. Amateur Radio Call Book 1959 Edition Correction List I

THE following corrections and additions should be made to the 1959 Edition of the *R.S.G.B. Amateur Radio Call Book*.

- G3CRP R. J. Pigou, 7 Gloucester Walk, London, W.8.
 G3DDK E. J. Hartley, "Byways," Mutford, Beccles, Suffolk.
 G3FFL J. H. O. Parker, 71 Mount Road, Bexleyheath, Kent.
 G3HTP E. G. Drackley, "Lescot," Windsor Road, Chobham Woking, Surrey.
 G3KGU M. A. C. McBrayne, 25 Purlieu Way, Theydon Bois, Essex.
 G3MCY F/Lt. G. C. Moore, Royal Air Force, c/o R.S.G.B.
 G3MVU A. J. W. Adkins, 216 Sheppey Road, Dagenham, Essex.
 G3MWU R. McCrerie, 93 Vale Road, Northfleet, Kent.
 G6YL Miss B. M. Dunn, Cardew Lodge, Dalston, Carlisle, Cumberland.
 G8CG R. E. R. England, "Pax," Old Heathfield, Sussex.
 G8OG H. Dobson, 67 Gledhow Lane, Leeds 8.
 GM3MXN T. Sorbie, 13a Argyle Street, Stonehouse, Lanarkshire, Scotland.
 Listed under England.
 GW8PG A. D. Taylor, Station near Wrexham, Denbighshire.
 QSL to 37 Pickerill Road, Greasby, Upton, Wirral, Cheshire.

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

Absent: Messrs R. H. Hammans, F. Hicks-Arnold, H. W. Mitchell and A. C. Williams.

Earls Court Exhibition 1958

It was reported that the sale of publications on the Society's stand at the National Radio Show, Earls Court, had been satisfactory. About 60 visitors to the exhibition had applied for membership.

Reports of Committees

The Minutes of Meetings of the TVI/BCI, Contests and Exhibition Committees were submitted as Reports.

Resolved to receive the Reports and to accept various recommendations contained therein.

The TVI/BCI Committee recommended that the Radio Services Department of the G.P.O. be requested to convene a meeting to discuss the administrative aspects of interference investigation as it affects holders of Amateur Transmitting Licences.

The recommendations of the Contests Committee dealt with the award of certificates and trophies to contest winners. Arising from consideration of the draft rules for the 1959 National Field Day event it was:

Resolved to request the Committee to amend the draft rules to permit the use only of aerials made of wire and to restrict the d.c. input power on all bands to 10 watts. (The Contests Committee had proposed that any form of aerial, including prefabricated beam arrays of substantial construction, should be permitted and that a d.c. input power of 25 watts should be allowed on all bands except 1-8 Mc/s.)

A recommendation of the Exhibition Committee related to the participation of the British Amateur Television Club at the R.S.G.B. Radio Hobbies Exhibition.

Annual Report

The Secretary submitted a Draft of the Annual Report of the Council. **Resolved** to approve the Report as amended for publication in the November 1958 issue of the Society's Journal.

Membership

Resolved (i) to elect 115 Corporate Members and 28 Associates. (ii) to grant Corporate Membership to six Associates who had applied for transfer.

The Secretary reported that during the three months ended September 30, 1958, Mr. J. D. Kay (G3AAE) sent specimen copies of the BULLETIN and invitations to join the Society to a further 87 overseas amateurs.

R.S.G.B. Regional Representatives

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

- Region 1.—North Western. B. O'Brien (G2AMV), 1 Waterpark Road, Prenton, Birkenhead, Cheshire.
- Region 2.—North Eastern. J. R. Petty (G4JW), 580 Redmires Road, Sheffield 10, Yorkshire.
- Region 3.—West Midlands. W. A. Higgins (G8GF), 28 Kingsley Road, Kingswinford, nr. Brierley Hill, Staffs.
- Region 4.—East Midland. E. S. G. K. Vance, M.B. (G8SA), 43 Blackwell Road, Huthwaite, Sutton-in-Ashfield, Notts.
- Region 5.—Eastern. T. A. T. Davies (G2ALL), Meadow Side, Comberton, Cambridge.
- Region 6.—South Central. L. W. Lewis (G8ML), 117 Fairview Road, Cheltenham, Gloucestershire.
- Region 7.—London. F. G. Lambeth (G2AIW), 21 Bridge Way, Whitton, Twickenham, Middlesex.
- Region 8.—South Eastern. E. R. Dolman (G2DCG), 20 Canterbury Road, Margate, Kent.
- Region 9.—South Western. W. J. Green (G3FBA), 82 Bloomfield Avenue, Bath, Somerset.
- Region 10.—South Wales. C. Parsons (GW8NP), 90 Maesycod Road, Heath, Cardiff, Glam.
- Region 11.—North Wales. F. G. Southworth (GW2CCU), Samlesbury, Bagillt Road, Holywell, Flintshire.
- Region 12.—East Scotland. A. G. Anderson (GM3BCL), "Helford," Pitfodels, Aberdeen.
- Region 13.—South-East Scotland. G. P. Millar (GM3UM), 8 Plewlands Gardens, Edinburgh 10.
- Region 14.—West Scotland. D. W. R. Macadie (GM6MD), 154 Kings-acre Road, Glasgow, S.4.
- Region 15.—Northern Ireland. J. William Douglas (GI3IWD), 54 Kingsway Park, Cherryvalley, Belfast, Northern Ireland.
- Region 16.—East Anglia. H. H. Lowe (G2HPF), "Akabo," Main Road, Boreham, Chelmsford, Essex.
- Region 17.—Southern. M. P. Nicholson (G2MN), Ranworth, South Leigh Road, Warblington, Havant, Hants.

During this same period 29 applications had been received and passed to Headquarters, making a total of 221 new members enrolled by him since July 1956.

Applications for Affiliation

Resolved to grant affiliation to the following societies and clubs: Clifton Amateur Radio Society; R.A.F. Amateur Radio Club (North Front, Gibraltar).

V.H.F. Field Day, 1959

A resolution was submitted from the Southampton T.R. protesting against the decision of the Council to accept the recommendation of the Region I V.H.F. Committee that the Field Day to be held during May 1959 shall be a c.w. event.

Resolved to refer the letter to the Contests Committee for their comments.

Council Ballot Papers

Resolved not to indicate on the Ballot Paper itself the names of the members nominated by the 1958 Council.

Braaten and Milne Trophies

Resolved to award the Braaten Trophy to Mr. D. W. Cox (G3HJJ) and the Arthur Milne Trophy to Mr. C. F. Sherrit (GM3EOJ) for the current year. (Mr. Cox scored the highest number of points among the English entrants in the c.w. section of the 1958 A.R.R.L. DX contest. Mr. Sherrit scored the highest number of points among the United Kingdom entrants other than English in the c.w. section of the same contest.)

Proposed Midnight Matinee

Consideration was given to an offer by Mr. Brian Rix of the Whitehall Theatre, London, to organize a Midnight Matinee, the proceeds of which would be used to assist physically handicapped U.K. radio amateurs.

Resolved (by 8 votes to 2) to thank Mr. Rix for his kind offer and to explain to him that the measure of support from members for a midnight matinee for the purpose which he has in mind would, in the opinion of the Council, be very limited.

The Secretary was instructed to inform Mr. Rix that as far as is known very few members are seriously handicapped.

Mullard Award

It was reported that a meeting had taken place with representatives of Mullard Ltd. to prepare terms and conditions governing the Mullard Award. (An announcement concerning the Award was made at the Annual General Meeting on December 12, 1958.—EDITOR.)

The meeting terminated at 9.45 p.m.

Contests Diary

1959

- | | |
|----------------|--|
| January 17-18 | - B.E.R.U. Contest ¹ |
| January 24 | - 144 Mc/s C.W. Contest ² |
| February 7-8 | - Affiliated Societies' Contest |
| February 21-22 | - First (Short) 1-8 Mc/s Contest |
| March 7-8 | - 144 Mc/s Open Contest ³ |
| March 21-22 | - 1250 Mc/s Tests |
| April 11-12 | - Low Power Contest |
| April 26 | - D/F Qualifying Event |
| May 3 | - First 144 Mc/s Field Day (c.w. only) ³ |
| May 10 | - D/F Qualifying Event |
| May 24 | - 420 Mc/s Contest |
| June 6-7 | - National Field Day ⁴ |
| June 20-21 | - First 70 Mc/s Contest |
| June 28 | - D/F Qualifying Event |
| July 5 | - Second 144 Mc/s Field Day ³ |
| July 12 | - D/F Qualifying Event |
| September 5-6 | - National V.H.F. Contest and European V.H.F. Contest ³ |
| September 20 | - Low Power Field Day |
| September 27 | - R.A.E.N. |
| November 7-8 | - Second 1-8 Mc/s Contest |
| November 21-22 | - R.S.G.B. Telephone Contest |

¹ For details, see page 240, R.S.G.B. Bulletin, November, 1958.

² For details, see page 294.

³ These contests are arranged to take place during the periods suggested by the Region I V.H.F. Committee.

⁴ For rules, see page 294.

Rules for National Field Day 1959

N.F.D. rules have been re-written for the 1959 event, important changes being in Rules 2, 9 and 17. Rule 6 provides for a later closing date for notifying the Contests Committee while other rules have been amended in minor respects to agree with the new Rule 2.

1. The Contest will commence at 17.00 G.M.T. on Saturday, June 6, and end at 17.00 G.M.T. on Sunday, June 7, 1959.

2. Any group of members within the British Isles, which for the purposes of the contest comprise the prefix zones G, GC, GD, GI, GM and GW, may enter. The group may be a local R.S.G.B. group, a Club or an Affiliated Society.

3. Operators of portable stations competing in the contest must each hold a current British Isles (G.P.O.) Amateur (Sound) Licence and must be fully paid-up Corporate Members of the Society at the time of the contest.

4. Each competing group will be permitted to place two stations ("A" and "B") in operation. "A" stations must select any three of the six frequency bands in use in the contest (1.8, 3.5, 7, 14, 21 and 28 Mc/s); the other three frequency bands will be allocated to the "B" station, i.e. no group may operate two stations on any one frequency band. Both stations may operate from the same site or from different sites, provided that they are located within the agreed limits of the area covered by their Regional Representative. It will be permissible for two groups within a single region, each operating a single station, to amalgamate for the purpose of scoring; if this is done, frequency bands must be allocated between the two stations as detailed above. Single-station entries will be accepted from stations operating on not more than three of the frequency bands listed above.

5. Each station must be licensed to use a different call-sign.

6. Each group intending to compete must notify the R.S.G.B. Contests Committee, New Ruskin House, Little Russell Street, London, W.C.1, of the name of the group and the name and full postal address (in **BLOCK LETTERS** please) of the T.R., A.R., A.S.R., or member responsible for their entry, not later than **MONDAY, MAY 4, 1959**. Stationery and the latest information on the contest will be sent to this member.

Details should be set out as follows:

Call-sign station "A" Call-sign station "B"
The bands to be used by these stations are:

Band	1.8 Mc/s	3.5 Mc/s	7 Mc/s	14 Mc/s	21 Mc/s	28 Mc/s
Call-sign						

7. Stations must be operated from tents.

8. No apparatus may be erected on the site prior to 12.00 G.M.T. on June 6, 1959. This rule includes aerials and aerial fittings as well as tented accommodations for the stations, but does not apply to a tent to be used for storage purposes.

9. Any aerials may be used, subject to the following limitations:

- All aerials must be constructed from wire of total cross-sectional area not greater than 14 s.w.g. with the exception, however, that masts may be used as vertical radiators.
- No part of the aerials shall exceed a height of 45 ft. above ground level.

10. Equipment at any "A" or "B" station must not exceed three transmitters and one receiver. Reserve equipment may be kept available, but not connected.

11. Total d.c. input power to the anode circuit of the valve or valves energizing the aerial, or to any previous stage of the transmitter, shall not exceed 10 watts.

12. Power for any part of the station shall not be derived from supply mains.

13. The contest is restricted to the use of c.w. (A1) only.

14. An exchange of reports must be made and acknowledged before points may be claimed. In contacts made between competing stations the report must include a rising serial number commencing with 001 and increasing by one with each successive contact, irrespective of band, made by the station (e.g. RST579001, etc.), and such serial numbers, both incoming and outgoing, together with signal reports, must be entered on the log sheets. Proof of contacts may be required.

15. Only one contact with each specific station, whether fixed, portable or mobile, may count for points on each band during the contest. Duplicate contacts should be logged without claim for points.

16. Points must not be claimed for contacts made by a competing station with other stations within its own town or area or with members of its own group, whether fixed, portable or mobile.

17. Points will be scored on the following basis:

- Fixed stations in the British Isles ... 1 point
- Fixed stations in the rest of Europe including Eire ... 2 points
- Fixed stations outside Europe ... 3 points
- Fixed stations in the British Commonwealth and Empire ... 6 points

(e) Portable and mobile stations in the British Isles ... *3 points

(f) Portable and mobile stations in the rest of

Europe including Eire ... 4 points

(g) Portable and mobile stations outside Europe ... 6 points

(h) Portable and mobile stations in the British Commonwealth and Empire ... 12 points

* An additional point may be claimed on 1.8 Mc/s ONLY for contacts with a portable or mobile station in any other British Isles prefix zone (e.g. GM-G, GM-GD, G-GI, GW-GC contacts on 1.8 Mc/s score 4 points). The six British Isles prefix zones are as listed in Rule 2.

18. An entry will be accepted as valid only if the completed summary sheet has been signed by the T.R., A.R., A.S.R., or member whose name has been notified to the Contests Committee in accordance with Rule 6, who will be solely responsible for the conduct of the event within his group, however constituted.

19. Contacts made by an operator whose personal signature does not appear on the covering sheet(s) of the appropriate log(s) will be disallowed.

20. Each station's entry shall consist of extracts from the station log on the printed log sheet, a separate extract being submitted, for each band worked, together with a cover sheet for each band, and a summary sheet. Forms for this purpose will be supplied by Headquarters. Entries must be addressed to the R.S.G.B. Contests Committee, New Ruskin House, Little Russell Street, London, W.C.1, postmarked not later than **JUNE 22, 1959. LOGS MUST BE KEPT AND ENTRIES SUBMITTED IN G.M.T.**

21. In addition to the **National Field Day Trophy** and miniature replica, which will be awarded to the group obtaining the highest combined score, **miniature replicas** will be awarded to the groups with the highest score on each frequency band. A certificate will be awarded to each of the following: (a) The chief operator of the overseas station whose check log shows that he contributed the most points to competitors; (b) the chief operator of the British Isles station whose check log shows that he contributed most points to competitors; (c) the non-transmitting British Isles member whose check log is adjudged the most useful by the Contests Committee.

22. The **Scottish N.F.D. Trophy** (together with miniature) will be awarded to the Scottish group scoring the highest number of points.

23. The **Bristol Trophy** will be awarded to the group which having entered only one station shall obtain the highest number of points in comparison with other groups entering on a similar basis.

24. The Trophies will be handed to the representatives of the groups concerned, who will be responsible for their safe keeping until their return is requested by Headquarters.

144 Mc/s C.W. Contest 1959

In response to requests from members, a 144 Mc/s telegraphy-only contest has been arranged for Saturday, January 24, 1959. The details are shown below. Attention is drawn to the basis of scoring.

When: 10.00 G.M.T. to 23.00 G.M.T. on Saturday, January 24, 1959.

Sections: (a) Low Power (up to 30 watts input to the p.a. stage); (b) High Power (up to 150 watts input to the p.a. stage).

Eligible Entrants: All fully paid-up members of the R.S.G.B. resident in Europe.

Contacts: May be made on A1 only.

Scoring: Points will be scored on the basis of **1 point per kilometre**. **Contest Exchanges:** RST reports followed by the band identification letter A, the contact number and location (e.g. RST559A001 5NE Luton).

Logs: (a) Must be tabulated in columns headed (in this order) "Date," "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," "Distance in kilometres and Points Claimed."

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

(c) Entries must be postmarked not later than Monday, February 9, 1959. **Awards:** At the discretion of the Council of the R.S.G.B., certificates of merit will be awarded to the leading station in each section.

The General Rules for R.S.G.B. Contests published on page 437 of the March 1958 issue of the R.S.G.B. Bulletin apply to this contest.

Affiliated Societies' Contest 1959

THE rules governing the Affiliated Societies' Contest to be held on February 7 and 8, 1959, will be sent to all affiliated societies and clubs in the United Kingdom early in January. Applications to participate will not be necessary.

The contest will take place between 18.00 and 23.00 G.M.T. on both February 7 and 8. Telegraphy only will be used in the 1.8 to 2 Mc/s band.

R.A.E.N. Notes and News

By E. ARNOLD MATTHEWS (G3FZW)*

SINCE the initial emergency activity of 1953 took place (in Great Britain) in the 160m band it is understandable that R.A.E.N. activity should have continued in that band. Recently, however, there is increasing evidence of a trend towards greater use of 2m for R.A.E.N. purposes. South London and East Essex find that they cannot use 160m reliably and now have a standing arrangement to use a 2m link instead. Southampton group use 2m for most purposes in their exercises, but use 160m for "control" purposes. Here there seems little to choose between either band.

Without doubt 160m has initial advantages in the ease with which a local network can be established as, by and large, there is a much greater quantity of l.f. band equipment available for mobile and portable use. Such equipment is often more flexible in usage than the v.h.f. gear in that a greater number of channels is available. Against these advantages must be set the very much greater interference and noise levels, and the great variations in service range by night and day.

Controllers considering the desirability of using v.h.f. must be certain that there will be sufficient equipment available within the group, and that their area of operations is suitable for v.h.f. Many parts of Wales, Derbyshire and the Yorkshire Dales may present a considerable problem when working in valley locations. In New Zealand, A.R.E.C. found their ZCIs, operated on 80m, gave better communication than the Army v.h.f. equipment when a search and rescue operation was conducted in hill-and-dale terrain. V.h.f. screening problems can usually be overcome by suitably sited relay stations, provided that the equipment is available.

Building ten or a dozen mobile equipments could, in the writer's opinion, best be performed as a co-operative task. A design is agreed upon and each member of the syndicate performs part of the work on all of the sets being constructed, one making all the chassis, another fitting on the components, another wiring up, etc., etc. Staffordshire groups considered such a proposition some time ago, and costing showed that a 2m mobile transmitter receiver, in cabinet and complete with crystals, microphone, and speaker, and all valves, could be built for under £15.

There is one final consideration. Groups using v.h.f. must be equipped to work with neighbouring groups using l.f., otherwise mutual aid will be unnecessarily complicated. The simplest way would be to use a cross-band link, this only requiring an extra receiver at each group.

Around the Groups

With the enrolment of members in Plymouth and the appointment of G3GRA as acting controller for the area it seems that the formation of a new group in Devon is well under way. An editorial column of *QUA* (newsletter of Plymouth R.C.) which announces the formation of a local group puts the case for R.A.E.N. very succinctly. A recent issue of the mid-Devon *Express and Echo* carried a short article about the Network. Perhaps this might stimulate the formation of a group in Exeter and district.

After a period of comparative dormancy, in no way indicative of their enthusiasm, the Sussex Group held a meeting at Brighton to inaugurate co-operation with Sussex B.R.C.S. Tests and exercises are planned, and some very useful publicity has been obtained by an article which

appeared in the *Sussex Argus*. Cheshire C.C. G3ERB, has been looking into the problem of extending his coverage in the north-east of the county. G2CPL, Suffolk C.C., reports that the Group now holds a club license with the call-sign G3NDA. A local meeting was held at Lowestoft recently to discuss details of inter-group exercises.

During a recent disaster relief exercise held in Norfolk a group was in operation continuously for 42 hours. Two stations, operated by G2UX, G3IOR, G3BHI, G3MPN, G3JPT, G3HRE, G3HSG, G3JDC, G3DRL, G3HRK (Norfolk C.C.) and G3LFU (Norwich A.C.) handled 300 messages. G3HRK reports that enthusiasm ran very high, members far exceeding their timed watches. Much valuable assistance was also given by SWLs, Shaw and Skoyles. A request to set up a link between Norwich and Holt was received at 0001 G.M.T. one evening and was in operation at 0115 G.M.T., working with 100 per cent efficiency until closed down at 0950 G.M.T. the same day. Mention must be made of the good work performed by G2OR, who gave up part of his holiday to help.

In a letter to G3HRK the Chief Constable of Norfolk says, "I thought the whole of your organization worked with extreme efficiency and it helped me, particularly, to appreciate the sort of assistance you are able to render in times of emergency. I only hope you enjoyed the Exercise as much as we did. I would be most grateful if you would pass on to your members my thanks for their very real contribution to the Exercise, and say that I greatly appreciated the long hours that they put in over the weekend."

County Controllers' Net

Replies received to the inquiry published some time ago indicate that 1030 G.M.T. on Sunday mornings would suit the majority of those interested. Initial contact should be effected on 3600 kc/s, and then QSY to a suitable clear channel h.f. The first station calling to take control.

Appointment

C. J. Spencer (G3GRA), "Gra-holm," 20 Ernesettle Rd., St. Budeaux, Plymouth, Devon, has been appointed an Area Controller.

V.H.F. National Field Day 1958

THIS contest, held in conjunction with the European V.H.F. Contest on September 6-7, 1958, produced a most disappointing entry, as only nine stations out of the 50 or so portables appearing in the logs submitted an entry.

The winner in the 144 Mc/s section was N. H. Hales (G2DTP/P) whose 192 points came from 102 contacts. Of these, 11 exceeded 200 miles, and 24 were over 100 miles. In the combined section the only entrant was H. T. Brock (G3FD/P) who made 70 contacts on 144 Mc/s and two on 435 Mc/s.

144 Mc/s Section					
Pos'n.	Call-sign	Points	Pos'n.	Call-sign	Points
1	G2DTP/P	192	5	GW3GWA/P	59
2	G3KMT/P	140	6	G8LM/P	55
3	G2FNW/P	95	7	GM3UM/P	19
4	G3LCH/P	81	8	G3FRG/P	13

Combined Section

1 G3FD/P 87 points (144 Mc/s) + 20 (435 Mc/s): total = 107 points

Check Logs from G3HBW, G2XV, G5DF, GM3KYI/P and B.R.S. 20133 are gratefully acknowledged.

Semiconductor Bibliography

NEWMARKET TRANSISTOR CO. LTD., Exning Road, Newmarket, has recently issued a comprehensive bibliography of articles on semiconductor devices under the title *Fifteen Years of Semiconducting Materials and Transistors*. The immense task of assembling the information for this well-produced book was undertaken by N. L. Meyrick of the Company's Research Library.

* 1 Shortbatts Lane, Lichfield, Staffs.

Letters to the Editor...

Neither the Editor nor the Council of the Radio Society of Great Britain can accept responsibility for views expressed by correspondents.

National Field Day

DEAR SIR,—In response to a resolution passed at a recent meeting here we would like to bring to the notice of members our views on N.F.D. scoring.

It is our contention that since the rules were redrafted in the early fifties it has been virtually impossible for GI stations to come within the first thirty stations on the scoring list. Most points are scored on the I.f. bands and in our opinion 7 Mc/s falls into this category. Geographically GI is "out in the cold" as can be seen by drawing a circle of say fifty miles radius round recent winners of this event and noting the number of competing stations that fall within it. While we give and take an extra point on Top Band we feel that this should be extended to 3.5 and 7 Mc/s as well.

On appealing to the Contests Committee on these grounds over the past two years we have been told that the "DX value of GI" compensates for all other disadvantages. In the light of experience we most certainly cannot agree with this verdict. While we appreciate the enormous task of the Committee in organizing N.F.D., we feel that this matter is of importance to the whole principle of N.F.D. since failure to take action may very well mean the termination of active GI participation. Even the most complacent "G" station must agree that this would be a pity.

Yours faithfully,

J. WILLIAM DOUGLAS (GI3WD) R.R.15

Belfast.

JOHN T. McMILLAN (GI3JXS) T.R.

Double Sideband Suppressed Carrier (A3b)

DEAR SIR,—Pat Hawker (G3VA) mentions in the September 1958 BULLETIN, under *Technical Topics*, the present popularity in the United States of the "double sideband suppressed carrier" (d.s.b.) type of emission—officially designated A3b—and its possibilities as an approach to s.s.b.—A3a.

I did once consider using the d.s.b. system at my own station but on checking the U.K. amateur licence regulations, I found this type of emission was not listed as being permissible. The licence permits A1, A2, A3, A3a, F1, F2 and F3, on some of the h.f., v.h.f. and u.h.f. bands and in addition A5, F5, on some of the v.h.f. and u.h.f. bands. P1, P2d, P2e, P3d and P3e, may also be used on some of the bands. *Technical Topics* gave the impression that A3b is allowed.

If U.K. amateurs have recently been authorized by the G.P.O. to use A3b perhaps space in the BULLETIN can be found to publish that fact as well as a full list of frequency allocations and types of emission now permitted.

Yours faithfully,

Hartley, Dartford, Kent.

G. RIPLEY (G3KFW).

Editorial Note: The G.P.O. have been asked for an opinion concerning the point raised by Mr. Ripley.

Simple S.W.R. Indicator

DEAR SIR,—I have read with interest the article on page 106 of the September issue of the BULLETIN, entitled "Simple S.W.R. Indicator." Mr. Scott is to be thanked for describing a very simple device that will undoubtedly find a use in many amateur stations. I was rather surprised, however, to see no mention of the frequency range for which this device is suitable. Quite clearly it is a simple form of directional coupler, and in view of the mechanical and electrical arrangements, it would appear to be only suitable for use up to 30 Mc/s without any serious errors. It is certainly not suitable for any of the v.h.f. bands due to a variety of reasons which arise out of the simplicity of construction and will, at v.h.f., give rise to considerable errors and quite possibly according to the context in which it is used, misleading answers. Any S.W.R. indicator for those frequencies, be it directional coupler, reflectometer, or three voltmeter type, must

be built in such a way as to introduce the minimum discontinuity in the line in which it is employed, and must therefore necessitate an amount of accurate fabrication. I hope these remarks will serve to forewarn those who might otherwise get disappointing results from this otherwise praiseworthy indicator.

Yours faithfully,

Welwyn Garden City,
Herts.

R. C. HILLS, B.Sc. (Eng.)
(G3HRH).

More About RTTY

DEAR SIR,—May I be allowed to point out that in comparing s.s.b. with a.m. phone, and frequency-shift keying with c.w. operation, GM3EFS forgot in his September letter ("Against Radio Teletype for Amateurs") to compare f.s.k. with s.s.b.? Had he done so, readers would have learned that, with Mark and Space waves only 500 to 850 cycles apart, frequency-shift keying does not take up as much space as even a single sideband signal.

Your faithfully,

Bournemouth, Hants.

N. P. SPOONER (G2NS).

Single Sideband Reception

DEAR SIR,—I wholeheartedly agree with the views expressed by Dr. Koster in his article in the August BULLETIN on single sideband. The majority of amateurs in this country do not build their own receivers, and I find considerable difficulty in tuning in a single sideband station on an ordinary commercially-built communications receiver, except some of the most modern instruments specially designed for single sideband reception.

All the snags which G3ECA mentions are those which I myself have experienced. Mr. Lear (G3FIH) in the October issue confirms Dr. Koster's point of view as he has to provide diagrams showing how to modify a receiver in order to be able to receive single sideband.

He states:

"An oscilloscope and wobulator if available will make tuning up simple, but it can be done with a signal generator and output meter and enough patience!"

This, in my opinion, entirely confirms the views of Dr. Koster that the average amateur, who has neither the time nor the desire to dig into receivers and rebuild them, has little hope of receiving single sideband without great difficulty.

There are still too few receivers capable of receiving single sideband comfortably, and too few articles dealing with the reception of single sideband, to make this form of transmission really popular. Mr. Lear has done a service in providing a circuit for modification of one particular receiver, and if enough articles are written concerning the necessary modifications to some of the older receivers, then perhaps a larger number of us will be able to go over to single sideband, but surely there is no point in building a transmitter for single sideband until one is capable of receiving that mode of transmission without the defects which Dr. Koster has described.

Yours faithfully,

London, N.W.3.

E. M. WAGNER (G3BID).

Value for Money

DEAR SIR,—So B.R.S. 20439 advocates higher subscriptions. This is indeed a worthy sentiment from a member living so far north. At one time the Society had two rates of subscription—21/- for the London area, 15/- elsewhere—but there is now a flat rate of 30/- for all. I have always thought this unfair, considering the activities available to London area members which are largely denied to outsiders.

The October BULLETIN gives *Dates for Your Diary*, extending up to the end of April. The nine items include four London Lecture Meetings, the Radio Hobbies' Exhibition, the Annual General Meeting and the Presidential Address. That makes seven out of the nine. In addition to these events, London members have the Luncheon Club, with the opportunity of meeting overseas amateurs. The same BULLETIN states that a £400 receiver can be won by a visitor to the Hobbies' Exhibition. By comparison, what do we country bumpkins have by way of activity? An Official Regional Meeting about once every two years and a convention once in a blue moon. If I were a London member, I would say that 30/- is a very reasonable subscription. As an outsider, I feel that a part of my subscription is used to promote activities which I can rarely attend, no matter how I may wish to do so.

The Hobbies' Exhibition is held in London. Can it not move around? I don't expect to have it in Pontefract, but places such

as Sheffield, Manchester and Leeds do exist. Is it impossible to organize Lecture Meetings at provincial centres? Must the A.G.M. always be in London? No wonder the voting figures are so pathetically low when almost all *visible* activity is centred in London. This latter fact was well and truly rubbed in by a News Service announcement on October 12 last of a London Lecture Meeting, it being hoped "that members of the R.S.G.B. living in and around London" would support the meeting.

I realize that much *invisible* activity goes on for the benefit of all, and this work by the General Secretary and his colleagues is much appreciated. But is this sufficiently publicized among the membership at large? I personally don't think it is, and feel that some system of notice to T.R.s and club secretaries of work done, even eye-catching posters for the clubroom wall, would help. We know that we need "Guinness for Strength" merely because we are told so in no uncertain fashion. If a certain amount of splash advertising were done among the members, it would help us all feel that we are not forgotten. A dozen well-chosen words in large print on a BULLETIN page is worth more than two closely written columns of *Current Comment*.

To sum up: Let us have more Society activities outside the London area, and let the members know more obviously what goes on. Then existing members will know that they get value for money, and non-members might well decide that membership is, after all, worth while.

Yours faithfully,
W. FARRAR, (G3ESP).

Ackworth, Pontefract,
Yorks.

Mobile Rallies

DEAR SIR,—Like Mr. R. F. G. Thurlow (G3WW) I have also been to many Mobile Rallies (and have been successful in some of them). I feel, therefore, that I am qualified to add my comments to those already made.

It seems to me that some Rallies are that in name only and are really only hamfests, with mobile operation but an incidental part of the activities. I feel that a mobile rally should be run on similar lines to those of a sports car rally, where the performance of a vehicle in various tests is taken into account. The following are my suggestions for a programme of events:

- i Two-way contact with the talk-in station from a distance of at least a mile; proof of contact required in any further entry.
- ii Field strength measurements by the talk-in station of the mobile transmission; the figure so reached to be divided by the power input to the final stage of the transmitter. The winner would then have the largest figure of merit.
- iii Direction finding contest for mobiles on 160 and 2m. Equipment in use to be a fixture on the vehicles concerned.
- iv Competition for the equipment likely to be safest in operation whilst mobile, and least likely to be a source of danger in the event of severe braking, etc. The driver of a vehicle does not necessarily have to be the operator of the mobile equipment.
- v Concours d'elegance: In this section a neat and functional appearance should be important but should not rule out the use of interesting gadgets that are sometimes seen in vehicle installations.

In the event of a tie in (i), (iv) or (v), then the judges would be assisted by the results of the field-strength competitions.

I disagree with Mr. Thurlow about the need to prove that the receiver will receive signals of less than S9 while the car is in motion. I feel that it is safer to stop to perform these tests, but there is no reason why the engine should not be left running to prove that interference from it is not excessive.

Yours faithfully,
M. H. KIND (G3GXZ).

South Wigston, Leicester.

Jimmy Douglas (ZS5QR) Says Thanks

DEAR SIR,—During June last while in Great Britain on a business trip, I had the pleasure of visiting your offices, meeting the staff and attended the London Members' Luncheon Club, the day before leaving for Holland. I must say how much I enjoyed meeting the members and the fellowship that I found there.

I had the wonderful experience of visiting the homes of GM3CL, G8UG, G2PT, during the first three weekends after leaving South Africa, and saying a few words to ZS5MO, ZS5PG, and ZS5GS in Pietermaritzburg.

As a member of the R.S.G.B. I enjoyed the personal contacts on my visit and now enjoy keeping in touch with you all via the BULLETIN.

May I express my best wishes for the continued success of the R.S.G.B.?

Yours faithfully,
JIMMY DOUGLAS (ZS5QR).
Pietermaritzburg,
South Africa.

Thanks too, from SP-land

DEAR SIR,—We want to express in this way our great thanks to the London Members' Luncheon Club for the very pleasant and enjoyable afternoon we spent at the meeting held on September 19.

We'll never forget the hospitality of our R.S.G.B. friends and if any of them likes to visit Poland some day we shall be very glad to welcome them at our PZK club.

73
ZOFIA MAZURKIEWICZ (SP5YL).
KRZYSZTOF SLOMERYNSKI (SP5HS).
Warsaw.

B.E.R.U. 1959—Send In Your Logs!

DEAR SIR,—The annual B.E.R.U. Contest, which is without doubt the greatest fun of all the many and various contests held each year, will soon be with us again.

Checking through my log for the 1958 event against the published list of stations in the June BULLETIN I was rather startled to find that less than 50 per cent of the stations contacted by me had managed to submit a contest log.

May I appeal therefore to all those operators who kindly come on the air "to give away points" to have second thoughts in the matter and not to consider their modest efforts unworthy of submission as an entry? Even a check log would be of valuable help to that anonymous, devoted, occasionally abused, but very hard working outfit known as the Contests Committee who spend a considerable amount of their spare time sorting out the sometimes barely legible contest logs with a methodical patience that astounds me.

The regulations covering our amateur licences state that we must keep accurate records of our activities on the air. If, therefore, there are those amongst us who maintain that the nonsense involved in making out a separate log entry would involve much pain and strain, would it not be possible to slip a carbon into the regular log book?

Provided that this carbon copy were easily readable I think that it would be most gratefully received by the Contests Committee; and who knows—it might even earn a sheepskin!

Yours faithfully,
PETER BAILEY (VQ4KPB).
Kikuya, Kenya.

Two Top Band Problems

DEAR SIR,—With reference to G3LRL's letter in the October issue, the interference is no doubt due to a harmonic of the 1920 kc/s signal mixing with a harmonic of the local oscillator in the broadcast receiver. Several possible combinations present themselves, but the most likely is that due to the two second harmonics. The i.f. to give zero beat is calculated as follows:

$$2(1214 + i.f.) + i.f. = 2 \times 1920$$

$$\therefore i.f. = 470.67 \text{ kc/s.}$$

If G3LRL has listened to the signals radiated from the i.f. amplifiers of B.C. receivers, he will know that they are seldom accurately tuned to 465 kc/s so that 470.67 kc/s is quite possible.

The second harmonic of 1920 kc/s may not be radiated from G3LRL's transmitter. It could be created within the B.C. receiver by the strong 1920 kc/s signal, driving the mixer into non-linear operation. The cure in that case is to prevent the 1920 kc/s signal from entering the broadcast receiver, if that can be done by a simple wave trap. Alternatively the i.f. of the broadcast receiver might be changed to, say, 450 kc/s, or the transmitter frequency changed!

The second query shows that the aerial/earth system could be improved by a better r.f. earth or a counterpoise, and some experiments in this direction are indicated. It would be interesting to know if a further increase in aerial current occurs when G3LRL's YXL applies her iron to a damp shirt.

Yours faithfully,
N. ASHTON (G3DQU).
Timperley, Cheshire.

Regional and Club News

Aldershot and District Amateur Radio Club.—A new series of lectures, to be held at The Cannon, Aldershot, is to commence in January. Instruction classes are held regularly for those wishing to learn or brush up their Morse. Judging of entries for the Frost Award was due to take place on December 10. Visitors are always welcome at meetings, which are held at 7.30 p.m. on alternate Wednesdays. *Hon. Secretary:* S. E. Hume, 25 Kingsway, Aldershot.

Bradford Amateur Radio Society.—Recent lectures have included a demonstration of high fidelity gear by G3LZW and a talk on v.h.f. by G3GFD. On December 16 G3IBN is to give a talk on resistor/capacitor bridges while a film show is arranged for December 30. Meetings, which are preceded by half-hour Morse lessons, commence at 7.30 p.m. and are held at Cambridge House, 66 Little Horton Lane, Bradford 5. *Hon. Secretary:* David M. Pratt (G3KEP), "Glenlucy," Lyndale Road, Eldwick, Bingley, Yorks.

Brighton and District Radio Club.—At the recent A.G.M. the following were elected: *Chairman*—R. T. Henley; *Hon. Treasurer*—R. Langridge; *Hon. Secretary*—E. Roberts, 9 Clifton Hill, Brighton 1. Meetings continue to be held at the Eagle Inn, Gloucester Road, on Tuesdays, commencing at 8 p.m. Visitors and prospective members are always welcome.

Bristol.—Over 50 members were present at the November meeting at which H. J. Gratton (G6GN) gave a talk entitled "Safety and Protective Devices in Power Supplies." A Listeners' Group has been formed under the direction of K. J. Creamer (B.R.S. 10167) to encourage activity on the part of local B.R.S. and Associate members: those interested are invited to write to Mr. Creamer at 26 Effingham Road, Bristol 6. Copies of the Bristol Group programme for 1959 may be obtained from the *Hon. Secretary:* D. F. Davies (G3RQ), 51 Theresa Avenue, Bishopston, Bristol 7.

Cornish Radio and Television Club.—Membership is now more than 80. G3LPB gave a talk and demonstration of stereophonic sound at the November meeting at the Y.M.C.A., Falmouth. *Hon. Secretary:* J. Brown (G3LPB), Marlborough Farm, Falmouth.

Crystal Palace and District Radio Club.—Six members passed the October Radio Amateurs' Examination and are now well advanced in their Morse training. The problem of providing regular practice has been overcome by using tape recordings. As usual, the club assisted in the erection of aerials at the R.S.G.B. Radio Hobbies Exhibition—an unusual duty was to assist in catching a prize pigeon left in the exhibition hall from the previous show! Meetings are held on the first Tuesday and third Saturday in each month, commencing at 8 p.m., at Windemere House, Westow Street, S.E.19. *Hon. Secretary:* G. M. C. Stone (G3FZL), 10 Liphook Crescent, London, S.E.23.

Flintshire Radio Society.—Recent events have included a film show on November 3. Morse classes are held every Tuesday at 7.30 p.m. at Prestatyn A.T.C. Headquarters. Prospective members are cordially invited to attend. At the Railway Hotel, on January 8, at 7.30 p.m., F. G. Southworth (GW2CCU) will give a talk entitled "Looking Back." *Hon. Secretary:* J. Thornton Lawrence (GW3JGA), Perran Porth, East Avenue, Prestatyn.

Halifax and District Amateur Radio Society.—At the November meeting H. Swift (G3ADG) gave a most interesting talk on transmitters. Meetings are now held on the first and third Tuesday in each month, the first being devoted to lectures. *Hon. Secretary:* A. Robinson (G3MDW), Candy Cabin, Ogden, Halifax.

Hastings and District Amateur Radio Club.—At the A.G.M. the following were elected: *President*—L. H. Thomas, M.B.E. (G6QB); *Chairman*—Dr. T. H. Parkman (G3MGQ); *Hon. Secretary*—W. E. Thompson (G3MQT), 8 Coventry Road, St. Leonards-on-Sea; *Hon. Treasurer*—J. D. Heys (G3BDQ); *Committee Members*—G. W. Spray (G3FXA), J. Taplin (G3HRI), D. J. H. Raitt (G3IKE).

Leicester Radio Society.—At the A.G.M. in October the following were elected: *Chairman*—K. Brown (G3GAP); *Hon. Treasurer*—G. H. Addison (G3BAY); *Hon. Secretary*—P. G. Goadby (G3MCP); *Committee Members*—S. D. Hoff (G3AWM), W. Mead (G5YY) and J. Middleton.

Lothians Radio Society.—At the meeting on December 18, a representative of Ferranti Ltd. will give a talk entitled

"Electronics in Industry." On January 8 there will be a recorded lecture by VK3BG. Both meetings will be held at 25 Charlotte Square, Edinburgh, at 7.30 p.m. All local amateurs and shortwave listeners will be welcome. *Hon. Secretary:* Len Lumsden, 33 Hillview Drive, Edinburgh 12.

Medway Amateur Receiving and Transmitting Society.—Meetings are held each fortnight at the Viscount Hardinge Hotel, High Street, Gillingham, commencing at 7.30 p.m. The next is on December 15. *Hon. Secretary:* G. Cheeseman, 265 Cliffe Road, Strood.

Northampton Short Wave Radio Club.—At the A.G.M. the following were elected: *President*—B. Sykes (G2HCG); *Chairman*—I. C. Millar; *Vice-Chairman*—M. Perry (G2ANS); *Hon. Treasurer*—B. Cadd; *Hon. Secretary*—J. Tate (G3LGT), 57 Edinburgh Road, Northampton; *Committee Member*—S. Berridge (G3ITW). Meetings are held on Thursdays at 8 Duke Street. Prospective members and visitors are always welcome.

Spenn Valley Amateur Radio Society.—Mr. I. C. I. Lamb, Station Engineer of the Emley Moor I.T.A. Television Station, will be the guest speaker at the Society's annual dinner at Hagenback's Café, Dewsbury, on January 24 at 6.30 p.m. Tickets, price 11s. 6d., are obtainable from the *Social Secretary:* J. J. Rose, 14, South View Terrace, Hill Head, Dewsbury.

Torbay Radio Society.—Members have decided to undertake the repair of minor items of equipment used at Hawkmoor Chest Hospital, Bovey Tracey, for the patients' "Radio Hawkmoor" request programme. The decision has received wide publicity in the local Press and is greatly appreciated by the hospital management. G3LUJ has started a R.A.E.N. net on 1880 kc/s at 09.05 G.M.T. on Sunday mornings and local members are invited to join in. Work on the society's new headquarters building is progressing well. At a recent meeting, W. B. Sydenham (G5SY) gave a lecture on propagation, illustrated with the use of miniature aerials. R. E. Longstaff has been appointed publicity officer. *Hon. Secretary:* G. A. Western (G3LFL), 118 Salisbury Avenue, Barton, Torquay.

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London, W.C.1.

New Members

THE following were elected to membership at the October 1958 meeting of the Council.

Corporate Members, Home (Licensed)

- G3ALI R. S. Small, 69 Forty Lane, Wembley Park.
G3DYH †S. J. Reynolds, Cromwell, High Street, South Woodmester, Glos.
G3EIM †M. R. Jenkins, 1193a High Road, Whetstone, London, N.20.
G3FOA K. R. Gilbert, "Renarthy," Clifton Maybank, Yeovil.
G3HCM D. Dumbleton, 321 Tile Hill Lane, Coventry.
G3HWY †W. R. Thomas, 1 Northview, Radstock Road, Midsomer Norton, near Bath.
G3LTF P. K. Blair, 24 Highwood Grove, Mill Hill, London, N.W.7.
G3MLB R. T. H. Shepherd, 12 Inworth Walk, Monkwick, Colchester.
G3MNR R. L. Stanford, 20 Strathleven Road, Brixton, London, S.W.2.
G3MNX †E. E. Walker, 153 Argyll Avenue, Luton.
G3MPO L. J. Robinson, 62 Church Road, Malvern Link, Worcs.
G3MQY D. I. Mitchell, c/o Sgts. Mess, R.A.F., St. Mawgan, Newquay.
G3MRQ D. L. Byrne, 195 Brighton Road, Lancing.
G3MTV †N. E. Thornthwaite, 9 Thirlmere Street, Currook, Carlisle.
G3MZZ C. B. Sutcliffe, 74 Scholemoor Road, Lidgate Green, Bradford, 7.
G3MZZ R. K. Flaherty, 395 Uttoxeter Road, Derby.
G3MYZ J. D. Last, 22 Balmain Road, Davyhulme, near Manchester.
G3NAK G. Mallinson, 57 Birch Road, Berry Brow, Huddersfield.
G3NBC K. A. V. Hurrell, 84 Cedar Road, Romford.
G3NBQ †P. T. Burt, 26 Gaveston Road, Coventry.
G3NCC †D. J. Cousins, 3 Halcombe Estate, Chard, Somerset.
G3MOO F. L. Franklin, 8 Andover Avenue, A.M.Q., R.A.F. Station, Aldergrove, Crumlin, Co. Antrim.
G3NEO I. Sutherland, Trevear, South Pringle Street, Buckie, Banffs.
G3MQP D. C. Sherlow, c/o 112 Strathmartine Road, Dundee.
G3MRI †W. Robertson, Schoolhouse, Tannadice, Forfar, Angus.
G3JGU Miss E. H. Wickham, 2 Miskin Crescent, Pontyclun, Glam.

Corporate Members, Home (British Receiving Stations)

- 4443 †K. E. Weeks, 19 Burlington Road, Tilehurst, Reading.
18557 †A. W. G. Weaver, 20 Ivy Road, Stirling, Birmingham, 30.
11976 †R. Chapman, c/o B.P.C., P.O. Box 21, Basrah, Iraq.
19101 †G. L. Beatson, 50 Gladstone Avenue, Twickenham, Middx.
22013 †B. R. Edwards, 43 Link Road, Penn Grove, Hereford.
22014 K. B. Walker, 305 Somerville Road, Small Heath, Birmingham.
22015 †K. Framcom, 216 St. Helier Avenue, Morden, Surrey.
22016 †M. Sheppard, 26 Albert Road, Kings Heath, Birmingham, 14.
22017 R. C. Holt, 19 Westmorland Road, Sale, Cheshire.
22018 J. J. Harvey, c/o Officers Mess, R.A.F. Dishforth, Yorks.
22019 C. W. Austin, 135 Shaftesbury Avenue, Kenton, Harrow, Middx.
22020 D. S. Ainger, Creg-ny-Baa, The Heath, Dedham, Essex.
22021 J. A. Weller, 28 Ashvale Place, Aberdeen.
22022 A. G. Weller, 28 Ashvale Place, Aberdeen.
22023 C. W. Knott, 236 Fitzstephen Road, Dagenham.
22024 A. Forson, 309a Harrow Road, Wembley.
22025 M. J. H. Lewis, 28 Eastfield Road, Enfield Wash, Middx.

- 22026 J. B. Hones, 71 Prince of Wales Road, Custom House, London, E.16.
22027 R. W. Tomkys, 30 Church Road, Bradmore, Wolverhampton.
22028 J. G. Rooke, 16 Rydal Avenue, Redcar.
22029 C. D. Shaw, 11 Moorland Road, St. Annes, Lytham St. Annes.
22030 W. Shannon, 97 Rosedale Road, Dagenham.
22031 L. Morley-Taylor, 26 Ninfeld Road, Acocks Green, Birmingham, 27.
22032 S. E. Richards, "Woodlands," Lindsay Road, Branksome Park, Bournemouth.
22033 J. G. J. Holton, 1204 Greenford Road, Greenford, Middx.
22034 P. L. Fleming, 13 Orchard Gardens, Westergate, Chichester.
22035 A. Ball, 56 Wistaston Green Road, Wistaston, near Crewe.
22036 W. Griffiths, 207 Inverness Place, Roath Park, Cardiff, Glam.
22037 D. J. Manning, 19 Cannon Place, Princes Risborough.
22038 A. M. Jones, 1 Bradenham Place, Penarth, Glam., S. Wales.
22039 M. C. Donnelly, 19 Tullymore Gardens, Andersonstown, Belfast.
22040 D. Bedford, 173 McKean Road, Oldsbury, Birmingham.
22041 S. S. Cohen, "Westwood," Winnington Road, London, N.2.
22042 T. A. Denney, 61 Langham Crescent, South Green, Billericay, Essex.
22043 T. J. Griffiths, 36 Belmont Avenue, East Barnet, Herts.
22044 V. L. Butland, 43 Dollis Park, Church End, Finchley, London, N.3.
22045 D. C. Trueman, 33 Newport Street, Ryde, I.O.W.
22046 J. T. Baker, 3 Nasbit Grove, Bordesley Green East, Birmingham, 9.
22047 R. A. Klein, 6 Briardale Gardens, Hampstead, London, N.W.3.
22048 A. R. Storey, 23 Foster Street, Stairfoot, Barnsley.
22049 R. H. Bates, 61 St. John's Road, Newbury.
22050 J. Molen, 54 Wymering Mansions, Wymering Road, London, W.9.
22051 D. S. Gardner, 16 Crowhurst Road, Brixton, London, S.W.9.
22052 S. P. Spragg, Cnosso, Campden Road, Clifford Chambers, Stratford-on-Avon.
22053 M. T. Phillips, 21 Blackacre Road, Theydon Bois, Essex.
22054 F. J. Turner, 113a Fence Piece Road, Barking, Ilford.
22055 A. J. Hobbs, 71 Stowe Road, Shepherds Bush, London, W.12.
22056 K. A. Horton, 59 Rodwell Road, East Dulwich, London, S.E.22.
22057 D. C. Snow, 11 Hinderton Drive, Grange, West Kirby, Cheshire.
22058 J. Peake, 30 Miles Street, Oldham.
22059 S. Pedrick, 62 Spottiswoode Street, Edinburgh, 9.
22060 †R. Sharratt, Flat No. 1, Seaview, Kirkley Cliff, Lowestoft, Suffolk.
22061 P. Garthwaite, 7 Park Avenue, New Lodge Estate, Barnsley.
22062 R. G. Jefferies, 31 Southlands, Congresbury, near Bristol.
- VE2JR F. C. Jamieson, 13 Sunny Acres, Baie d'Urfe, Quebec.
VE2WW D. M. McVicar, 510 Lakeshore Road, Beaufort, Province of Quebec.
VE3BWH H. A. Jones, 224 Church Street, Box 284, Ansonville, Ontario.
VESQC M. W. Mills, Box 801, Saskatoon, Saskatchewan.
VE7AAI U. P. Helin, R.R.2, Sherman Road, Duncan, British Columbia.
VK6KJ B. H. Gates, c/o A. K. Collins & Co., 132 York Street, Albany, Western Australia.
VK7KA K. E. Millin, 6a Minallo Avenue, West Hobart, Tasmania.
VK9KW K. W. Turtle, Banu Plantation, Via Soham, Bougainville, Territory of New Guinea.
VP5MB M. P. Briggs, Cable & Wireless Mess, Grand Turk, Turks & Caicos Islands, West Indies.
VP6ZX C. J. Stewart, P.O. Box 260, Bridgetown, Barbados.
VP9AK C. Fray, Post Box 241, Hamilton, Bermuda.
VP9D James Mann, c/o Cable & Wireless (W.I.) Ltd., St. Georges, Bermuda.
W1JYH Roger E. Corey, 67 West Allen Ridge Road, Springfield 8, Massachusetts.
W3FBX Harry W. Shields, Old Plank Road, Butler, Pennsylvania.
W3NRE Silvester J. Kanzius, 240, Sunset Boulevard, Washington, Pennsylvania.
W3PYZ Frank W. Alling, 510 Ethan Allen Avenue, Takoma Park 12, Maryland.
W4PLL Doyle D. Thompson, 3213 London Road, Greensboro, North Carolina.
W6VQB/KL7 David L. Thompson, Box 1519, Anchorage, Alaska.
W7UDV Philip D. Blewett, 2203 Wingate Lane, Billings, Montana.
W8PQD Robert R. Jones, 15 Kensington Boulevard, Pleasant Ridge, Michigan.
W8QJL George B. Risler, 13417 Crennell Avenue, Cleveland 5, Ohio.
W8WDO Lt.-Col. L. B. Knouse, U.S.A.F. Support Group, H.Q.A.A.F.C.E. (Logistics), Camp, Guynemer, Fontainebleau, S. & M., France.
W8YIN M. Unger, 8329, Hendrie Boulevard, Huntingdon Woods, Michigan.
WAZBH M. T. Levine, 33 Allen Road, Rockville Centre, New York.
WQVBK L. M. Divinia, 115 South Battin, Wichita 8, Kansas.
ZE6JR G. R. L. Roberts, 3 Hamilton Road, Fama, Bulawayo, Southern Rhodesia.
ZS5IO M. R. Timm, 54 Victoria Road, Pietermaritzburg, Natal, South Africa.
ZS6AMG K. C. Kinnear, P.O. Box 31, Stilfontein, Transvaal, South Africa.
5ASTO F. A. Vitringa, P.O. Box 638, Tripoli, Libya.
9K2AT H. Takeda, c/o Yusuf A. Alghanim & Co P.O. Box 223, Kuwait, Persian Gulf.

Corporate Member (Foreign Receiving Station)

- 297 Joseph D. Green, 3098 South 1730 East Street, Salt Lake City 6, Utah, U.S.A.

Associates

- 1703 J. R. Edwards, 8a Meadow Way, Great Park, Kings Langley, Herts.
1704 M. T. G. Powell, 28 Gledhow Avenue, Roundhay, Leeds 8, Yorks.
1705 A. R. Kilbee, 65 The Meadow, Cuffley.
1706 M. Shardlow, 20 Harewood Road, Allestree, N. Derby.
1707 C. H. Saunders, 3 Avenue Approach, Kings Langley, Herts.
1708 D. R. Hare, Station Road, Leadenham.
1709 L. Yeshin, 9 Foxley Close, Loughton, Essex.
1710 A. J. Baker, 13 Winifred Road, Poole.
1711 G. H. Gribble, 22 Berwick Drive, Crosby, Liverpool 23, Lancs.
1712 R. D. Harris, 12 Percy Road, Wrexham.
1713 D. E. Butler, 138 Divinity Road, Oxford.
1714 M. J. Codd, 20 Cromwell Road, Luton.
1715 G. M. Guard, 74 Princes Avenue, Woodford Green, Essex.

†Denotes Transfer to Corporate Grade.
‡Denotes previously a member.

(Continued on page 300)

Forthcoming Events

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

REGION 1

- Liverpool (L. & D.A.R.S.).—Tuesdays, 8 p.m., Gladstone Mission Hall, Queens Drive, Stoneycroft.
 Macclesfield.—December 16, 30, January 13, 27, 8 p.m., "The Bruce Arms," Crompton Road.
 Manchester (M. & D.R.S.).—January 5, 7.30 p.m., Brunswick Hotel, Piccadilly ("Amateur Radio in V4 Land," R. Lyder, VP4TM).
 Manchester (S.M.R.C.).—January 9 ("Conversion of Surplus Equipment" by F. Nicholls, G3MAX), Ladybarn House, Mauldeth Road, Manchester, 20.
 Preston (P.A.R.S.).—January 7, 21, 7.30 p.m., The Fruiters' Club, High Street. (No meeting on December 24).
 Wirral (W.A.R.S.).—December 19, January 2, 16, 7.45 p.m., No. 4, Hamilton Square, Birkenhead.

REGION 2

- Bradford (B.A.R.S.).—December 16 ("Resistor/Capacitor Bridges," A. R. Bailey, G3IBN), December 30 (Film Show), January 13 ("Mobile Operation," J. J. Platt G2VO), 7.30 p.m., Cambridge House, 66 Little Horton Lane.
 Heckmondwike (S.P.A.R.S.).—January 7, C.W.S. Library, Regent Street.
 Middlesbrough (T.S.A.R.C.).—January 23, 8 p.m., Settlement House, Newport Road ("Oscilloscopes," L. M. Arrowsmith).
 Sheffield (S.A.R.C.).—January 14, 7.30 p.m., Sheffield and Ecclesall Co-operative Stores (Annual Dinner, Principal Guest: Dr. T. R. Kaiser).

REGION 3

- Birmingham (M.A.R.S.).—December 16, Midland Institute, Paradise Street (Lecture/Demonstration). (Slade).—December 19, 7.45 p.m., Church House, High Street, Erdington ("Fun and Games"). (South).—December 19, 7.30 p.m. (Tape Recording and Hints and Tips).
 Coventry.—December 19, 7.30 p.m., Vine Street Schools (C.A.R.S.).—December 15, 7.30 p.m., 9 Queens Road (Junk Sale).
 Stourbridge & District (S.T.A.R.S.).—December 19, 8 p.m., White Horse, Ambicote (Christmas Party). January 6, 8 p.m., Brotherhood Hall, Scotts Road, Stourbridge (Talk or Film).

REGION 4

- Derby (D. & D.A.R.S.).—December 17, 24, 31, January 7 (Auction Sale Surplus Items), January 14, 7.30 p.m., Room 4, 119 Green Lane, Derby.
 Derby (S.W.E.P.S.).—Sundays 10.30 a.m., December 18, January 1, 8, 15, 7.30 p.m., Club Room, Nunfield House, Boulton Street, Alvaston.
 Leicester (L.R.S.).—December 15, 22, 29, January 5, 12, 7.30 p.m., Old Hall Farm, Braunston Lane, Leicester.
 Lincoln (L.S.W.C.).—December 24, January 7, 21, 7.30 p.m., Technical College, Cathedral Street.

REGION 6

- Cheltenham.—First Thursday in each month, 8 p.m., Great Western Hotel, Clarence Street.
 Oxford (O. & D.A.R.S.).—January 28, 7.30 p.m. ("Transistor Theory"), Club Room, Cherwell Hotel, Water Eaton Road (Meetings second and fourth Wednesdays in each month).

REGION 7

- Acton, Brentford & Chiswick.—December 16, 7.30 p.m. ("Operating for Beginners" by G6RC), A.E.U. Rooms, 66 High Road, Chiswick, January 20 (A.G.M.).
 Barnet (B. & D.R.C.).—December 30, 7.30 p.m., Red Lion Hotel, Barnet (Junk Sale).

- Bexleyheath (N.K.R.S.).—December 20 (Junk Sale), January 8 (Film Show), January 22 ("Power Pack Design," by S. C. Hasted G3BHF), Congregational Hall, Clock Tower, Bexleyheath.

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

- East London.—December 21, 2.30 p.m., Lambourne Room, Ilford Town Hall, Ilford, Essex (A.G.M. and Junk Sale).

- East Molesey (T.V.A.R.T.S.).—January 7, Carnarvon Castle Hotel, Hampton Court.

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

- Holloway (G.R.S.).—Mondays and Wednesdays (RAE and Morse), Fridays (Morse and Club), 7 p.m., Montem School, Hornsey Road, N.7.

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

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

- Norwood & South London.—First Tuesday in month (RAE and Morse classes), 7.30 p.m., January 17 (Demonstration of T.A. Mobile Army Radio Equipment), Windermere House, Westow Street, Crystal Palace.

- Romford (R. & D.A.R.S.).—December 16 ("Amplifier Design"), December 23 (Open Evening), December 30 (RAE Discussion), January 6 (A.G.M.), R.A.F.A. House, 18, Carlton Road, Romford Essex.

- South Kensington (C.S.R.S.).—January 6, 6 p.m. ("Capacitor Techniques and Peculiarities" by J. Lank, T.C.C. Ltd. with colour films), Lecture Hall, Science Museum, South Kensington, S.W.7.

- Sutton & Cheam.—December 16, 8 p.m., "The Harrow," Cheam Village, Surrey (Junk Sale).

REGION 8

- Brighton (B. & D.R.C.).—December 16 ("Radio through the Years," recorded lecture by Capt. P. P. Eckersley), December 23 ("DX Operating," C. T. Fairchild, G3YY), December 30, 8 p.m., The Eagle Inn, Gloucester Road.
 Gillingham (M.A.R.T.S.).—December 15, 29, 7.30 p.m., Viscount Hardinge Hotel, High Street.

REGION 9

- Bath.—January 19, 7.30 p.m., 12 James Street West, Bath.
 Bristol.—January 16 ("Principles and Practice of Frequency Measurement," D. V. Newport), February 6 (Film Show), 7.15 p.m., Cardine's Restaurant, Baldwin Street, Bristol.
 Torquay.—January 10, 7.30 p.m. ("Home Constructed Tape Recorder," R. D. Knapp), Y.M.C.A., Castle Road, Torquay.
 Yeovil.—December 24, 31, January 7, 14, 7.30 p.m., British Legion, Grove House, Preston Road, Yeovil.

REGION 11

- Prestatyn (F.R.S.).—January 8, 7.30 p.m., Railway Hotel, Prestatyn ("Looking Back," F. G. Southworth, GW2CCU).

REGION 12

- Aberdeen (A.A.R.S.).—December 19 ("Another Ham Sandwich," Christmas Party), January 2, 7.30 p.m., 6 Blenheim Lane.

REGION 13

- Edinburgh (L.R.S.).—December 18 ("Electronics in Industry"), January 8 ("Amateur Radio in the Antarctic," tape lecture), 7.30 p.m., 25 Charlotte Square.

REGION 14

- Falkirk.—December 19, 7.30 p.m., Temperance Cafe.
 Glasgow.—December 19, 7.30 p.m., Christian Institute, 70 Bothwell Street, C.2 (A.G.M. and Election of Committee).

REGION 17

- Oxford (O. & D.A.R.S.).—Second and fourth Wednesday in each month, 7.30 p.m., Club Room, Cherwell Hotel, Water Eaton Road, January 28 ("Transistor Theory").

New Members

(Continued from page 299)

Associates (continued)

- 1716 P. M. Tunbridge, 53 Stroud Green Road, Finsbury Park, London, N.4.
 1717 J. Rose, 63 Broomfield Road, Beckenham, 1718, M. C. Hewitson, 26 Cheriton Square, Balham, London, S.W.17.
 1719 M. Summerson, 15 Birch Street, Jarro, 1720 R. Groat, 7 Summerfield Place, Leith, Edinburgh 6, Scotland.
 1721 J. S. Kennedy, Bowen House Hotel, Trevone, Nr. Padstow, Cornwall.
 1722 T. R. Wiltshire, Sherwood, Meerut Road, Brockenhurst, Hants.
 1723 F. R. L. Brown, Red Hill Farm, St. Georges, Oakengates, Shropshire.
 1724 P. M. Sellis, 735 London Road, Dilmorton, Derby.
 1725 A. D. Empringham, G.P.O. Flat, Seaford, 1726 M. T. Healey, 31 Highlands Avenue, Hortham, Sussex.
 1727 L. J. Cull, Cotswold Cottage, Leckhampton Hill, Cheltenham, Glos.
 1728 P. A. Lammington, 39 St. Leonards Road, Harrogate, Yorks.
 1729 J. R. Forrest, Arbores, Portsmouth Road, Thames Ditton, Surrey.
 1730 R. Usher, 41 South Cliff Road, Kirton Lindsey, Gainsborough, Lincs.
 1731 T. T. Penney, 30 Compton Road, Winchmore Hill, London, N.21.
 1732 R. J. Avis, 62 Normandy Road, Worthing, Sussex.
 1733 S. J. M. Kempster, Trevone House, Trevone, near Padstow, Cornwall.
 1734 G. N. Preece, 42 Wish Hill, Eastbourne.
 1735 J. W. Allchin, 47 Sutton Drive, Seaford, Sussex.
 1736 R. I. Buckby, 55 Cupar Crescent, Corby, Northants.
 1737 G. N. Bath, 182 Bishopsgate Road, Luton, 1738 D. V. Orchard, 28 Leyborne Park, Kew, Richmond, Surrey.
 1739 T. B. Beadman, 7 Huntley Road, Woodston, Peterborough, Northants.
 1740 R. E. Pulling, 15 Barlow Street, Liverpool 4, 1741 N. D. Burdick, 2 Faircroft, Croft Hill Road, Slough.
 1742 P. M. Brown, 39 Fencote Crescent, Fagley, Bradford, 2.
 1743 D. Willis, 35 Kingsfield Avenue, North Harrow, Middx.
 1744 W. A. F. Davidson, Netherkirk, Galston, Ayrshire.
 1745 J. W. Selwood, 57 Albany Road, Chorltoncum-Hardy, Manchester 21.
 1746 J. R. Kay, 6 Westerbrook Park Road, Woodston, Peterborough, Northants.
 1747 R. C. Whattam, 18 Danum Road, Scunthorpe, Lincs.
 1748 A. G. Yates, 64 Symington Road, Fishponds, Bristol.
 1749 D. P. Stephenson, 64 Actwyl Avenue, Exeter.
 1750 P. Rose, 51 St. Edmundsbury Road, North Lynn, Kings Lynn, Norfolk.
 1751 T. A. Phillips, 40 Kingsway, Penwortham, Preston.
 1752 Hong Soo Koo, 210-12 Jurong Road, Singapore 21.
 1753 D. F. Gorrill, 1 Kipling Close, Pound Hill, Crawley, Sussex.
 1754 R. D. Jones, 68 Prenton Road East, Birkenhead.
 1755 B. A. Humphries, 34 Wetherby Road, Leeds, 8.

DATES FOR YOUR DIARY

1959

- January 23.—Presidential Address.
 February 27.—London Lecture Meeting.
 March 20.—London Lecture Meeting.
 April 12.—Blackpool O.R.M.
 April 26.—North Midlands Mobile Rally.
 June 14.—Longleat Mobile Rally.

County Representatives

THE following is a list of Corporate Members who have been duly nominated to serve as County (or District) Representatives for two years as from January 1, 1959.

REGION 1—NORTH WESTERN

LANCASHIRE EAST

M. BARNESLEY (G3HZM), 11 Cemetery Road, Denton, Lancs.

CHESHIRE

L. N. GOLDSBROUGH (G3ERB), 54 Kings Lane, Bebington.

REGION 2—NORTH EASTERN

YORKSHIRE WEST

R. M. STRICKLAND (G8KB), 733 Worrall Road, Worrall.

REGION 4—WEST MIDLANDS

DERBYSHIRE

T. DARN (G3FGY), 44 Laurel Avenue, Ripley.

LEICESTERSHIRE

W. A. MEAD (G5YY), 82 Edward Avenue, Braunstone, Leicester.

NORTHAMPTONSHIRE

L. CRITCHLEY (G3EEL), 34 West Parade, Peterborough.

REGION 7—LONDON

LONDON NORTH

J. DOUGLAS KAY (G3AAE), 18 Fairfield Way, Barnet, Herts.

LONDON SOUTH

W. D. GILMOUR (G2VB), 35 Grangecliffe Gardens, London, S.E.25.

REGION 9—SOUTH WESTERN

Bristol

F. H. CHAMBERS (G2FYT), 25 The Crescent, Henleaze, Bristol.

DEVONSHIRE

B. C. MUNRO (G3FLK), 43 Prospect Park, Exeter.

REGION 10—SOUTH WALES

GLAMORGANSHIRE

H. G. HUGHES (GW4CG), Clyne, Austin Avenue, Newton, Porthcawl.

REGION 13—SCOTLAND SOUTH EASTERN

East, Mid. and West Lothian

REV. WALTER M. FERRIER (GM3BDA), Manse of St. Andrew, North Berwick, East Lothian.

REGION 14—SCOTLAND WESTERN

Ayrshire, Bute, Dumfries, Kircudbright and Wigtownshire

D. A. MACQUEEN (GM4PW), 3 Ayr Road, Prestwick, Ayrshire.

Representation

IN recent years the towns of Bedford and Shefford have functioned under one T.R. Recently members in Bedford have expressed a wish that they should appoint their own T.R. The suggestion has met with the approval of the present Shefford-Bedford T.R. and the Regional Representative.

Corporate Members residing in Bedford are therefore invited to put forward a nomination in accordance with the requirements set out on page 142 of the September 1957 issue of the R.S.G.B. BULLETIN. The closing date for nominations is December 31, 1958.

As Messrs. F. H. Chambers (G2FYT) and H. G. Hughes (GW4CG) have been nominated as County Representatives, vacancies will shortly exist for the office of Town Representative for Bristol and Port Talbot respectively. Nominations for their successors should be made in the prescribed form and sent to reach the General Secretary by not later than January 31, 1959.

Amendment

The name and address of the Town Representative for Croydon is R. A. Hislop (B.R.S. 20162), 40 Benhurst Gardens, Selsdon, and not as published in the November issue.

Can You Help?

● R. Ward (A.1401), 71 Abbotsbury Gardens, Eastcote, Pinner, Middlesex, who requires the circuit diagram and the number of the barretter for the Decca type 66 pre-war receiver, and the connections for the transformer in the McMichael Model 135 receiver?

● H. H. Thompson (G2FXK), West Hill Cottage, West Knoyle, Warminster, Wiltshire, who requires the handbooks or other details of the B639A receiver and the Cossor double beam oscilloscope model 339?

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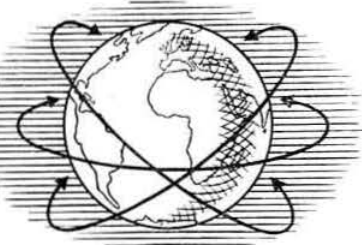
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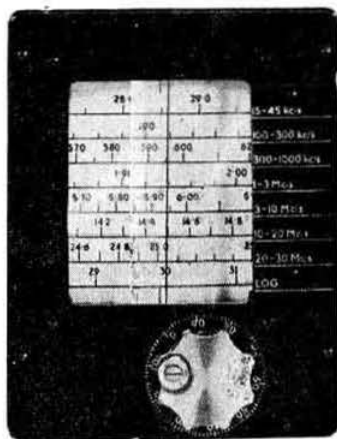
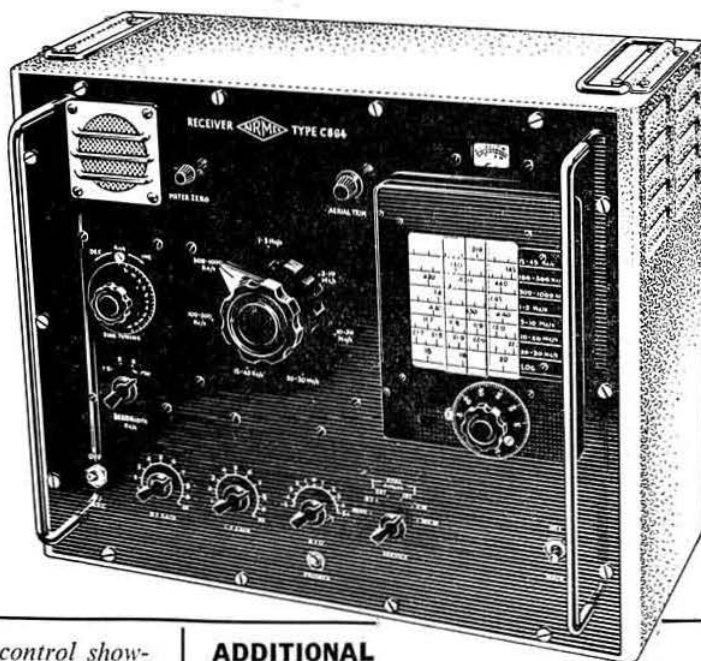
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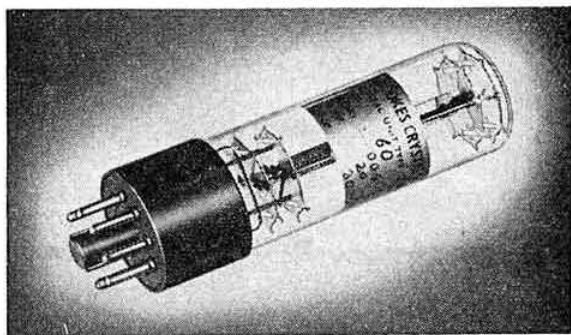


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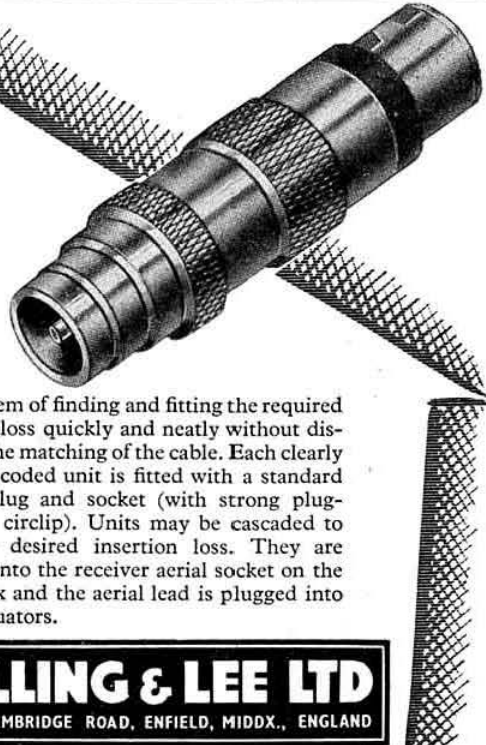
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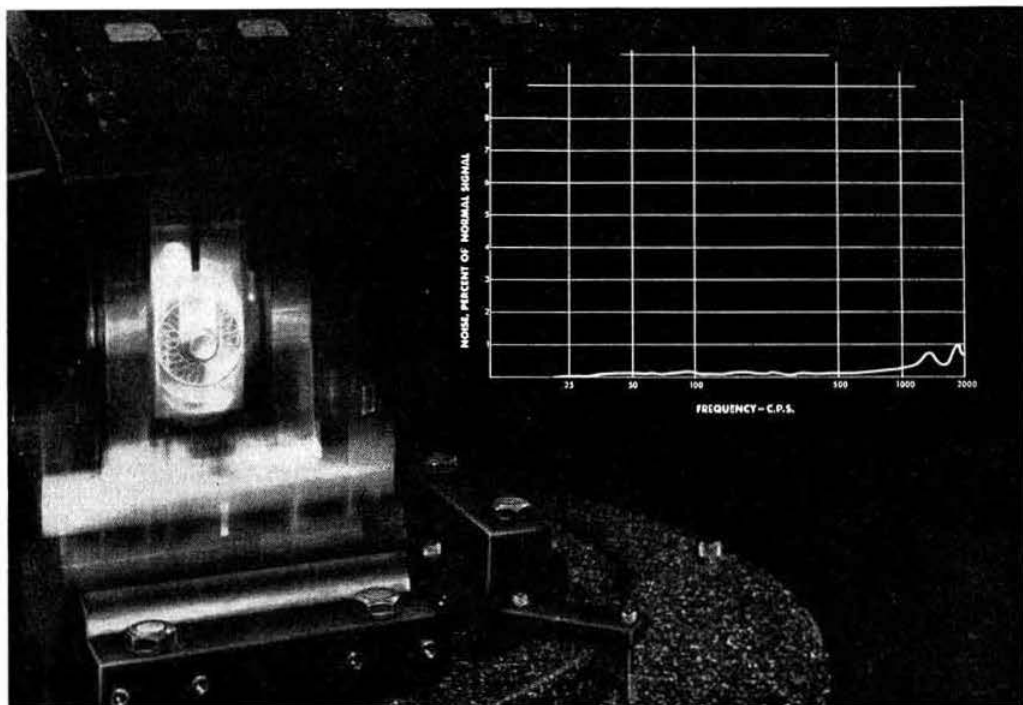
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With vol./control and 600 ohm Line Trans. 27/6. P.P. 2/6.

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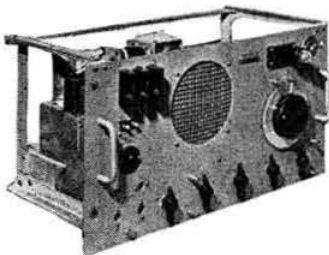
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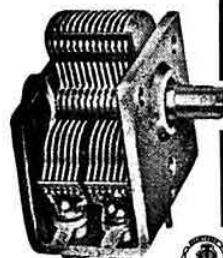
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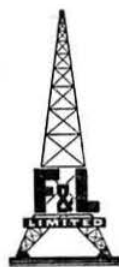
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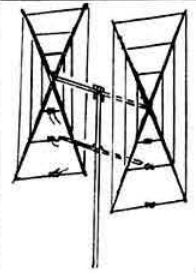
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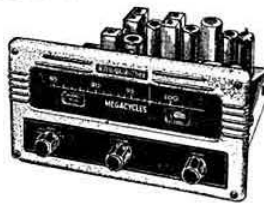
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continued on page 312

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